

In the Privy Council

ON APPEAL FROM THE EXCHEQUER COURT
OF CANADA

BETWEEN :

BURRARD INLET TUNNEL AND BRIDGE COMPANY
Plaintiff (Respondent),

AGAINST :

THE S. S. "EURANA"
Defendant (Appellant).

Record of Proceedings

BURNS, WALKEM & THOMSON,
Solicitors for the (Plaintiff) Respondent.

GRIFFIN, MONTGOMERY & SMITH,
Solicitors for the (Defendant) Appellant.

INDEX

No.	DESCRIPTION OF DOCUMENT	Date	Page
PART I. IN THE BRITISH COLUMBIA ADMIRALTY DISTRICT			
1	Endorsement on Writ.....	Apr. 4, 1927.....	1
2	Statement of Claim.....	Sep. 16, 1927.....	2
3	Demand for Particulars of Statement of Claim.....	Sep. 23, 1927.....	4
4	Particulars of Statement of Claim.....	Feb. 3, 1928.....	4
5	Defence and Counterclaim.....	Apr. 13, 1928.....	5
6	Demand for Particulars of Defence and Counterclaim.....	June 6, 1928.....	9
7	Particulars of Defence and Counter- claim	Aug. 14, 1928.....	10
8	Reply and Defence to Counterclaim.....	June 12, 1928.....	11
9	Demand for Particulars of Reply.....	Sep. 11, 1928.....	15
10	Particulars of Reply.....	Sep. 17, 1928.....	15
11	Interrogations to be answered by Plaintiff	Sep. 12, 1928.....	16
12	Plaintiff's answers to Interrogations	Sep. 22, 1928.....	18
13	Judgment, Martin, Local J. A.....	Apr. 22, 1929.....	766
14	Reasons for Judgment of Martin, Local, J. A.....	Apr. 22, 1929.....	767

II

INDEX—Continued

No.	DESCRIPTION OF DOCUMENT	Date	Page
	IN THE EXCHEQUER COURT OF CANADA		
15	Notice of Appeal	June 15, 1929.....	779
16	Judgment of the President.....	Dec. 7, 1929.....	780
17	Reasons for Judgment of the President	Dec. 7, 1929.....	781
18	Notice of Appeal to Privy Council.....	Jan. 4, 1930.....	792
19	Order granting leave to appeal to Privy Council and approving security	Mar. 17, 1930.....	793
20	Registrar's Certificate.....		837
	PLAINTIFF'S CASE		
	F. G. Tennant:		
	In Chief.....	Sep. 26, 1928.....	33
	Cross-examination	Sep. 26, 1928.....	40
	H. R. Jones:		
	In Chief.....	Sep. 26, 1928.....	42
	Cross-examination	Sep. 26, 1928.....	52
	Re-Direct Examination.....	Sep. 26, 1928.....	61
	Andrew Don Swan:		
	In Chief.....	Nov. 29, 1928.....	383
	Cross-examination	Nov. 29, 1928.....	414
	Andrew Don Swan (Recalled) :.....		
	In Chief.....	Dec. 3, 1928.....	550
	Cross-examination	Dec. 3, 1928.....	559
	Donald Cameron:		
	In Chief.....	Dec. 4, 1928.....	597
	Cross-examination	Dec. 4, 1928.....	611
	Re-examination	Dec. 4, 1928.....	631

III

INDEX—Continued

No.	DESCRIPTION OF DOCUMENT	Date	Page
	Ivan Johnstone Cameron:		
	In Chief.....	Dec. 4, 1928.....	635
	Cross-examination	Dec. 4, 1928.....	639
	Frederick Maddison:		
	In Chief.....	Dec. 4, 1928.....	642
	Cross-examination	Dec. 5, 1928.....	650
	Jas. Cox Loutet:		
	In Chief.....	Dec. 5, 1928.....	666
	Geo. Samuel Hanes:		
	In Chief.....	Dec. 5, 1928.....	671
	Cross-examination	Dec. 5, 1928.....	683
	Alex. L. McNaughton:		
	In Chief.....	Dec. 5, 1928.....	684
	Cross-examination	Dec. 5, 1928.....	694
	Geo. S. Hanes (Recalled):		
	In Chief.....	Dec. 5, 1928.....	694
	Cross-examination	Dec. 5, 1928.....	698
	Arth. C. Whitehouse:		
	In Chief.....	Dec. 5, 1928.....	707
	Cross-examination	Dec. 5, 1928.....	708
	Sydney C. Hayden:		
	In Chief.....	Dec. 5, 1928.....	709
	Cross-examination	Dec. 5, 1928.....	710
	Re-examination	Dec. 5, 1928.....	713
	Robt. Alex. Batchelor:		
	In Chief.....	Dec. 5, 1928.....	715
	Cross-examination	Dec. 5, 1928.....	719
	Chas. Francis Tracey:		
	In Chief.....	Dec. 6, 1928.....	731
	Cross-examination	Dec. 6, 1928.....	734
	Fred G. Tennant (Recalled):		
	In Chief.....	Dec. 6, 1928.....	736

INDEX—*Continued*

No.	DESCRIPTION OF DOCUMENT	Date	Page
	Robt. Hubert Johnson:		
	In Chief.....	Dec. 6, 1928.....	739
	Cross-examination	Dec. 6, 1928.....	740
	Re-examination	Dec. 6, 1928.....	742
	Bruce Watson:		
	In Chief.....	Dec. 6, 1928.....	744
	Cross-examination	Dec. 6, 1928.....	745
	DEFENDANT'S CASE		
	Walter Wingate:		
	In Chief.....	Sep. 26, 1928.....	71
	Cross-examination	Sep. 26 1928.....	80
	Re-examination	Sep. 27, 1928.....	86
	James Wm. Hermon:		
	In Chief.....	Sep. 27, 1928.....	117
	Ern. Albert Cleveland:		
	In Chief.....	Sep. 27, 1928.....	119
	Cross-examination	Sep. 27, 1928.....	122
	John F. Bruce:		
	In Chief.....	Sep. 27, 1928.....	123
	Cross-examination	Sep. 27, 1928.....	142
	John F. Payne:		
	In Chief.....	Sep. 28, 1928.....	171
	Cross-examination	Sep. 28, 1928.....	173
	Wm. Tamburino:		
	In Chief.....	Sep. 28, 1928.....	180
	Cross-examination	Sep. 28, 1928.....	181
	Mrs. Jennie Taylor:		
	In Chief.....	Sep. 28, 1928.....	181
	Cross-examination	Sep. 28, 1928.....	183
	Arch. Heurtley Reed:		
	In Chief.....	Sep. 28, 1928.....	189
	Cross-examination	Sep. 28, 1928.....	194
	Re-examination	Sep. 28, 1928.....	204

INDEX—Continued

No.	DESCRIPTION OF DOCUMENT	Date	Page
	Thos. Salter Guns:		
	In Chief.....	Sep. 28, 1928.....	205
	Cross-examination	Sep. 28, 1928.....	213
	James Brown:		
	In Chief.....	Sep. 28, 1928.....	220
	Cross-examination	Oct. 1, 1928.....	225
	Thos. Salter Guns (Recalled):		
	In Chief.....	Oct. 1, 1928.....	235
	Cross-examination	Oct. 1, 1928.....	236
	Nels C. Svane:		
	In Chief.....	Oct. 1, 1928.....	239
	Cross-examination	Oct. 1, 1928.....	244
	H. W. G. Harrison:		
	In Chief.....	Oct. 1, 1928.....	255
	Cross-examination	Oct. 1, 1928.....	257
	G. H. Dougherty:		
	In Chief.....	Oct. 1, 1928.....	259
	Cross-examination	Oct. 1, 1928.....	260
	Robt. Wm. McNeill:		
	In Chief.....	Oct. 1, 1928.....	261
	Cross-examination	Oct. 1, 1928.....	265
	Alf. E. Lewis:		
	In Chief.....	Oct. 1, 1928.....	270
	Cross-examination	Oct. 1, 1928.....	273
	Thos. Manson:		
	In Chief.....	Oct. 1, 1928.....	276
	Cross-examination	Oct. 1, 1928.....	279
	Chas. B. Smith:		
	In Chief.....	Oct. 1, 1928.....	284
	Cross-examination	Oct. 1, 1928.....	287
	Thos. Leonard Higgs:		
	In Chief.....	Nov. 28, 1928.....	297
	Cross-examination	Nov. 28, 1928.....	300

INDEX—Continued

No.	DESCRIPTION OF DOCUMENT	Date	Page
	Daniel Clinton:		
	In Chief.....	Nov. 28, 1928.....	308
	Cross-examination	Nov. 28, 1928.....	315
	Andrew Sinclair:		
	In Chief.....	Nov. 28, 1928.....	328
	Cross-examination	Nov. 28, 1928.....	330
	Charles Arenberg:		
	In Chief.....	Nov. 28, 1928.....	335
	Cross-examination	Nov. 28, 1928.....	348
	Edw. Lewis McKay:		
	In Chief.....	Nov. 28, 1928.....	349
	Cross-examination	Nov. 28, 1928.....	354
	Charles Clarkson:		
	In Chief.....	Nov. 28, 1928.....	360
	Cross-examination	Nov. 28, 1928.....	361
	Robert McMurray:		
	In Chief.....	Nov. 29, 1928.....	362
	Cross-examination	Nov. 29, 1928.....	363
	Thomas Thomson:		
	In Chief.....	Nov. 29, 1928.....	364
	Cross-examination	Nov. 29, 1928.....	371
	John Douglas Stalker:		
	In Chief.....	Nov. 30, 1928.....	469
	Cross-examination	Nov. 30, 1928.....	475
	Jas. Wm. Hermon (Recalled):		
	In Chief.....	Nov. 30, 1928.....	488
	Hugh Muckleston:		
	In Chief.....	Dec. 3, 1928.....	495
	Cross-examination	Dec. 3, 1928.....	508
	Re-examination	Dec. 3, 1928.....	525
	Alf. Douglas Creer:		
	In Chief.....	Dec. 3, 1928.....	529
	Cross-examination	Dec. 3, 1928.....	539

VII

INDEX—*Continued*

No.	DESCRIPTION OF DOCUMENT	Date	Page
	William Young:		
	In Chief.....	Dec. 3, 1928.....	542
	Cross-examination	Dec. 3, 1928.....	546
	Hugh Muckleston (Recalled):		
	In Chief.....	Dec. 4, 1928.....	593
	Cross-examination	Dec. 4, 1928.....	594
	Hugh Muckleston (Recalled):		
	In Chief.....	Dec. 6, 1928.....	749
	Cross-examination	Dec. 6, 1928.....	752
	Thos. S. Guns:		
	In Chief.....	Dec. 6, 1928.....	754
	Cross-examination	Dec. 6, 1928.....	757
	Robt. Wm. McNeill:		
	In Chief.....	Dec. 6, 1928.....	761
	Cross-examination	Dec. 6, 1928.....	762
	Alf. Elmer Lewis (Recalled):		
	In Chief.....	Dec. 6, 1928.....	762
	Cross-examination	Dec. 6, 1928.....	763
	PART II.		
	EXHIBITS		
	(Plans, Photographs and Tide Table in a folder separately).		
1	Order-in-Council No. 1395.....	June 10, 1913.....	804
	Order-in-Council No. 718.....	Apr. 25, 1923.....	803
2	Plan referred to in Order-in-Council No. 718.....	Apr. 25, 1923.....	Folder
3	Order No. 33948 of Railway Commis- sioners approving general location of bridge	July 24, 1923.....	806
3a	Plan referred to in Ex. 3.....	July 24, 1923.....	Folder

VIII

INDEX—*Continued*

No.	DESCRIPTION OF EXHIBIT	Date	Page
4	Order No. 33950 of Railway Commissioners approving plan profile and book of reference of Plaintiff's railway	July 30, 1923.....	812
4a	Plan and profile referred to in Ex. 4.....	July 30, 1923.....	Folder
5	Construction Order No. 33962 of Railway Commissioners.....	July 31, 1923.....	813
6	Grant from Crown to Plaintiff.....	May 9, 1924.....	816
7	Admiralty Chart of Vancouver Harbour No. 922.....	Oct., 1922.....	Folder
8	Vancouver Harbour Commissioners' plan	May 8, 1925.....	Folder
9	Vancouver Harbour Commissioners' plan of Vancouver Harbour.....	Aug., 1922.....	Folder
10	Tide Tables	1927.....	Folder
11	Pilotage Certificate of Capt. H. R. Jones	Feb. 1, 1916.....	796
12	Detail plan of Piers 3 and 4.....	June 28, 1923.....	Folder
13	Vancouver Harbour Commissioners' plan (Ex. 8) with 5-fathom line and fill marked on it.....	May 8, 1925.....	Folder
14	Tide Tables, 1928.....	(Omitted by consent)	
15	Harbour Commissioners' map of Vancouver Harbour.....	1928.....	Folder
16	Canadian Chart of Soundings at 2nd Narrows (by Parizeau).....	1925.....	Folder
17	Hermon & Cameron's joint soundings plan	Nov. 19, 1924.....	Folder

INDEX—Continued

No.	DESCRIPTION OF EXHIBIT	Date	Page
18	Plan of bridge Piers and Fill as at 12 Feb., 1925, prepared by Hermon & Hermon.....	Feb. 12, 1925.....	Folder
19	Copy of Exhibit 13.....	May 8, 1925.....	Folder
20	Canadian Bridge Co's plan for swing bridge	May 12, 1914.....	Folder
21	Sir John Wolffe-Barry's plan for swing bridge. (Omitted by consent)	July, 1913.....	
22	Plan of elevation of bridge prepared by Vancouver Harbour Commissioners	Feb. 6, 1928.....	Folder
23	Notice to Mariners No. 76 of 1925, setting out the traffic regulations for bridge.....	1925.....	819
24	List showing damages suffered by ships of Imperial Oil Ltd.....	May 1, 1928.....	836
26	Order-in-Council No. 1310.....	Aug. 20, 1925.....	828
27	Plan referred to in Ex. 26.....	Mar. 10, 1925.....	Folder
28	Plan referred to in Ex. 26.....	Mar. 10, 1925.....	Folder
29	Plan referred to in Ex. 26.....	Mar. 10, 1925.....	Folder
30	Order No. 36317 of Board of Railway Commissioners	Mar. 6, 1925.....	826
30a	Plan V. 149 referred to in Ex. 30.....		Folder
30b	Plan V. 148 referred to in Ex. 30.....		Folder
30c	Plan V. 147 referred to in Ex. 30.....		Folder
31	Order No. 36996 of Board of Railway Commissioners	Oct. 31, 1925.....	831
32	Original plan of bridge referred to in Order-in-Council No. 1395 (Exhibit 1)	June 10, 1913.....	Folder

INDEX—Continued

No.	DESCRIPTION OF EXHIBIT	Date	Page
33	Waddell & Harrington's plan of lift bridge	Dec. 8, 1913.....	Folder
34	Plan of bridge referred to in Exhibit 5	May 16, 1923.....	Folder
35	Supplemental contract between Plaintiff and Northern Construction Construction Co.....	Mar. 5, 1924.....	814
36	Northern Construction Co's plan of swing bridge deposited in Land Registry Office, Vancouver, B. C., on 24 Jan., 1923 by Plaintiff under Navigable Waters Protection Act.	Jan. 24, 1923.....	Folder
37	Letter, Burns & Walkem, Plaintiff's Solicitors to Public Works Dept., enclosing Exhibit 2.....	Jan. 22, 1923.....	801
38	Telegram Burns & Walkem, Plaintiff's Solicitors to Public Works Dept., applying for approval of Bridge plan.....	Feb. 16, 1923.....	802
39	Notice to Mariners No. 80 of 1925 as to time of slack water at bridge.....	1925.....	821
40	Letter, Plaintiff to Vancouver Harbour Commissioners submitting plan for approval.....	June 27, 1923.....	804
41	Photo of South end of bridge.....	Oct. 5, 1925.....	Folder
42	Air photo of bridge.....		Folder
43	Photo of bridge taken from the North shore		Folder
44	Contract re. preparation of plans for bridge, between Plaintiff and Northern Construction Co.....	Sep. 26, 1922.....	796

INDEX—*Continued*

No.	DESCRIPTION OF DOCUMENT	Date	Page
45	Supplemental contract between the Plaintiff and Northern Construction Co. as to the raising of the bridge 5 feet.....	Feb. 20, 1925.....	823
46	Contract between the Plaintiff and Northern Construction Co. as to the construction of the bridge.....	July 25, 1923.....	807
47	Copy of Exhibit 2, with Fill shown in colour by witness Muckleston.....	Apr. 25, 1923.....	Folder
48	Swan's plan of footing of bridge pier		Folder
49	Supplemented contract between the Plaintiff and Northern Construction Co.....	Feb. 1, 1923.....	801
50	Letter, Plaintiff to Board of Railway Cnmmissioners	June 27, 1923.....	805
51	Letter, E. A. James to Plaintiff.....	Jan. 14, 1925.....	822
52	Letter, E. A. James to Plaintiff.....	Mar. 19, 1925.....	827
53	Float used by Cameron on test of 13th Sept, 1928 (filed in Trial Court).....		
54	Float used by Cameron on subsequent days (filed in Trial Court).....		
55	Dominion Bridge Co's plan of swing bridge		Folder
56	Letter, Cleveland and Cameron to Plaintiff	Mar. 16, 1912.....	794
57	Metal Indicator (filed in Trial Court)		
58	Hanes' plan of South end of bridge.....	Sep. 29, 1928.....	Folder

INDEX—*Continued*

No.	DESCRIPTION OF EXHIBIT	Date	Page
59	Copy of Exhibit 16—Parizeau's chart with markings by Geo. S. Hanes.....	1925.....	Folder
60	Copy of Exhibit 16—Parizeau's chart with lines plotted by Hanes.....	1925.....	Folder
61	Hanes' cross-section of 2nd Narrows		Folder
62	Chart and memorandum of tidal velocity on Oct. 20th, 1928.....	Oct. 31, 1928.....	Folder
63	Photos of Bridge during construction	Feb. 27, 1925..... Apr. 28, 1925.....	Folder Folder
64	Hanes' plan of bed of footing of pier	Dec. 27, 1927.....	Folder
65	Notice to Mariners No. 18 of 1928.....	Apr. 21, 1928.....	832

Portions of Record which the Appellant objected to being included on the ground that they were unnecessary or irrelevant.

- (a) The testimony of Nine of the Ten Pilots called by Appellant.
- (b) The testimony of Two of the three Small Boat Masters (Higgs, Harrison and Stalker).
- (c) All the testimony as to the navigation of the "Eurana" including that of the witnesses, Tennant and Jones, and part of Payne, Tamburino, Dougherty and Mrs. Taylor.
- (d) Discussion on various points not involved in the present appeal (as per list sent by Appellant's Solicitor to Respondent's Solicitor) to a total of approximately pages.
- (e) The following Exhibits: 3A, 4A, 8, 9, 12, 13, 19, 20, 21, 28, 29, 30A, 30B, 55, 59, 60, 61, 62, 64.

Exchequer Court of Canada
BRITISH COLUMBIA ADMIRALTY DISTRICT

RECORD
British Columbia
Admiralty Dist.
No. 1
Endorsement
on Writ.
April 4, 1927.

BETWEEN :

THE BURRARD INLET TUNNEL AND BRIDGE
COMPANY,

Plaintiff,

AND

THE S. S. "EURANA"

Defendant.

PART I.

10

No. 1

ENDORSEMENT ON WRIT

The plaintiff, as owner of the bridge crossing the Second Narrows of Burrard Inlet, claims damages against the ship "Eurana" occasioned by a collision which took place at the Second Narrows of Burrard Inlet on the 10th day of March, 1927, and for costs.

RECORD

*British Columbia
Admiralty Dist.*

No. 2

Statement of
Claim.

Sept. 16, 1927.

No. 2

STATEMENT OF CLAIM

Writ issued April 4th, 1927.

1. The plaintiff is a body corporate under the laws of the Dominion of Canada having its registered office in the City of North Vancouver, in the Province of British Columbia, and is the owner of a joint railway and traffic bridge crossing the Second Narrows of Burrard Inlet, in the Province of British Columbia.

2. Shortly after 6 p.m. on the 10th March, 1927, the S.S. 10 "Eurana," outward bound from Barnet, approached the bridge crossing the Second Narrows of Burrard Inlet above described and gave the required signal for the bascule span of the said bridge to be raised so as to permit the passage of the said ship through the bridge. The operator in charge of the said bridge immediately displayed the red light required by the regulations of the Department of Marine and Fisheries governing the operation of the bridge and proceeded forthwith to raise the said span. About six minutes after the first signal was received from the "Eurana" the bascule span was completely raised, thus permit- 20
ting the uninterrupted passage of the "Eurana" through the bridge, and the operator displayed a green signal, the indication that the passage was clear.

3. A few minutes later the "Eurana" crashed head-on into the bridge, striking the east side of the 300 foot span and causing considerable damage to the said bridge.

4. At the time of the said collision the tide was on the ebb nearly slack.

5. The said collision, and the damages and losses consequent thereon, were occasioned by the negligent or improper navigation 30
of those on board the "Eurana."

6. The plaintiff has suffered damage as a result of the said collision, particulars of which are as follows:—

	Structural and repair work.....	\$7,000.00	
	Consulting engineer's fees on above.....	350.00	
	Extra materials supplied by plaintiff during progress of work.....	34.30	
	Brass ruby navigation lamp.....	35.00	
	Painting of hand railing.....	10.00	
10	Extra labor directing traffic along single roadway	127.75	
	Estimated loss of revenue.....	330.00	
		<hr/>	
		\$7,887.05	
		<hr/>	

RECORD
British Columbia
Admiralty Dist.
No. 2
Statement of
Claim.
Sept. 16, 1927.
(Contd.)

7. The plaintiff claims:

1. A declaration that it is entitled to the damage proceeded for.
2. The condemnation of the defendant in such damage and in costs.
- 20 3. Such further or other relief as the nature of the case may require.

DATED at Vancouver, B. C., this 16th day of September, A.D. 1927.

"Knox Walkem,"
Solicitor for the Plaintiff.

To the Defendant:
And to W. Martin Griffin, Esq.,
Its Solicitor.

RECORD

*British Columbia
Admiralty Dist.*No. 3
Demand for
Particulars.
Sept. 23, 1927.

No. 3

September 23rd, 1927.

DEMAND FOR PARTICULARS

H.

Messrs. Burns & Walkem,
Barristers, etc.
Standard Bank Building,
Vancouver, B. C.

Dear Sirs:—

Re Burrard v "Eurana."

10

We should be glad if you would let us have particulars of the statement of claim as follows:—

Paragraph 1 of Statement of Claim: Particulars of the Act under which this company is incorporated.

Par. I: Particulars of what title you claim to the bridge.

Yours truly,

GRIFFIN, MONTGOMERY & SMITH,

No. 4
Particulars of
Statement of
Claim.
Feb. 3, 1928.

No. 4

PARTICULARS OF STATEMENT OF CLAIM

20

In answer to the defendant's demand for particulars herein the plaintiff says:

1. The Plaintiff is incorporated under Chapter 74, Statutes of Canada, 1910.

3. The plaintiff's title to the bridge is derived from Order No. 33962 of the Board of Railway Commissioners of Canada dated the 31st day of July, 1923, and from a certain conveyance from His Majesty the King in the right of the Dominion of Canada dated the 9th day of May, 1924.

DATED this 3rd day of February, A. D. 1928.

30

"Knox Walkem,"

Solicitor for the Plaintiff.

STATEMENT OF DEFENCE OF PLANET LINE INC.,
OWNERS OF S. S. "EURANA."

RECORD

*British Columbia
Admiralty Dist.*

No. 5
Defence and
Counterclaim.
Apr. 13, 1928.

1. The defendant admits that the plaintiff is a body corporate incorporated on 4th May, 1910, by Chapter 74 of the Statute of Canada passed in the year 1910.

2. In and by said Statute the plaintiff acquired the capacity, status and power to build and to build only such a bridge over the Second Narrows as would not interfere with navigation and
10 plaintiff has the capacity, status and power to build, own and maintain only such a bridge as will not interfere with navigation.

3. The bridge referred to in the statement of claim interfere with the navigation of the Second Narrows and the plaintiff never had and has not now the capacity or status or power either to build, own or maintain it or to maintain any action in respect of it or to recover damages in respect of injury sustained by it, or to apply for or accept the grant from His Majesty the King hereinafter mentioned or to make any application to or receive
20 any permissions from any government or authority under the Navigable Waters Protection Act or any other Act or otherwise in respect of such a bridge, and the defendant denies that the plaintiff is the owner of the said bridge as alleged in paragraph 1 of the statement of claim.

4. In the alternative and as a further defence the defendant says that the said bridge is a work within the meaning of Part I of the Navigable Waters Protection Act of Canada and is built across a navigable water and the site was not, before the building of the said bridge, or at all, approved by the Governor General of Canada in Council in accordance with the said Act nor was
30 said bridge built or placed, nor at the time of the collision referred to in the statement of claim was it being maintained in accordance with plans and regulations approved or made under or pursuant to said Act, by the Governor General of Canada in Council.

5. In consequence of the site of said bridge not having been approved in accordance with said Act and in consequence of the fact that it was not built, placed and maintained in accordance with plans and regulations as set out in the preceding paragraph hereof the said bridge was an unlawful and illegal obstruction

RECORD
British Columbia
Admiralty Dist.
 No. 5
 Defence and
 Counterclaim.
 Apr. 13, 1928.
 (Contd.)

to public and private right of navigation and the plaintiff is not entitled to recover damages resulting from injury sustained by said bridge in consequence of collisions with vessels legally navigating the Second Narrows and is therefore not entitled to recover damages in respect of the collision in question.

6. In order to obtain the site upon which certain portions of said bridge are constructed the plaintiff applied to His Majesty the King in right of the Dominion of Canada for a grant of certain portions of the bed of the Harbour of Vancouver and obtained a conditional grant of certain lands from His Majesty the King on the express condition that no work within the meaning of Part I of the Navigable Waters Protection Act should be undertaken or constructed on the said lands or any of them by the plaintiff or should be suffered or allowed by the plaintiff to be constructed thereon until the provisions of said Part I of said Act should have been fully complied with by the plaintiff and the free use, passage and enjoyment of all navigable waters flowing over or upon said lands was expressly excepted and reserved from said grant. 10

7. The said bridge is a work within the meaning of said Part I of said Act and the plaintiff has not complied with said Act and therefore the said grant did not operate to vest any title to said lands in the plaintiff, or alternatively, upon the commencement of the construction of said bridge by the plaintiff the said grant was avoided and became null and the bridge was not and is not the property of the plaintiff but on the contrary is an illegal obstruction to navigation of the said Second Narrows and the plaintiff has no right to recover damages in respect to any injury to said bridge. 20

8. In the alternative the defendant says that if the aforesaid statute under which the plaintiff company was incorporated did confer on the plaintiff company the capacity, status and power to build a bridge which impedes or interferes with the navigation of the Second Narrows (all of which is denied) the said statute imposed on the plaintiff the duty to build with all necessary skill and care a bridge of such design and constructed in such manner as would impede said navigation to the smallest extent compatible with the exercise of said statutory power and the defendant says that the plaintiff in breach of the said duty negligently and wrongfully constructed a badly designed bridge which impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary for the proper exercise of the plaintiff's said statutory powers and the defendant says that the collision between the S. S. "Eurana" and the said bridge was occasioned by the fact that the said bridge was badly designed 30 40

and constructed and impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary to enable the plaintiff to exercise its said statutory powers and that therefore the plaintiff is not entitled to recover damages in respect of said collision.

RECORD
 British Columbia
 Admiralty Dist.
 No. 5
 Defence and
 Counterclaim.
 Apr. 13, 1928.
 (Contd.)

9. The defendant admits that on the 10th March, 1927, the S. S. "Eurana" outward bound from Barnet approached the said bridge and gave the required signal for the bascule span of the said bridge to be raised so as to permit the passage of the said ship through the bridge. The defendant does not admit that it was shortly after 6 p.m. Save as aforesaid the defendant denies each and every allegation of fact contained in paragraph 2 of the statement of claim.

10. The defendant admits that the S. S. "Eurana" was in collision with the east side of the bridge but save as aforesaid denies each and every allegation of fact contained in paragraph 3 of the statement of claim.

11. The defendant denies the allegation in paragraph 4 of the statement of claim.

12. The defendant denies that those on board the "Eurana" navigated her either negligently or improperly as alleged in paragraph 5 of the statement of claim.

13. Alternatively the defendant says that if those on board the "Eurana" did navigate her either improperly or negligently the collision was not occasioned thereby.

14. Alternatively the said collision was the result of circumstances of wind and current over which those in control of the "Eurana" had no control and which they could not anticipate or guard against and the collision was an inevitable accident for which the defendant is not responsible.

COUNTERCLAIM.

15. The defendant is the owner of the S.S. "Eurana."

16. The plaintiff is an incorporated company incorporated by Chapter 74 of the Statutes of Canada of the year 1910.

17. The plaintiff wrongfully and illegally erected in navigable waters, to wit, the Second Narrows of Burrard Inlet, part of the Harbour of Vancouver, an obstruction, to wit; a bridge

RECORD
*British Columbia
 Admiralty Dist.*

No. 5
 Defence and
 Counterclaim.
 Apr. 13, 1928.
 (Contd.)

which is a public and private nuisance and which interferes with and impedes the free and convenient navigation of the said Second Narrows by ships having lawful occasion to navigate said waters.

18. On or about 10th March, 1927 the defendant's ship "Eurana" was lawfully navigating the said Second Narrows on a voyage from Barnet, B. C., to ports abroad and in proceeding on her said voyage and while endeavoring to proceed past or through said obstruction without colliding with it the said S.S. "Eurana" struck against said obstruction and was seriously injured whereby the defendant sustained damage.

10

19. The damage suffered by the defendant in consequence of said collision was as follows:—

(Left out as irrelevant to this appeal).

WHEREFORE the defendant counterclaims against the plaintiff for the sum of \$77,089.25.

"W. Martin Griffin,"
 Solicitor for Defendant.

DELIVERED this 13th day of April, 1928.

DEMAND FOR PARTICULARS OF DEFENCE

TAKE NOTICE that the plaintiff requires to defendant to furnish within five days from the date hereof further and better particulars of the allegations contained in the statement of defence and counterclaim delivered the 13th day of April, 1928, as follows:—

10 1. Particulars of the manner in which the bridge crossing the Second Narrows of Burrard Inlet interferes with the navigation of the said Second Narrows as alleged in paragraph 3 of the statement of defence.

2. Particulars showing:

(a) In what respects the said bridge was negligently constructed;

(b) In what respects the said bridge is badly designed.

(c) In what respects the said bridge impedes navigation,

as alleged in paragraph 8 of the statement of defence.

20 3. Particulars of the circumstances of wind and current referred to in paragraph 14 of the statement of defence.

4. Particulars of the allegations in paragraph 17 of the counterclaim, setting out how, and in what manner and in what respects the said bridge is a public and private nuisance and particulars showing in what respects it interferes with and impedes the free and convenient navigation of the said Second Narrows.

DATED at Vancouver, B. C., this 6th day of June, 1928.

“Knox Walkem,”

Plaintiff's Solicitor.

30 To W. Martin Griffin, Esq.,
Solicitor for the defendant.

RECORD

*British Columbia
Admiralty Dist.*

No. 7

Particulars of
Defence and
Counterclaim.
Aug. 14, 1928.

PARTICULARS OF DEFENCE AND COUNTERCLAIM

PARAGRAPH 3:

The said bridge crosses the Second Narrows from shore to shore and is built on piers and piles driven into the bottom from shore to shore and is not high enough to enable ships to pass beneath it and said piers and piles and the superstructure impede ships in the unfettered use of said navigable water.

PARAGRAPH 8:

The said bridge was badly designed and negligently constructed in the following respects:— 10

(1) It is not high enough for ships to pass beneath it.

(2) The opening span in it is not in the middle of the channel or fairway.

(3) The opening in it is too small.

(4) The bridge is built of a greater number of short spans with a consequently greater number of piers and piles than was necessary.

(5) The flow of water is impeded by a rock fill on the south shore and by a pile structure having innumerable piles on the tide flats on the north shore. 20

Said bridge impedes ships in the unfettered use of the whole stretch of navigable water between the north and south shore or alternatively impedes ships in the use of the navigable water between the north and south shore more than would have been the case if the flow of water had not been impeded by fills and if the bridge had been designed and constructed with the least possible number of piers and piles of the narrowest possible dimensions and if it had had a wider opening placed in the middle of the channel.

PARAGRAPH 14:

30

The tide turned and began to flood earlier than the hour fixed by the tide table and the northerly set of the tide was of abnormal force.

PARAGRAPH 17:

The said bridge impedes the navigation of the Second Narrows (as more fully set out above) and said Second Narrows is a

navigable water in which the defendant has a legal right to pass and repass in the exercise of the right of navigation and the illegal obstruction of which is wrongful and constitutes a public and a private nuisance.

“W. Martin Griffin,
Solicitor for the Defendant.

DELIVERED this 14th day of August, 1928.

RECORD
*British Columbia
Admiralty Dist.*
No. 7
Particulars of
Defence and
Counterclaim.
Aug. 14, 1928.
(Contd.)

No. 8

REPLY AND DEFENCE TO COUNTERCLAIM.

No. 8
Reply and
Defence to
Counterclaim.
June 12, 1928.

10 The plaintiff says that:

1. The bridge crossing the Second Narrows of Burrard Inlet was constructed under the powers contained in the Act of Incorporation of the plaintiff, namely Chapter 74 of the Statutes of Canada, 1910, and in the “Railway Act,” being Chapter 68 of the Statutes of Canada, 1919. Before the said bridge was constructed a plan and description of the proposed site and a general plan of the bridge were first submitted to the Minister of Public Works for the Dominion of Canada and upon the recommendation of the said Minister, were approved by the Governor-in-Council by Order-in-Council No. P.C. 718 dated April 25th, 1923, pursuant to Section 248 of the said “Railway Act.” An application was thereupon made to the Board of Railway Commissioners for an Order authorizing the construction of the said bridge, which application was accompanied by a certified copy of the said Order-in-Council and of the plan and description approved thereby, together with detail plans, profile and book of reference of the proposed bridge, and on the 24th day of July, 1923 an Order was made by the said Board numbered 33948 approving the general location of the proposed bridge and approaches, and on the 30th day of July, 1923 an Order was made by the said Board numbered 33950 approving the plan, profile, and book of reference above referred to under sections 167 and 168 respectively of the said “Railway Act” and on the 31st day of July, 1923 an Order was duly made by the Board of Railway Commissioners numbered 33962 authorizing the construction of the said bridge pursuant to the said section, and detail plans of the sub-structure and superstructure of the said bridge were subsequently filed with and approved by an engineer of the said Board of Railway Commissioners. On the 6th day of March,

RECORD
 British Columbia
 Admiralty Dist.
 No. 8
 Reply and
 Defence to
 Counterclaim.
 June 12, 1928.
 (Contd.)

1925, an Order was made by the said Board numbered 36137 authorizing certain changes in the construction of the said bridge and on the 31st day of October, 1925 an order was made by the said Board numbered 36996 authorizing the plaintiff to use and operate the said bridge.

2. The Navigable Waters Protection Act of Canada does not apply to the said bridge, nor to the construction thereof.

3. In reply to paragraph 3 of the Statement of Defence herein the plaintiff says that the said bridge does not interfere with the navigation of the Second Narrows, and the plaintiff has had at all times, and has now, the capacity and status and power to build, own and maintain the said bridge, and to maintain any action in respect of it and to recover damages in respect of injury sustained by it, and to apply for and accept the grant from His Majesty the King referred to in said paragraph 3 and to make application to and receive any permissions from any government or authority under any act or otherwise in respect of such bridge. 10

4. In reply to paragraph 5 of the said statement of defence the plaintiff denies that the said bridge was an unlawful and illegal obstruction to public and private right of navigation and that the plaintiff is not entitled to recover damages resulting from injury sustained by said bridge in consequence of collisions with vessels legally navigating the Second Narrows and that it is not therefore entitled to damages in respect of the collision in question. 20

5. In reply to paragraph 6 of the said statement of defence the plaintiff denies that it obtained a conditional grant of certain lands from His Majesty the King on the express condition that no work within the meaning of Part I of the Navigable Waters Protection Act should be undertaken or constructed on the said lands or any of them by the plaintiff or should be suffered or allowed by the plaintiff to be constructed thereon until the provisions of said Part I of said Act should have been fully complied with by the plaintiff. 30

6. In reply to paragraph 7 of the said statement of defence the plaintiff denies that the bridge is a work within the meaning of Part I of the Navigable Waters Protection Act and that the said grant did not operate to vest any title to said lands in the plaintiff, and that upon the commencement of the construction of said bridge by the plaintiff the said grant was avoided and became null and that the bridge is not the property of the plaintiff. 40

and that the bridge is an illegal obstruction to the navigation of the said Second Narrows and that the plaintiff has no right to recover damages in respect to any injury to the said bridge.

7. In reply to paragraph 8 of the said statement of defence, the plaintiff denies that the statute under which the plaintiff was incorporated imposed on the plaintiff the duty to build with all necessary skill and care a bridge of such design and constructed in such a manner as would impede said navigation to the smallest extent compatible with the exercise of said statutory power and that the plaintiff in breach of such alleged duty negligently and wrongfully constructed a badly designed bridge which impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary for the proper exercise of the plaintiff's alleged statutory powers, and that the collision between the S.S. "Eurana" and the said bridge was occasioned by the fact that the said bridge was badly designed and constructed and impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary to enable the plaintiff to exercise its alleged statutory powers and that the plaintiff is not therefore entitled to recover damages in respect of said collision.

8. In further reply to paragraph 8 of the said statement of defence the plaintiff says that if the said bridge was badly designed and constructed, which fact the plaintiff does not admit but denies, the collision between the S.S. "Eurana" and the said bridge was not occasioned by the fact that the said bridge was so designed and constructed.

9. In reply to paragraph 13 of the said statement of defence the plaintiff denies that if those on board the "Eurana" did navigate her either improperly or negligently the collision was not occasioned thereby.

10. In reply to paragraph 14 of the said statement of defence the plaintiff denies that the said collision was the result of circumstances of wind and current over which those in control of the "Eurana" had no control and which they could not anticipate or guard against, and that the collision was an inevitable accident for which the defendant is not responsible.

11. As to the remainder of the said statement of defence the plaintiff joins issue.

DEFENCE TO COUNTERCLAIM

1. The plaintiff admits the allegation contained in paragraph 15 of the counterclaim herein.

2. The plaintiff admits the allegations contained in paragraph 16 of the said counterclaim.

RECORD
British Columbia
Admiralty Dist.

No. 8
Reply and
Defence to
Counterclaim.
June 12, 1928.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 No. 8
 Reply and
 Defence to
 Counterclaim.
 June 12, 1928.
 (Contd.)

3. In answer to paragraph 17 of the said counterclaim, the plaintiff admits that it erected a bridge in navigable waters at the Second Narrows of Burrard Inlet but denies that it wrongfully or illegally erected the said bridge; and denies that the bridge is a public or private nuisance or an obstruction; and denies that the bridge interferes with or impedes the navigation of the Second Narrows.

4. In further answer to paragraph 17 of the said counterclaim the plaintiff repeats paragraph 1 of the Reply herein.

5. The plaintiff denies each and every allegation of fact 10 contained in paragraph 18 of the said counterclaim save and except the allegation that the "Eurana" was in collision with the said bridge crossing the Second Narrows of Burrard Inlet.

6. The plaintiff denies each and every allegation of fact contained in paragraph 19 of the said counterclaim and denies that the defendant suffered damage in the sum of \$77,064.25 or in any sum whatsoever.

7. The plaintiff says that the said collision was caused solely 20 by the negligent and improper navigation or those in charge of the "Eurana."

DATED at Vancouver, B. C., this 12th day of June, 1928.

"Knox Walkem,"
 Plaintiff's Solicitor.

DELIVERED this 12th day of June, 1928.

No. 9

DEMAND FOR PARTICULARS OF REPLY.

The Defendant requires further and better particulars of the reply as follows:—

PARAGRAPH 1: Particulars of the application made by the Plaintiff to the Board of Railway Commissioners stating the date thereof and if same was in writing a copy thereof.

DATED at Vancouver, B. C., this 11th day of September, 1928.

10

“W. Martin Griffin,”
Defendant’s Solicitor.

RECORD
*British Columbia
Admiralty Dist.*
No. 9
Demand for
Particulars of
Reply.
Sept. 11, 1928.

No. 10

PARTICULARS OF REPLY.

PARAGRAPH 1: The application was made verbally on or about the 24th day of July, 1923.

“Knox Walkem,”
Solicitor for the Plaintiff.

DELIVERED this 17th day of September, 1928.

No. 10
Particulars of
Reply.
Sept. 17, 1928.

RECORD

*British Columbia
Admiralty Dist.*

No. 11
Interrogatories
on behalf of
Defendant.
Sept. 12, 1928.

No. 11

INTERROGATORIES ON BEHALF OF THE
DEFENDANT TO BE ANSWERED BY AN
OFFICER OF PLAINTIFF COMPANY.

1. Is the Second Narrows of Burrard Inlet a navigable water in which the tide ebbs and flows?

2. Is it not a fact that that portion of Burrard Inlet which lies East of the Second Narrows bridge is a navigable water to which ships have been and are in the habit of resorting?

* * *

10. Did the Plaintiff at any time prepare or have prepared plans of a bridge having a clearance of approximately 60 feet over water. 10

11. If so please produce the plans.

12. If so why was not such a bridge constructed?

13. Have there been instances (other than in the case of the "Eurana") in which ships or tugs or booms or other vessels have been in collision with the bridge?

* * *

15. Did the Plaintiff in or about the month of April, 1923, 20
(or at all) cause a plan of the proposed bridge and description of the proposed site of the bridge to be deposited with the Minister of Public Works of Canada under Section 7 of the Navigable Waters Protection Act of Canada and apply for the approval thereof?

16. Did the Plaintiff on or about 4th April, 1923, (or at all) cause a duplicate of the plan and description referred to in the preceding interrogatory to be deposited (as No. 250 with details numbered 251 to 255) with the Registrar of Deeds of the County, in which said bridge was proposed to be constructed, to wit, the 30
District Registrar at Vancouver, B. C., under Section 7 of the Navigable Waters Protection Act of Canada?

17. Did the Plaintiff give one month's notice by advertisement in the Canada Gazette in two newspapers published in the locality where said bridge was proposed to be constructed of the said application and deposit of plans? If so, kindly particularize the date of the notice and the names of the newspapers.

18. Did the Plaintiff obtain the approval of the site of said bridge and of the said plans by order of the Governor-General-in-

Council under Sec. 4 of the Navigable Waters Protection Act? If so give date and number of the said Order-in-Council and supply copy thereof.

RECORD
*British Columbia
Admiralty Dist.*

19. At what date was the construction of the bridge begun?
20. At what date was the first erection made in navigable water (i.e., meaning for this interrogatory any portion of the Second Narrows in which ships of any size could navigate).
21. At what date was the first portion of the floor or deck of the bridge completed over any portion of the navigable water (as defined in last interrogator)?
22. At what date was the 300 ft. fixed span which the "Eurana" struck first put in place?

No. 11
Interrogatories
on behalf of
Defendant.
Sept. 12, 1928.

* * *

31. At what hour did the "Eurana" give said signal?
32. At what hour did the operator begin to raise the bascule span?
33. At what hour was the span completely raised?
34. At what hour did the "Eurana" strike the bridge?

* * *

- 20 37. Was the bridge constructed in exact accordance with plan 1815 referred to in Order-in-Council 718 of 25th April, 1923? Please answer this yes or no.
38. If not, in what respects does the bridge as constructed differ from a bridge constructed in exact accordance with Plan 1815?

DATED at Vancouver, B. C., this 12th day of September, 1928.

"W. M. Griffin,"
Defendant's Solicitor.

- 30 To the Plaintiff,
And to Messrs. Burns & Walkem,
its Solicitors.

RECORD
 British Columbia
 Admiralty Dist.

No. 12
 Answers of
 Plaintiff to
 Interrogatories
 Sept. 22, 1928.

THE ANSWERS OF THE PLAINTIFF TO THE
 INTERROGATORIES FILED BY THE DEFENDANT

In answer to the said interrogatories I, Percy Ward, Secretary of the above named Plaintiff MAKE OATH AND SAY AS FOLLOWS:

1. Yes.

2. Yes.

* * *

10. Plans were prepared of a bridge having a clearance of 10 45 feet.

11. See answer to number 10. Plans may be inspected in office of Plaintiff's Solicitors.

12. Because the bids exceeded the Engineer's estimates by an amount beyond the ability of the Company to finance.

13. Yes.

* * *

15. No.

16. No. There was a plan of the bridge and a description of the proposed site deposited on the 4th day of April, 1923 with 20 the District Registrar of Vancouver, B. C. preparatory to an application under section 7 of the "Navigable Waters Protection Act." No such application however was ever made.

17. No.

18. No.

19. 12th September, 1923.

20. 24th February, 1924.

21. 6th March, 1925.

22. 9th April, 1925.

* * *

31. 6.03 P.M.

30

32. Not recorded.

33. 6.09 P.M.

34. 6.15 P.M. approximately.

* * *

37. No.

38. Generally; 5 feet more head room under span and two 150 feet span substituted for part of trestle at north end, rock fill at south end.

RECORD
British Columbia
Admiralty Dist.
No. 12
Answers of
Plaintiff to
Interrogatories
Sept. 22, 1928.

10 On the 22nd day of September, 1928, the said Percy Ward was duly sworn to the truth of this affidavit at the City of Vancouver, in the Province of British Columbia, before me, }

“P. Ward,”

“H. Brown”

A Commissioner for taking affidavits in Admiralty.

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 Sept. 26, 1928.

Exchequer Court of Canada
 BRITISH COLUMBIA ADMIRALTY DISTRICT
 (Before The Honourable Mr. Justice Martin)

6/27.

Vancouver, B. C.,
 September 26th, 1928.

BETWEEN :

BURRARD INLET TUNNEL & BRIDGE COMPANY,
 Plaintiff,

AND

THE S. S. "EURANA" 10
 Defendant.

PROCEEDINGS AT TRIAL.

D. DONAGHY, ESQ., K. C. and
 W. E. BURNS, ESQ., K. C.,
appearing for the Plaintiff.
 W. MARTIN GRIFFIN, ESQ., K.C.
 and SIDNEY SMITH, ESQ.,
appearing for the Defendant.

Mr. Donaghy: I am appearing, my lord, with Mr. Burns,
 for the Plaintiff. 20

Mr. Griffin: I appear, my lord, on behalf of the owners of
 the vessel, with Mr. Smith.

(Opening statement by Mr. Burns)

Mr. Burns: I propose to put in formally particulars with
 reference to the bridge in the first place, and the first thing I will
 call your lordship's attention to is the charter of the company.
 That is to be found at Chapter 74 of 9 and 10—

The Court: You are, of course, referring to this Act of Par-
 liament.

Mr. Burns: The Act of Parliament, yes, my lord, which is
 the charter of the company. 30

The Court: Yes.

Mr. Burns: IX and X, Edward VII, particularly Section 8 of the charter which bases the capacity to build the bridge. (Reading).

Then I would refer your lordship in passing to Section 16 of the Act, stating that the Railway Act shall apply to the company and its undertakings. Now, I don't know whether my friend will desire me to have your lordship note the various extensions of this charter, because the charter is shown in 74 as limited in time.

10 Mr. Griffin: No, no special point, my lord, is being raised.

The Court: I did not quite catch what you said, Mr. Burns.

Mr. Burns: The charter, my lord, is limited in time in the first instance, and then by a series of subsequent acts was extended to cover the time period of construction. I understand my friend does not—

The Court: Yes, your learned friend admits that.

Mr. Burns: Yes, my lord. Now, the procedure followed in connection with the construction of the bridge was under the Railway Act, by reason of the fact that the Railway Act applied, and I
20 now present a certified copy of Order-in-Council 718, dated 25th April, 1923.

The Court: What is the date?

Mr. Burns: The 25th April, 1923, and in that connection I might state that this Order-in-Council was passed under Section 248 of the Railway Act, 1919. By the way, I might pass up to your lordship the Railway Act because there will be certain things—as a matter of fact the Sections in the revised Statute are the same as in 1919, your lordship, so I am using 1919, because that is the Act under which it was constructed, but the numbers are
30 identical. This Order-in-Council reads as follows: (Reading).

The Court: I think we will put that in, that Order-in-Council, as Exhibit 1.

Mr. Burns: Yes, I will have that marked.

(DOCUMENT MARKED EXHIBIT NO. 1)

Mr. Griffin: Does it contain plans referred to in it?

Mr. Burns: Well, my purpose in this proceeding, my lord, is to file the Orders-in-Council and the orders of the Railway Board and then the plans that are referred to—file them subsequently to the reading of these orders.

40 Mr. Griffin: Well, my lord, I just want to see—the Order-in-Council speaks of an attached plan, and therefore I expect unless the plan is identified and put in—I want to be sure, of course, that the plan is the correct plan.

The Court: You will undertake to do that?

Mr. Burns: Yes, my lord, I have them here. (Reading Order-in-Council).

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

Now, that Order-in-Council refers to a previous one in respect of which the Order-in-Council I have just read is an amendment. That previous one is also attached, it is dated 10th June, 1913 and reads as follows—

Mr. Griffin: I am not aware of any such Order-in-Council—I am not aware of a previous one. My friend has not shown that to us as far as I know.

Mr. Burns: It is referred to in the Order-in-Council I have just read. The Order-in-Council was passed on June 10th, 1913 approving, under Section 232 of the Railway Act, etc. You see, my lord, this Order-in-Council I have just read is an amendment of the 10th of June, 1913 Order-in-Council, and refers to it, and we have it here certified. 10

Mr. Griffin: If my friend pleases we would like to have been allowed to see that. My friend's clients have made an affidavit of documents in which no reference is made to that Order-in-Council, and I personally do not see what it contains, and I can't say that it is said to be an amendment—the Order-in-Council now put in. There is an Order-in-Council which was passed on the 10th of June, 1913, approving of a bridge, and with that the bridge has not been built. That does not suggest that the new one is in any way an amendment of the old. 20

The Court: Just let me see that, Mr. Registrar. As Mr. Burns reads it, it says that it recites that prior Order-in-Council.

Mr. Burns: Yes, my lord.

Mr. Griffin: It does not cite it as being amended. It cites it merely as a matter of fact.

Mr. Burns: Yes, then it follows, it says attached amended plan.

Mr. Griffin: Well, your lordship, I haven't had any chance of perusing it. 30

The Court: Yes, I think the difficulty is not over yet. Just look at it and see.

Mr. Burns: I might say that it is not in the affidavit of production, which is a mere oversight. It just simply came along with the certified copy of the 718 Order.

Mr. Griffin: It is not in the affidavit, no doubt, but this is the way it reads: "On an amendment of the 15th June, etc., the Tunnel Company has applied under Section 233 for approval of the annexed plans of a bridge which it is proposed to construct across the Second Narrows, and the District Engineer has recommended that these plans be approved. Now, I should make no objection to the introduction of this Order-in-Council if the plans therein referred to were part of it, and to which the original is annexed and here produced with it, but I should not think it would be proper to put in the order without the plan that is therein referred to and made part thereof. 40

Mr. Burns: We have no objection at all to that except we haven't got that plan. We are following it down in order to make the 718 order complete in placing it before this court.

The Court: If Mr. Griffin is correct it would be more desirable to have that plan here because it may be a matter of some importance.

Mr. Griffin: For instance, my lord, if you refer to that Order-in-Council does it not say—some language like this “And the Minister has recommended that this plan be approved as the
10 interests of navigation will be sufficiently safeguarded.”

The Court: Yes.

Mr. Griffin: Well, I would like to know what were the safeguards which appeared therein.

The Court: You are quite right, Mr. Griffin, it is not in the affidavit properly, and Mr. Burns undertakes that he will produce the plans.

Mr. Burns: I am willing—there is no question about being able to produce them because they are on record in Ottawa.

The Court: You have not got them here.

20 Mr. Burns: No, my lord. As a matter of fact we are simply amplifying the 718 Order in putting that in, because 718 referred to it.

The Court: Yes, but as Mr. Griffin says, out of abundance of caution—he is quite right—had you not better telegraph for them.

Mr. Burns: Yes, my lord, I will get that away at the earliest possible moment.

Mr. Griffin: In the meantime the introduction of this document will be postponed.

30 The Court: No, I will put it in in this way, Mr. Griffin, upon Mr. Burns undertaking to get that, and if it is not there, then you can reject it.

Mr. Griffin: Yes, that will be quite satisfactory.

Mr. Burns: I think my friend read that Order-in-Council of June 10th, 1913 in full, did you not?

Mr. Griffin: I did not fully, no, but very near it.

Mr. Burns: Well, I would like to get these matters covered. “On an amendment dated 15th June, 1913 (Reading)—That
might go in as one exhibit, my lord.

40 The Court: Oh, yes, because it comes as one exhibit.

Mr. Griffin: Yes, my lord, it would be hard to distinguish the plans—

The Court: I beg your pardon?

Mr. Griffin: Will it not be hard to distinguish the plans—it would be therefore more convenient to have them separate numbers, applying to the Order-in-Council accompanying it.

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

Mr. Burns: Well, I wasn't putting the plans in as part of this exhibit, I was putting them in as a subsequent number.

The Court: As it comes in that shape from the proper official quarter, I think we had better let it stand, Mr. Griffin. It is only one exhibit really. The question of the extent of it is another thing. Your objection is preserved.

Mr. Burns: Now, I present, my lord, the plan which is referred to in the Order-in-Council number 718, as certified by the Clerk of the Privy Council in respect of that order.

The Court: Now, this is the final amended plan as approved, 10 and the date of it—is the date on it? Well, do not trouble about that, Mr. Burns. It is sometimes hard to find it in these large plans.

Mr. Burns: Yes, my lord. Here is the date—

The Court: Well, the importance of that is that it shows the date to which the extent of their knowledge proceeded, you see.

Mr. Burns: The date, my lord, in the certificate of the Clerk, is the 25th of April, 1923.

The Court: Oh, yes, the 25th of April, 1923.

Mr. Burns: Yes, my lord. My friend suggests that this 20 plan, being numbered here on the drawing number E.1815, might be termed that on this trial.

Mr. Griffin: It is referred to in the Order-in-Council under that number, that is why I called attention to it.

The Court: Exhibit 2, then, Mr. Registrar.

(DOCUMENT MARKED EXHIBIT NO. 2)

The Court: You have a copy of that. Of course that is a duplicate for me, I suppose.

Mr. Burns: Yes, my lord. If it be more convenient, my lord, we might reserve an exhibit number later for the plan that 30 my friend has referred to.

The Court: This is 2 that we have now, the Registrar has marked it. You have Number 3, have you?

Mr. Burns: No, I was suggesting we might reserve number 3 for the plans that I will obtain from Ottawa in compliance with my friend's request.

The Court: Oh, I see.

Mr. Burns: Whether that is convenient or not—

The Court: That will be all the same. I would simply mark it as "1-A." It all goes in as 1. 40

Mr. Burns: That would go in then as "2-B."

The Court: Yes, this plan is Exhibit 2, and another that comes from Ottawa can be attached.

Mr. Burns: I next present the order of the Board of Railway Commissioners for Canada, number 33948.

The Court: Exhibit 3.

(DOCUMENT MARKED EXHIBIT NO. 3)

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

Mr. Griffin: I wish to make an observation on that, that that Order-in-Council, 33948 is only an authorization of the construction so far as it is a railway, and has therefore no applicability to the matters in question in this action. It does not relate to the *locus in quo*, any my submission is, it is irrelevant.

The Court: What do you say, Mr. Burns?

Mr. Burns: Yes, my lord, it is under Section 248.

Mr. Griffin: No, if it were I would not have raised the objection. My friend is in error, I am sure. The order is before me and says distinctly "on the matter of the application of the Burrard Inlet Tunnel & Bridge Company" (Reading). That is a statement, but Section 167 is the Section, not 248. 167 relates solely to Railways, and this is a combination railway and bridge, so that therefore does not extend to this point.

Mr. Burns: I was in error when I said 248, my lord; it is 167, I see, reading the context. We plead it, my lord, in our reply, and rely upon that order of the Railway Board with these attached plans.

20 The Court: Well, you do not insist upon that Number 3

Mr. Burns: Oh, yes, my lord, we do, we plead it and desire to present it to the court in connection with our case.

The Court: Well, for the moment, put it in, as to what its value is, probably as a matter of argument.

Mr. Burns: Yes, my lord, surely.

The Court: Yes, that is right. What is the date of it?

The Registrar: July 24th, 1923, my lord.

Mr. Burns: It is entitled "In the matter of the application of the Burrard Inlet Tunnel & Bridge Company." (Reading).
 30 It is certified to by the Secretary of the Board, and signed by the Assistant-Chief Commissioner.

Mr. Griffin: My lord, is my friend putting this plan in with it.

Mr. Burns: Yes, I am putting in everything I have got. Then, my lord, I present the plan that is referred to in that last mentioned order, signed by the Chief Commissioner of the Railway Board and certified to by the Secretary.

The Court: Exhibit 3-A.

(DOCUMENT MARKED EXHIBIT NO. 3-A)

40 Mr. Burns: Then I present the Board of Railway Commissioner's order number 33950 dated 30th July, 1923. That is under Sections 168 and 172 of the Railway Act.

The Court: 168 and 172?

Mr. Burns: And 172.

Mr. Griffin: I don't see any reference to 172.

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

Mr. Burns: Well, 172 is the filing with the Registrar of Titles, but I refer it to these two sections in placing it before the court.

The Court: You say this was another order of the Board?

Mr. Burns: Yes, my lord.

Mr. Griffin: Before that is read, my lord, I make the same objection I made to the preceding order of the Railway Board. This one is made under Section 168 of the Railway Act. My friend is in error in saying that there is any reference in it to Section 172. We might as well be clear on it. It only refers to the one section. Section 168 has nothing whatever to do with bridges. It relates to plans, profiles, truck roads of the surrounding property so far as the enterprise is a railway. I submit, therefore, it is inapplicable to the matters in question in this action and not receivable. 10

Mr. Burns: I have referred to 172 Section, because there is a certificate upon the plans attached to this Board's order of the Registrar of Titles, which is referred to in Section 172, and combines them both: "In the matter of the application of the Burrard Inlet Tunnel & Bridge Company. (Reading). Then on the plan, my lord, is a certificate by the Registrar of Titles under Section 172 of the Railway Act. That will be Exhibit— 20

The Court: Exhibit 4.

Mr. Burns: In this case, my lord, the plans were attached in Ottawa to the Board's Order. Whether it would be well under these circumstances, to call it four and 4-A, the same as we have been doing, I don't know.

The Court: Well, you suggest that the plans should be 4-A.

Mr. Burns: On that basis of keeping the symmetry of it?

The Court: Yes, I think so. 30

(DOCUMENTS MARKED RESPECTIVELY
 EXHIBITS 4 and 4-A)

Mr. Griffin: My lord, I didn't know there were any plans attached to this order. My friend did not refer to them.

The Court: Yes, take your time, Mr. Griffin.

Mr. Griffin: Yes, they are not referred to, but they are certified.

Mr. Burns: Then the order of the Board, my lord, number 33962, dated 31st July, 1923.

The Court: 21st. 40

Mr. Burns: 31st July, 1923.

(DOCUMENT MARKED EXHIBIT NO. 5)

Mr. Burns: This order, my lord, is under Section 248 of the Railway Act. I am only giving your lordship these numbers

for convenience. "In the matter of the application of the Burrard Inlet Tunnel & Bridge Company." (Reading).

Mr. Griffin: Has my friend got the plan therein referred to?

Mr. Burns: Well—

The Court: It says plan—what is approved is what is shown on the plan on file with the Board under File 15732-4.

Mr. Burns: This plan is already in. They are all under that same one.

Mr. Griffin: I would like to see that.

10 Mr. Burns: It is under 718.

The Court: You say that is in—what exhibit is that in? You say that plan therein referred to is Exhibit what? Then Mr. Griffin can accept your statement of what you say.

Mr. Burns: I am not sure of the number, whether it is 2 or 3.

The Court: Just look.

Mr. Burns: It is the first plan we put in—that large one.

The Court: Yes, I think the first exhibit is the Order-in-Council, and then there is a large plan.

20 Mr. Burns: Yes, my lord, it goes in with the Order-in-Council.

The Court: Exactly.

Mr. Burns: And that is the plan referred to.

The Court: Will that be satisfactory to you?

Mr. Griffin: Well, my lord, we will see if my friend is correct, because if so, we will be able to find it from the document.

The Court: Yes, quite right. Be sure we have all the plans, because I can see how important this question is. We will clear these matters up now and then we will have no trouble afterwards.

30 Mr. Griffin: Now, unless it is on the back, which I need not for the moment look at—there is no certificate or any thing to identify this as being on file with the Board of Railway Commissioners under File 15732-4.

Mr. Burns: But this order, my lord, is made pursuant to the Order-in-Council 718, which is dated April 25th, 1923, approving the said plan, and this is the said plan that is referred to in 718, and is called said plan throughout this order.

The Court: That would look very definite, would it not, Mr. Griffin?

40 Mr. Griffin: It may not be on file with the Board at all.

The Court: Well, it does not necessarily say that it should be on file.

Mr. Griffin: Yes, it has to be filed, the Statute requires it, and the Order so states that it is; but if my friend is wrong in this, let us be sure it is the same one. What is proved is what is shown on said plan on file with the Board. Now, we must be sure they are here, because the Order would have no weight if that were not done.

RECORD

British Columbia
Admiralty Dist.

Proceedings at
Trial.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

The Court: Yes, but what is the said plan?

Mr. Griffin: Oh, undoubtedly it is referred to as being the same one in P. C. 718, but we must be sure that that was actually filed.

The Court: But he further recites, you see, that it is the said plan that is on file. I do not think there is much difficulty. There is no fear of a new plan being sprung on you. That identifies it, you see, that 718.

Mr. Griffin: Your lordship will note my objection that I make. 10

The Court: Yes.

Mr. Burns: Then I present the order of the Board of Railway Commissioners number 36137.

The Court: Just give me these numbers very distinctly.

Mr. Burns: 36137.

The Court: That is another Order of the Board?

Mr. Burns: Yes, my lord.

The Court: That will be Exhibit 6, Mr. Registrar.

Mr. Burns: Dated 6th March, 1925.

Mr. Griffin: If my friend will kindly read that, then I wish 20 to make an objection, my lord.

Mr. Burns: In the matter of the application of the Burrard Inlet Tunnel & Bridge Company. (Reading). Now, attached to this Order are two of the plans mentioned in the Order. The two that are attached are V-148 and V-149, they being also certified by the Secretary of the Board. Then the third plan mentioned in the Order is certified to by the Secretary of the Board separately, which is V-147.

Mr. Griffin: Now, if your lordship pleases, my objection to the introduction of that is one of which there seems to be no reasonable doubt. If your lordship will turn to the Railway Act and look at Section 251, you will find it stated that that Section is as follows: (Reading). Now, that relates, and relates solely to those bridges which are either in cities or are over highways. The whole subject of bridges over navigable water is dealt with in the preceding Section, 248, which is in more or less, if not identical, language. The two subjects are dealt with in the clearest way in separate Sections. I would ask your lordship to go back to 248 first as being the logical way to discuss it. If you take 248, it provides that where a company is proposing the construction of a railway bridge or tunnel or other structure in, upon, over, under, through or across any navigable water or canal or open ditch, etc., the company, before the commencement of such work, in the case of a navigable water, or a canal, shall submit to the Minister of Public Works for approval by the Governor-in-Council, a plan and description of the proposed site, and a general plan of the work to be constructed to the satisfaction of such Minister. That 30 40

is the first step. "And upon approval by the Governor-in-Council, apply to the Board for an Order authorizing the construction of the work, (Reading).

Now, turn to Sub-section 2—these are the steps with regard to navigable waters: First an Order-in-Council, second the Railway Board. (Reading).

Three—So far as the Board are satisfied, they are in Sub-section 3.

Now, if you turn back, my lord, to Section 251, and compare
10 them. You see we have no Privy Council involved at all, "The Company shall not within the limits (Reading). And the proviso does not matter: "Upon application to the Board for such leave (Reading).

Now, your lordship sees this Order which is now brought before you and offered in evidence is made under Section 251, and only under Section 251. It does not authorize or permit anything to be done in or over navigable waters. It is restricted in the clearest manner to the *locus in quo*, to which Section 251 applies. There is no suggestion that this place where this bridge was built
20 is in the City of Vancouver, and at least not a highway out over any water, so that we are clearly shown that Section 251 could not and does not apply. And this is not an objection of any technical nature, because if it could be attempted to be supported under the correct Section 248, it falls to the ground, because the authority of the Privy Council would have to be obtained, as sub-Section 2 distinctly provides that no deviation from said plan approved by the Governor-General shall take place without his consent. There is no suggestion of any such consent having been obtained. So that my objection is that, that order having been obtained under
30 the wrong Section, which addresses itself to the Board under a totally different order to 248, it does not indicate to the Board in the slightest degree that what they are being asked to do deals with the crossing of navigable water. I say the plan may be, but the section that they apply under is the vital and governing situation. Your lordship, I suppose, is fully aware of the fact that under the regulation of the Railway Board the Section must always be named in the application. You must in every case, when you apply for the mandate of the authority to which you address yourself, and it is the invariable practice of the Board to always
40 introduce some Section number into their orders to show where they derive the jurisdiction which they purport to exercise. My submission therefore is that that document cannot be received.

Mr. Burns: I suggest, my lord, that the exhibit be received subject to the objection of my friend. It is a matter that requires some argument.

The Court: Well, it is a practice I do not like to give effect to, Mr. Burns, unless, of course, there is some really very grave

RECORD
British Columbia
Admiralty Dist.
Proceedings at
Trial.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

doubt about it. I would prefer, you see, not to admit it in at present, and give you leave to move to do so afterwards, because unless you can show me now that this really is a matter affecting navigable waters, I would say at first blush I can hardly see the relevancy of this order.

Mr. Burns: Well, if your lordship pleases I would rather follow that course.

The Court: Yes.

Mr. Burns: Because my friend Mr. Donaghy and I are dividing this case.

The Court: Quite so, and you will look that up, Mr. Burns? Then we will not mark this document, and this is reserved, Mr. Registrar. It would be together, would it not?

The Registrar: Yes, my lord, I think there are three plans.

The Court: Yes, do not mark it—that is, the order of the Board. This stands, you see, for further consideration.

Mr. Burns: Then the order of the Board, 36996, my lord.

The Court: Yes.

Mr. Burns: Dated 31st October, 1925.

Mr. Griffin: The same point arises there, my lord. It pur- 20
 ports to have been made under Section 251 and 276.

The Court: Does it recite it is under the same Section, Mr. Burns?

Mr. Burns: Sections 251 and 276.

The Court: Under 251. Now does 276 get over Mr. Griffin's objection?

Mr. Griffin: No, my lord, it does not. It provided no railway shall be opened for traffic, etc., until a certain order.

Mr. Burns: 276 has to do with the permission for the use of the railway.

The Court: It is hardly apparent why that is—then that is a direct controversy, is it?

Mr. Burns: Well, if your lordship pleases, that might be put in the same category for the time being.

The Court: Yes, you tender it, and the same action taken on that, Mr. Burns. Yes.

Mr. Burns: Then I present the grant by way of quit-claim from His Majesty the King to the Company to certain parcels of land in the bed of the public harbour of Vancouver, Second Narrows, (Reading)—they being the pier sites.

The Court: Is this covering the ground of the pier sites? 40

Mr. Burns: Yes.

The Court: There is no question about this, Mr. Griffin?

Mr. Griffin: Yes, my lord, the most vital question in it.

The Court: Oh, I see.

Mr. Griffin: The grant reads as follows—

The Court: Pardon me for a moment. Let Mr. Burns con-

tinue so I will know exactly. You tender them, Mr. Burns—
what is it?

Mr. Burns: I was just getting the deed—the grant from the
Crown to the Company.

The Court: That is from the National Government or the
Provincial Government?

Mr. Burns: In right of the Dominion, my lord.

The Court: Yes, the National Government. Yes?

10 Mr. Burns: Dated 9th May, 1924.

The Court: 9th May, 1924, yes.

Mr. Burns: The grant being of certain parcels of land in the
bed of the Second Narrows, which are the pier sites of the bridge.

The Court: On both sides, Mr. Burns, or just the pier sites
—are they on the north or south side of the inlet?

Mr. Burns: Well, right in the inlet, my lord.

The Court: Right in the middle of it, it is.

Mr. Burns: Yes, in the bed of the inlet.

The Court: In the bed of the stream?

Mr. Burns: Yes.

20 The Court: In the channel?

Mr. Burns: In the channel.

The Court: The pier sites in the channel, yes.

Mr. Griffin: Then, my lord, the nature of the objection is
this, that the grant contains the following express and explicit
provision:

30 “To have and to hold the said lands unto the grantee, its
successors and assigns forever. Provided that nothing in
these presents shall be held to absolve the grantee, its succes-
sors and assigns, or any of them, from fulfilling in all respects
the requirements of Part I of the Navigable Waters’ Pro-
tection Act, Chapter 115, Revised Statutes, 1906; and it is an
express condition of this grant that no ‘work’ within the
meaning of said Part I shall be undertaken or constructed on
the said lands by the grantee, its successors or assigns, or any
of them, or shall be suffered or allowed by them or any of
them, to be constructed thereon until as regards such work
the provisions of said Part I shall have been fully complied
with.”

40 The Court: Yes, but while I can see your point, Mr. Griffin, it
will do no harm at all to put the document in. It is a question of
legal construction.

Mr. Griffin: But that is an express condition, and it is ad-
mitted, my lord, in the pleadings that no such permission was
obtained.

The Court: I quite see that, Mr. Griffin.

Mr. Griffin: And therefore my submission is that the grant
cannot be received in evidence.

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

The Court: I would not say that. I think it can go in evidence for what it is worth. It is simply a question of its consideration.

Mr. Griffin: There is only another objection—it is to the same effect: It also provides in this conveying of this grant, as a condition of the grant that the grantee, its successors or assigns, shall construct on the said lands a railway and traffic bridge to the satisfaction of the Minister of Marine and Fisheries within five years from the date hereof. (Reading.)

Now, there is no suggestion that it ever was obtained before the five years expired, while up to this date no such permission has been obtained from the Minister of Marine and Fisheries. So on these two grounds my submission is the grant cannot be received. 10

The Court: The objection, of course, if valid, would go to really, I might say, the inoperative effect of the grant, not to its reception just now. It will go in as an exhibit now for what it is worth.

(DOCUMENT MARKED EXHIBIT NO. 6.)

Mr. Burns: I thought at this stage, my lord, I would put the Admiralty chart in, which will be used on the trial. 20

The Court: Exhibit 7.

(DOCUMENT MARKED EXHIBIT NO. 7.)

The Court: Has the work of the Admiralty—their soundings, has it been supplemented by our own Department, Mr. Burns?

Mr. Burns: The Harbour Board, my lord.

The Court: The surveys of our own Department of Marine and Fisheries, they have a series of very admirable charts. I do not know whether these would come under their investigation. 30

Mr. Griffin: My lord, I have a chart in case your lordship would like it, made by Mr. Pariseau.

The Court: That is what I mean, because the charts of Mr. Parizeau are really an ornament to the country—very fine indeed. They are also more modern—printed in two colours which renders them more easy to read. Do not trouble with it now.

Mr. Burns: I thought I had the Harbour Board map now, which gives all this. I have sent for it, my lord, and if my friend has one it will be all right. This chart, my lord, is the same plan that I have referred to—the Harbour Board. 40

The Court: The Harbour Board Plan?

Mr. Burns: Yes, my lord.

(DOCUMENT MARKED EXHIBIT No. 8.)

Mr. Burns: This plan, my lord, is dated May 8th, 1925, made by the Chief Engineer of the Harbour Board, Mr. Frith, and on it is annexed the soundings checked, dated the 1st of May, 1926 by Commander Reed, the Harbour Master.

Mr. Griffin: Mr. Burns, I suggest for convenience sake putting one of these in, which shows the layout of the Harbour—it is only a general plan we have.

Mr. Burns: I will call Mr. Tennant, bridge operator.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. G. Tennant
Direct.

10 FREDERICK GEORGE TENNANT, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

Mr. Burns: My lord, I am sorry, but I sent—thinking that was the only way I could get these plans, I sent a witness of ours, Captain Jones, for the plans. He said he would be back in five minutes. He is a witness I desire to hear the evidence of this witness and he will be back in a few minutes.

The Court: Oh, yes, adopt your own course, Mr. Burns. That will be quite satisfactory. Do you want to ask any questions?

Mr. Burns: I desire to have Captain Jones listen to the evidence of this witness and he will be back here in just a minute.

20 The Court: Oh, I beg your pardon, I did not quite understand you.

DIRECT EXAMINATION BY MR. BURNS:

Q. You are one of the bridge operators—of the Second Narrows Bridge operators? A. Yes, sir, I am one of the bridge operators.

Q. How long have you been engaged in that? A. I have been there since the bridge was opened.

Q. And how long is that? A. Two years.

30 Q. Were you on duty at the time of the Eurana accident?
A. I was on duty that time.

Q. When was that? A. That was March the 10th, 1927.

Q. Will you just give your evidence as to what occurred?

A. I suppose I am allowed to refer to my report.

Q. What have you got there? A. My report—copy.

Q. Your report—just a minute, witness. Did you make a report of the occurrence after it happened? A. I always put my tides down as soon as I go on duty, and then as soon as the boat blows why I put the time down.

40 Q. Yes? A. Then give the red signal, and when the bridge is opened I always give the green.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseF. G. Tennant
Direct.

(Contd.)

Q. Yes, I understand that, but did you make a report as to this? A. Yes, immediately I got the bridge opened and saw the accident happened I started to write out my report.

Q. To whom did you give your report? A. I turned it in to Mr. Ward—into the office of the manager.

The Court: I did not hear him say—I cannot hear you, what did you say?

Mr. Burns: Turn around so his lordship can hear.

The Court: Q: What did you say you gave to whom? A. I turned it in—

Q. Speak up and speak clearly? A. I turned it in to the office, to my manager, Mr. Ward.

Q. Ward? A. Yes.

Mr. Burns: Q: He is the manager of the company, witness, is he? A. Yes, sir.

Q. Well, have you got the report that you made? A. I have got the report here, yes.

Mr. Griffin: That is not the original.

Mr. Burns: No, but you have seen it.

Mr. Griffin: Oh, yes, but that is not the original. He didn't type it then.

Mr. Burns: Oh, no.

Q. Well, have you got the original? A. No, I didn't—the report is turned in to the office. We have no access to the office to take that report around with us.

Mr. Griffin: That is the point.

Mr. Burns: Q: Where is that report? A. Why, it would be on file with the office.

Q. Apart from your report, what is your recollection as to what happened? A. The actual accident?

Q. Yes. A. Well—

Q. Just describe the occurrence. A. Do you mean the time from the boat blew?

Q. Yes, just describe the occurrence. A. The boat blew 6:03.

The Court: Q. Now, start at the beginning, start with the time and the tide and the state of the weather and that sort of thing? A. March 10th.

Q. Yes, but that is not the time of the day, that is the time of the month. You heard what I said? A. Do you want the time that the boat blew?

The Court: Do you not know what time of the day is? A. Well, 6:03.

Q. Why did you not say so? A. Well, the time of the day was 6:03 that the boat blew.

Q. That is 6:03, go on now, and tell counsel the state of the

weather, the visibility and that sort of thing? A. The visibility was good.

Mr Burns: Q. How was the weather? A. The weather was fine.

The Court: Q. This was in the evening, was it, Mr. Burns?

Mr. Burns: The evening, yes, my lord.

Q. How was the tide? A. The tide was running out.

Q. And what you say at 6:03 p.m.— A. Yes, the boat blew.

Q. That is, you mean the “Eurana” blew? A. Yes, he gave
10 me the signals for the bridge.

Q. Where was she at that time, approximately? A. Well, I would say about a mile to the east of the bridge.

Q. Then what occurred? A. Well, I opened the bridge, after giving the proper signals, at 6:09 the bridge was open and I gave the green signal to come ahead.

Q. In the meantime what had he done? A. Well, he was coming on very slowly. As far as I could see he was making a fair passage for the span; if anything, he was a little to the south shore.

Q. What do you mean by a little to the south? A. Well
20 I would say off—she was a little nearer to the south than ordinary.

The Court: Just let me see that plan. Is that the big blue print—perhaps I can follow this better. Is that the one you are talking of, exhibit 2?

Mr. Burns: Pardon me, my lord.

The Court: Are you asking now the state of affairs on exhibit 2, are you following exhibit 2?

Mr. Burns: Well, I didn't have particular reference in my mind to exhibit 2, I don't just remember—this Harbour Board
30 plan would possibly—

The Court: Well, which ever you like, Mr. Burns.

Mr. Burns: It would be more convenient, I think, although I see it is cut off a bit there.

The Court: Yes, I am looking at exhibit 8 now.

Mr. Burns: I think possibly the Harbour Board plan in conjunction with the chart might—because I see that the Harbour Board plan is cut off there east of the bridge.

The Court: Well, we go on the chart now. Now, looking at exhibit 7—the chart.

Mr. Burns: Q. Now, then, when the bridge was opened—
40 that is, when the span was open—

The Court: Just a moment, Mr. Burns, he might just tell us as far as he knows the state of the tide.

Mr. Burns: Q. Yes, well, what was the state of the tide? You say it was running out? A. It was running out—it was getting near low tide.

Q. From your observations subsequently that day—during

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseF. G. Tennant
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. G. Tennant
 Direct.
 (Contd.)

the time of the collision and so on, how long was it running out afterwards, until when? A. You mean after the accident?

Q. Yes—well, until when was it running out, when did it stop running? A. I presume she ran out pretty near half an hour after the boat hit the bridge.

Q. Well, did you observe? A. I did. I was watching the action of the water on the pier, which we always do.

Q. What particular tide was that, was it a long run out or a short run out? A. Well, I just forget now. It was a fair run out, I think, as near as I can remember. 10

Q. Well, we will cover that later. Then by the time the bridge was opened, at nine minutes past six, as you have said, how far off was the Eurana—approximately? A. When—do you mean when I first noticed there was anything wrong with the boat?

Q. No, no, when the bascule span was open and the bridge completely open? A. Well, she was—I would say perhaps about half to three-quarters of a mile away.

Q. And how was she then, I mean,—

Q. And how was she then, I mean,— A. Well, she was 20 coming very slowly. I could barely see her moving.

Q. Now, you said before that she was a little bit to the south of the ordinary route of ships? A. Yes, she was a little closer, I think, to the south shore than usual.

Q. Well, then, what occurred? A. Well, when she was about—as near as I can recollect about 250 yards off of the bridge I distinctly heard the command to lower away the anchors, which I took particular notice they lowered away.

Q. And did you see her anchors and so on—were you observing the ship? A. I was watching her with a pair of glasses in 30 the bascule.

Q. What anchors were lowered? A. Both anchors were lowered, the starboard and port anchors.

The Court: Wait now. Do you say you distinctly heard the order from the bridge? A. From the bridge, to lower away the anchors.

Q. Yes, you told Mr. Burns, then what? A. I noticed the starboard anchor carried away, as near as I could see. The port anchor held; at least—

Q. Did you say anchor or anchors? You speak in such an 40 indefinite way it is hard to make out. Try and speak clearly because it is important. You spoke about anchor first, and now you are talking about anchors, that is, is it singular or plural now? A. Well, I distinctly heard the command to lower away the anchors.

Q. Anchors? A. Both anchors.

Q. Anchors? A. Yes.

Mr. Burns: Q. Then what did you see after you heard that command? A. Well, I—

The Court: Pardon me now, he noticed—well, was he on the other side that he saw—which anchor was it now you saw? A. The starboard anchor.

Q. The starboard anchor? A. The starboard anchor held; the port anchor carried away.

Q. You see you have not told us yet. Did you see the anchors lowered? A. I saw both anchors go down into the
10 water.

Q. Go down into the water, consecutively—you say the order was given and you saw the anchors being lowered? A. No, I heard the order—

Q. I mean you heard the order and you saw both anchors go down? A. I saw both anchors were lowered.

Q. You saw both anchors were lowered, now just tell us, and your learned counsel, tell him what happened then.

Mr. Burns: Q. Did you see anything else in connection with the lowering of the anchors? A. Well, I noticed she sheered
20 to the north right away.

Q. Well, I mean in connection with the anchors? A. No, except I thought—as near as I could see the port chain or cable slackened up and jerked off, so I figured the port anchor carried away.

Q. But the starboard held? A. The starboard anchor held turning the boat to the north—sheering off, like.

Q. And you say the ship was how far from the bridge at that time—about? A. 250 yards, I should say.

Q. Then what occurred after that? A. Well, she plough-
30 ed into the 300 foot span.

Q. That is to the north of the bascule? A. To the north of the bascule.

Q. How far north of the bascule could you say approximately in feet? A. Well, the bascule is 185 feet, and that goes on to the pier that reaches on the north side, it gives a 300 foot span, I would say about 350 feet from the bascule—or 400 feet, I wouldn't like to—

The Court: You see you had better get these measurements exactly.

40 Mr. Burns: Yes, my lord.

The Witness: I wouldn't like to put myself down into feet.

The Court: Just repeat that.

Mr. Burns: Q. Just approximately? A. Well, I would say about 400 feet, I guess, north of the bascule.

The Court: Now, would you get where he was standing?

Mr. Burns: Q. Whereabouts were you standing?

The Court: That is important you see—on this plan. A. I was standing on the east side—

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

F. G. Tennant
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 F. G. Tennant
 Direct.
 (Contd.)

Q. Just look at that, witness, now. That is the Harbour Board plan Exhibit 8. Now, just tell the learned counsel where you were standing? A. I was standing on the bascule on the east side with a pair of glasses.

Mr. Burns: Q. Now, when you say on the bascule, that is the south end— A. That is the south end—

Q. —of the bascule span? A. Of the bascule span.

Q. You were standing on the bascule, on the east side of the bascule? A. On the east side.

The Court: Wait until I get this, Mr. Burns—you are so familiar with this, you see. 10

Mr. Burns: Yes, my lord.

The Court: Q. I see this bascule span is marked 150 feet in the clear, and it goes from pier number 3 on the south to pier number 2 on the north? A. Yes, my lord.

Q. Now, you wish us to understand that you were standing on pier three, practically? A. Yes.

The Court: Yes, on pier 3.

Mr. Burns: Q. No, on the southern pier? A. On the southern pier, rather, I should say. 20

Q. Is that right?

The Court: That would be right, yes, the north is 2. He was standing on the southern pier 3, which is the opening of the bascule span, which is 150 feet clear.

Q. That is right, is it? A. Yes.

Mr. Burns: Q. Then you say that the "Eurana" went into the bridge approximately 400 feet or so from where you were standing, is that it? A. About that, yes. I am not sure of that measurement, you know.

Q. No, no, approximately. Were you standing on the pier or—oh, yes, it would be the bottom of the bascule lift itself? A. Our bascule is up, you know, quite a distance, I was on it—we never leave the bascule. 30

Q. Oh, you were right up at the top? A. Right up half way where her operating table is.

Q. About half way up? A. Yes.

Q. Well, then, just how did she engage with the bridge? A. Well, she ploughed into the east roadway, picked it up, threw it to one side, pulled up against one of the I-beams, then began to clear things off the bridge, pretty well cut it down to the smoke-stack, the smokestack pulled up almost— 40

The Court: You must turn around.

Mr. Burns: Q. Yes, speak louder and slower? A. She ploughed into the east—

The Court: You have a way of mumbling and it is most important that everyone should hear what you say, as the acoustics of this room are very bad, and everybody must understand these questions.

A. The "Eurana" ploughed into the east roadway, tearing up the roadway, and pulled up against one of the I-beams.

Q. Now, I do not understand what roadway— A. Well, the east roadway of the bridge.

Mr. Burns: Q. Explain to his lordship, the east roadway? A. My lord, this is the roadway on the east side of the bridge. This is the first thing that the boat would strike, the sidewalk first and then the roadway.

The Court: Yes, I see it is marked on the plan "roadway",
10 yes.

Mr. Burns: Q. Her stem went right under the bridge, did it? A. The stern went right under—

Q. The stem? A. The bow.

Q. The bow, yes? A. Yes, went right under the bridge.

Q. Almost up to the smokestack? A. Right up to the smokestack, pulled up against what I would call a I-beam, one of the heavy beams underneath the railroad track.

Q. The roadway being broken and being carried away?

A. Carried away and carried away a terrible lot of iron too on
20 there—it was the big I-beam that stopped her.

Q. Well, then when was the bascule let down? A. Well, I didn't let the bascule down till I heard from Mr. Ward, our manager, that was about 9:00 p.m.

Q. Not until 9:00 p.m.? A. Yes.

Q. Then how long did the "Eurana" stay under the bridge?

A. Well, as near as I can recollect it would be an hour and a half or two hours.

Q. How was she taken out, or how did she get out? A. Well, she—then I rang for the wrecking tugs. First I rang my manager,
30 and I couldn't get the connection, so in the meantime I rang up the Salvage Company to have the tugs there, and the tugs got alongside of her, and I figure that it must been open—

Q. No, but did you see? A. I didn't see nothing. I couldn't see nothing after that.

Q. Well, don't give any evidence. A. Well, the tugs went to her assistance—I could see the tugs going to her assistance.

Q. You didn't see her get out from the bridge? A. Yes, I saw her backing away from the bridge.

Q. How did she do that, or how was that done? A. Well,
40 the tugs got on her, and I suppose she used her own power too—small tugs.

Q. How was she after she got into the bridge, how was she engaged under the bridge. Was she stuck there or not? A. She was certainly stuck there—stuck fast.

Mr. Griffin: I think you should lead him on this as far as that is concerned.

Mr. Burns: I just want to get it as properly as I can.

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

F. G. Tennant
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. G. Tennant
 Direct.
 (Contd.)

Q. Then as a matter of fact the tugs pulled her back?

A. Yes.

Q. Now, do you remember any particular time—the latest time that you observed the tide running out? A. Well, 6:30 as near as I can remember, running out very slowly, but it was running out.

Q. Well, how was it running out when the “Eurana” was coming on to the bridge—slowly or not? A. It was running out slowly—very slow.

Q. Could you gauge the speed of the “Eurana” with reference to the tide, as to whether she was going slowly or fast? 10

A. The boat herself?

Q. Yes, the boat? A. The boat was going very slowly, that is all I could say—barely moving.

Q. You couldn't see, could you—or could you see to what extent she was southerly—or more south than the ordinary route taken by boats of her kind? A. No, it looked that way to me, but—

Q. It looked what way to you? A. That she was a little to the south more than usual—than the ordinary course of boats. 20

Q. You made a report to the manager, as I understand?

A. Yes.

Mr. Burns: We have a copy of that report, my lord. The original is not in court, but will be brought here this afternoon, if my friend desires to make use of this.

Mr. Griffin: Oh, no.

Mr. Burns: Which I will undertake is a copy. You have seen this?

Mr. Griffin: Oh, no.

Mr. Burns: All right. 30

F. G. Tennant
 Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN

Q. Witness, just a few questions I want to ask, not a very great deal. When you spoke of the anchors being lowered, could you tell me now what you did actually hear? A. Well, I couldn't tell you word for word. I heard the command to lower away the anchors.

Q. Do you say you ever heard the words “lower away”? A. Well, I wouldn't like to say that was the exact word, but I heard that command given.

Q. You are not yourself a navigator, are you? A. No, sir. 40

Q. So that you really are not sure what you did actually hear at all? A. I heard the command to lower away the anchors.

Q. But you don't know what the command was—the exact wording of it? A. No.

Q. Now, when you spoke of anchors carrying away, I don't know exactly what you meant by that. Did you mean that you

thought they had broken away from their cable when you spoke of the anchor carrying away, did you mean that it had broken loose? A. The port anchor had, yes.

Q. You thought it had, I mean? A. Well, I couldn't see down in the water, but there was the line of the cable there.

Q. No, I mean—all I want is to know what you meant by that. You thought the port anchor had broken loose from its chain? A. Most assuredly.

Q. Now, referring a moment to the starboard anchor, you thought it had not broken loose from its chain? A. Yes.

Q. And you thought it had, as you say, caught? A. That is the way it looked to me.

Q. And did it catch in the place—that is in the place where you thought it was in, did it remain, as far as you know? A. No.

Q. What happened to it? A. It dragged along.

Q. But you saw that, didn't you? A. Well, that is the idea I would form from the way it came along.

Q. I am speaking now of the starboard anchor, you know, the one that you say held? A. Yes.

Q. Did that hold steady, or did that move after it went down? A. It held steady for a second or two.

Q. Then you say it moved on, did you? A. I didn't see it, no, I couldn't see down in the water.

Q. Well, no, I don't want to press you on that absurdity. Did you see any movement in the chain that indicated that the anchor had moved? A. Yes, it slacked up, and the bow came along, it went to the north.

Q. What chain slacked up—the starboard one? A. Yes—it seemed to, a little.

Mr. Smith: All right, thank you.

Mr. Burns: One question, my lord, I would desire to ask, which I did not cover, subject to my friend's asking anything with reference to it.

Q. You said, witness, that the bridge was open at nine minutes past six; then subsequently you heard this order, lower away the anchors. Could you say how long after the bridge was open you heard that order? A. Oh, I wouldn't like to say that. I guess—

Q. Approximately? A. Approximately about—

The Court. Q. Speak out, now? A. Four or five minutes.

Q. Four or five minutes after the bridge was completely open you heard this order? A. Yes.

(Witness aside).

Mr. Burns. Captain Jones.

HARRY ROBSON JONES, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. G. Tennant
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

H. R. Jones
Direct.

DIRECT EXAMINATION BY MR. BURNS:

Q. Captain, you are an extra master mariner? A. Yes, sir.

Q. For how long? A. My extra master certificate is dated at London, January '85, issued by the British Board of Trade—April '85.

Q. Then would you give the court the data with reference to your qualifications as a mariner—navigator? A. Yes, what particularly interests you is my experience in piloting matters?

Q. Yes? A. I was over a quarter of a century Vancouver pilot. 10

Q. Elsewhere—will you just give running data? A. Yes, I have had a good deal of experience of piloting before I came here. I commanded and piloted my own steamer on the Hoogly River, Calcutta, and was Government pilot at Colombo in Ceylon. So that for a deep water man, before I came here I had rather unusual pilotage experience in narrow waters.

Q. Well, what was the nature of the piloting done by you here—while you were here? A. Piloting everything that came along from the year 1891 to 1917—the early Empresses, and I was the first one to go out and attend the “Abyssinia”—the “Abyssinia,” “Bertha” and “Cappadocia” came here early, and the early Empresses. I was the first one to go off—rather curious, the outer wharf was not considered safe or big enough for the “Abyssinia,” they pulled in there with me afterwards. 20

Q. While you were engaged in piloting, were you regularly engaged, that is to say—A. Oh, yes, steady at it day and night, Sunday and holidays, over a quarter of a century.

Q. Now, are you familiar with the conditions surrounding the Second Narrows water, Captain? A. Oh, yes. The bridge was built after I stopped piloting in 1917. I am very familiar with the Second Narrows from the early days—almost I might say from '86 - '87. 30

Q. Navigating those waters? A. Oh, yes, yes. Before—this would be rather interesting to your lordship—before piloting—starting in '91, I had been up on the west coast with my boat in '88, and everyone gradually came up here that way so that I had very early experience—early for this new country—I had much experience.

Q. Have you investigated the Second Narrows bridge with reference to the navigation of it and so on? A. I have very closely, since, as my attention has been drawn to this case, and have carefully watched from the bridge the action of the tides there so as to be able to compare the action of the tide on the 10th of March, when this accident happened. 40

Q. Assuming the accident to have happened approximately at ten minutes past six on the 10th of March? A. Yes.

Q. What was the condition of tide there? A. The tide on that day was practically an eight hour ebb.

Mr. Griffin: Is my friend asking the witness to give us facts from the tide book, for that is all he could give, and that would be a matter of record.

Mr. Burns: Well, I was going to suggest when we came to that—

The Court: I assume he is basing that statement on the tide book.

10 The Witness: Oh, certainly, your lordship.

Mr. Burns: Yes, it is merely the ground work for the further questions I desire to ask the witness.

Q. And at what stage was it, so far as—

Mr. Griffin: Well, now, I submit my friend—your lordship, I think will agree—that will be a matter of record, what stage the tide would be at, as per the tide book, and the witness was not there personally.

20 The Court: No, I understand that is what he said to me, that he was basing these statements—these preparatory statements upon an examination of the tide book as applicable to the Narrows Bridge.

Mr. Griffin: Yes, well my objection is to him stating that at all. They are a matter of record, and we can refer to them. My friend can't put that in as a part of the evidence.

The Court: I don't think you caught his question, maybe. I asked him that, I said "You admit you are basing it on the tide book;" he said "Oh, yes."

Mr. Griffin: Well, that ought to end it.

30 The Witness: The remarkable thing about that tide on the 10th of March, 1927, with the exception of six tides in the 31 days of that month, it was the longest run out. We judge the force of a tide by the amount of the drop of the tide. That tide dropped 8.7 feet, and there is only six similar tides in that month—

The Court: Q. How many feet did you say? A. 8.7.

Q. A little closer, if you please? A. Yes.

Q. You said it was what, just— A. 8.7 feet.

Q. 8.7, yes? A. Yes, your lordship.

Q. And an 8 hours run out, you said? A. Yes.

40 Q. Yes? A. And the tide reaches generally its maximum force somewhere between two thirds to three fourths of that tide—ebb and flood, therefore on the last half hour of a considerable tide of that description the maximum force on that day, according to the records on the bridge would be about nine and a quarter—about five and a quarter miles, which reduced to knots would be about four and a half knots. Then that would reach its maximum about two thirds or three fourths—about two hours and a half before low water. Then the last half hour is—which is the one that

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
H. R. Jones
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case

H. R. Jones
 Direct.
 (Contd.)

interests you here in the collision of the "Eurana" with the pier—it would probably be running about one and three quarter knots—from $1\frac{1}{2}$ to 2 knots, which is considerable, when you have to consider the speed of your vessel, either through the water or over the ground.

Mr. Burns: Now, have you heard all the evidence of Mr. Tennant, the last witness, with reference to the accident? A. Yes, and I don't think it was very clearly understood what a splendid position the bascule bridge is for observing what is taking place. From the bridge you mount up a series of steps to the platform 10 where this tremendous weight—this bascule is worked. There is a little bridge where the engineer walks each side, and can see all over, you have got a regular bird's-eye view of everything. The bridge, of course, is considerably high above the water, and then you mount up 20 or 30 feet into this splendid platform where the engineer works the bascule, and you get a remarkable view from there of everything taking place, so that they have a most excellent opportunity of seeing what is taking place.

Mr. Griffin: You don't want me to interrupt—it doesn't seem to be applicable, but I don't want to interrupt your witness. 20

Mr. Burns: Q. What do you say as to the "Eurana" passing through that bridge under these circumstances, or in this condition, with safety if properly navigated? A. Well, she had a following tide, and a following tide is not so safe as slack water, or a little tide against you, because with the following tide necessarily in approaching an opening like the bridge the pilot or navigator looks upon it very much the same as approaching a wharf, and you approach it cautiously, of course. If you have a following tide in addition to the speed of your vessel, you have to put 30 on the speed of your vessel—suppose you are going five knots, if there is a two knot tide, there is six knots—then you are going seven knots over the ground. But if you have that two knots against you you take two from five and you are only going three over the ground. You see the difference, your lordship. It is a very important point.

Q. Well, then, in that connection, on the matter of coming down to negotiate the navigation of that bridge on a following tide, that is in a different position than if it is slack water or a little tide against? A. It would not be so safe with a following tide as at slack water, or with a tide a little against you. 40

Q. Why? A. Because the speed is increased when you have it with you, you have—we will say you are approaching very cautiously four or five knots to keep good steerage way on your vessel, that is with your steamer if you have a tide with you, that is increased—that increases the steering capacity of the ship. It is increased another two knots so instead of going four or five

you are going six or seven. Whereas if it is slack water, of course you would not be affected that way.

Mr. Burns: I desired, my lord, before I called this witness, to put two interrogatories in their answers on the size of the ship. I should have done that. I would like to ask the privilege of doing that now, because I desire to ask a question of this witness on them. They are questions four or five of the interrogatories delivered on behalf of the Plaintiff to be answered by the Defendant.

The Court: Now, you are drawing his attention to interroga-
10 tories 4 and 5?

Mr. Burns: 4 and 5, yes.

The Court: Yes, I understand.

Mr. Burns: 4 is the length.

The Court: One minute, if you please—4 and 5, yes.

Mr. Burns: 4 is: "Give the length, beam, draft, light and loaded tonnage and horsepower of the 'Eurana'. That is a description of the 'Eurana' and the other is 5: "Was the 'Eurana' loaded with cargo at the time of the collision, if so, to what extent?"

The Court: Now, you had better give the witness these, of
20 course, then follow on with the other.

Mr. Burns: Yes.

The Court: 4 and 5, yes.

Mr. Burns: The answers are: "Steamship 'Eurana' length 399.7 feet, beam 56.21 feet, draft light 10.6 inches.

The Court: Yes, laden?

Mr. Burns: "Fully loaded 26.7 inches (Summer); tonnage, 3516 net register; gross, approximately 5,688; horsepower of engines 2500; deadweight tonnage 9600."

The Court: Wait, now, 9600, yes.

Mr. Burns: General Electric turbine, the engine. The an-
30 swer to 5, which gives her load at the time when she was passing, attempted to pass the bridge, she was laden with 4,200,000 feet of lumber approximately.

The Court: She was laden with what?

Mr. Burns: 4,200,000 feet of lumber.

The Court: Yes.

Mr. Burns: Approximately 6,300 tons. She would be about three quarters laden.

The Witness: Sir?

Q. She would be about three quarters laden, would she?
40 A. 6000 tons—oh, I should think she was pretty well loaded with that load, a vessel of that size, 3000 register.

Q. 3500 register? A. Yes.

Q. 56 gross? A. Fairly well loaded I should think; I don't know. It doesn't mention the draft she was at the time, 26 is the maximum draft—26 feet.

Q. Yes, fully loaded 26.7? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

H. R. Jones
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Direct.
 (Contd.)

Q. Now, you have said that if properly navigated in these conditions she could safely pass the bridge? A. The bridge—the opening of the bridge is perfectly safe under proper management at the proper stages of tide.

Q. Then what do you mean by that, Captain? A. If you don't begin at the proper stage of tide, of course there is necessarily a little risk attached to it with a large vessel, of course.

Q. What is the opening of the span? A. About—from all I can guess about 175 clear through there. It is very similar to the opening between Johnson's docks and the wharf where I have seen two large steamers lay, one at one wharf and one at the other, that is why I used that simile about the bridge opening very much the same as you would a dock. Then when you get her pointed all right, of course coming down from the east with such a ship as the "Eurana", one would go cautiously up to the bridge and then use the engines to stop her way a little and point her straight, because right handed propeller engines when going astern has the same effect as the port helm, it twists the vessel, and it is an ideal position coming down from the eastward with a single screw vessel, much better than coming from the westward, because in going down you are able, using your right handed propeller, it helps you to straighten up the vessel and then you go straight through.

Q. She is a single screw, is she? A. That is a single screw boat, yes.

Q. Well, having in view the evidence of the witness Tennant, the bridge operator—A. Yes?

Q. —would you say that she was properly navigated? A. Well, I gathered from the report there is—

Mr. Griffin: Wait before you answer that. May I have that question read. I did not catch what my friend said, and I want to hear it.

(Question read as follows: "Well, having in view the evidence of the witness Tennant, the bridge operator, would you say that she was properly navigated"?)

Mr. Griffin: I submit that is a matter for your lordship, not a matter for a witness to say, whether the vessel was properly navigated.

Mr. Burns: Well, possibly I might put it this way.

Q. Can you point to any particular in which it was not properly navigated? A. Yes, I noticed that—

Mr. Griffin: Wait—

Mr. Burns: Well, that is a matter of navigation.

Mr. Griffin: Wait now, witness, please. That, I submit again, my lord, is not a proper question. The witness was not there, it is not a permissible statement for him to take the evidence of the witness Tennant and comment upon that and then offer your lordship a statement that she was improperly navigated. That is

for your lordship to decide on the evidence of Mr. Tennant that you heard.

The Court: The only point of it, you see, Mr. Griffin, what is proper in the due and safe course of navigation.

Mr. Griffin: Yes.

The Court: Well, surely the court should not be denied the assistance of skilful navigators of experience—presumably so, of course until such is displaced—as to whether or no there was anything that was deficient in the navigation at that moment.

10 You see where Assessors sit in Admiralty Courts (there are no assessors today) that evidence is not allowed—a question of that kind is not allowed to be asked because the Court, of course, is self-informed; but when I am without that assistance, as in this case, surely it would not be right to refuse to have anything indicated, which would of course apply to witnesses on both sides.

Mr. Griffin: Well, my submission was a narrow one, it was only meant that the witness could undoubtedly give evidence as to her manner of going through the bridge, then if your lordship should consider that that was an incorrect approach in the navigation of the “Eurana” your lordship would draw the inference, but I don’t think he is entitled to put himself in the position of the court and having heard the evidence of the other witness, offer evidence, as you might say, summarizing it into a finding. I am quite content that he should give his opinion as to how it should be navigated.

The Court: Oh, no, you are right, of course, in this, Mr. Griffin, but for the moment I only want the witness to explain, for the information of the court. I did not understand Mr. Burns is intending to do that, but his object is to show, for the guidance of the court, that there was something that was deficient from the ordinary course of proper navigation.

Mr. Burns: Yes, my lord, in fact the question will bear that out—

The Court: Viewing the question in that way, I think it is not objectionable. You understand, witness, of course.

Mr. Burns: I might put the question in this way: Would you point out, witness, the defects that are apparent from a navigating point of view that occurred?

Mr. Griffin: I would not object to that if he had seen it, but he did not. Now you are asking him to draw from the evidence of one eye-witness and comment on that and say if the vessel was run that way then she was improperly navigated. That, I submit, is for your lordship.

The Court: Well, I think this matter has been before me—this very point has been before me very often in regard to this very thing, with regard to the Westminster Bridge not long ago and also with regard to the other bridges, and I have always ruled

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

H. R. Jones
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Direct.
 (Contd.)

in that way, that it is quite open to presumably competent and skilful navigators to indicate to the court anything that they think that has occurred that they would in their opinion say was absence of taking proper precautions. Now, in that way, then, witness, you will understand your evidence is being accepted. I do not think Mr. Burns intends anything more than that.

Mr. Burns: It was proffered only on that basis and nothing else, my lord.

The Court: Yes.

The Witness: The question is—

Mr. Burns: Q. In what respects, in your opinion, in view of the evidence you have heard, if any, was the "Eurana" improperly navigated in passing the bridge—attempting to pass? 10

A. There is one very essential fact that the engineer mentioned, and the two days I spent on the bridge examining the tidal conditions and general working of the bridge quite recently, I found out that what the engineer said was endorsed by others—

The Court: Wait now, do not get into that, you know—not what the engineer told you.

Mr. Burns: Q. No, it is your own observation. 20

The Court: Other than what you have heard here, not what others have said. Just apply your own judgment.

A. For a vessel of this—

The Court: Q. Apply your own judgment to your own observation in answering the counsel's questions, your own observation plus what Tennant has stated in the box, just before you came in? A. East of the bridge is a point that makes out a little—there is a real narrow part of the Narrows.

Mr. Burns: Q. How far east is that? A. About—oh, somewhere about 1500 feet or so; and from that point— 30

The Court: Now, you see, Mr. Burns, that is rather important, if you look at Exhibit 8, and point out what point he means.

Mr. Burns: Q. North or south shore, Captain? A. On the south shore.

Q. Is that near Berry Point? A. No, no, Berry Point is a mile farther eastward.

The Court: Q. Is that Harbour Plan big enough for your purpose, witness, or do you wish the Admiralty chart? A. I think it shows a little more clearly on the chart, your lordship. 40

Q. You are looking now at Exhibit 7, and you refer to a point on Exhibit 7 on the south shore? A. This is the point I refer to—

Q. Just one moment, now, this is not plan 7 you are looking at—Exhibit 7, but Exhibit 8, is it?

Mr. Burns: 8, my lord.

The Court: Let me see that, Mr. Burns. Is that the same as this?

Mr. Burns: No, it is not, my lord.

The Court: There is another exhibit you want to put in, then.

The Witness: That is a larger scale.

Mr. Burns: This is a larger scale.

The Witness: Yes, this is—

Mr. Burns: We will put that in.

10 The Witness: I can mark on this to show the point more clearly.

The Court: That is another exhibit then. Exhibit 9 is a small scale harbour plan, is it?

Mr. Burns: Yes, it is the Harbour Board plan.

(PLAN MARKED EXHIBIT NO. 9)

The Witness: Vancouver Harbour, between First and Second Narrows.

The Court: August 1922.

20 Q. Now you are looking at Exhibit 9 and not 7, witness, and you say what—that there is a point on the south shore on the east of the bridge? A. Yes, I have marked it there, yes, my lord.

Q. Yes, will you mark that point with the letter "A" in red pencil. Mark that point letter "A" in red pencil? A. (Indicating).

Q. Now, just let me see that. That is just at the foot of Ingleton Avenue? A. The peculiarity about that point is—the land does not fall away from it very much, but it is a very dangerous and important factor.

30 Mr. Burns: Q. What are your remarks with reference to that, Captain? A. It is about 15 or 16 or 1700 feet east of the bridge. Now, on the ebb tide there is shoal land there, and there is a glide around that point, there is no mention on the chart, but I have indicated where it is, but it is about the narrowest part of the Narrows, a glide runs round there. Now, from the easternmost point of the bridge there is quite a bit of shoal on the four or five fathom line, there is quite a little distance off that. In coming down—in taking the Narrows in the ordinary way, before the bridge was there, we had to guard against that. Now, coming down to the bridge if a steamer happens to be farther south of
40 mid stream and comes near that four or five fathom line she is going to—well, what term shall I use—she is going to ricochet off.

Q. Will you explain that? A. Well, there is dead water there—can be seen very clearly at any time. The tide may not amount to considerable force mid stream, but this point being to leeward so that on the ebb tide there is dead water—slack water

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
H. R. Jones
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Direct.
 (Contd.)

forms there, and if you happen to strike that with the vessel it will upset your steering very badly, and you cushion off at once. In the case of a steamer coming down there—coming down from Barnet if she is down in the stream—if she goes too far down on the south shore and strikes that point there she is going to come round quick—she is going to cushion—ricochet off. It is all like running waters, if you approach the point with small or large craft there is a cushion of water formed and you are going to be cushioned off. All river men know that very well, even big or small boats or ships, it applies, the same thing. And that is what you want, the simile of— 10

Q. Yes, I want you to proceed, Captain?

A. Yes. Well, that is what I imagine from the evidence I gathered and from the report of the *Eurana*, that she was farther down on the south side, instead of being in the fair stream she was well to the southward of the centre of the stream and she cushioned off there, and there was a flood tide coming in, and she certainly could not possibly be half an hour before that beginning of ebb, because from my experience of the tide tables in these waters they are exceedingly accurate—very accurate indeed. Speaking of the tide table, that is an interesting question—it will interest your lordship. Up to about twenty years ago we navigators of B. C. waters used to use particular terms in tide tables— 20

The Court: Perhaps you do not need to bother to go into this.

Mr. Burns: No, that is not in this case.

The Witness: I wanted just to show you the reading of these tables.

The Court: That is sufficient, we are told from your experience that they are very accurate. 30

The Witness: Exceedingly; all nautical men will endorse that.

The Court: That will be sufficient.

The Witness: I mean narrow waters like the Second Narrows or First Narrows anywhere, for the flood tide to come in half an hour before the run out like that would be—it wouldn't be. So that I maintain—I fancy cushioning off that shoal, off the four or five fathom line, those in charge of the boat imagined it was the flood tide coming in and turned them round, and it was not. It is impossible to be that tide. 40

Q. Now, are there any other points that you would call attention to? A. Well, I don't see why, if your anchors were let go, promptly dropping the port anchor would reinforce the starboard helm and bring her right straight up from the bridge—might or might not; instead of which they dropped both to stop her way, and then the ebb tide following after would bring her stern round, put her in a very awkward position—instead of starboarding and so bring her more to starboard.

Q. More to starboard? A. Yes.

Mr. Griffin: What is my friend aiming at here?

Mr. Burns: I am just simply following down that question.

Mr. Griffin: What question?

Mr. Burns: The question that the witness has been referring to and which we were discussing.

The Court: What is your objection, Mr. Griffin?

Mr. Griffin: I do not see that this leads to anything. There is no suggestion of wrongdoing in any of these matters, I can't
10 find anything to address it to, you see, I have nothing to address it to.

The Court: Well, if there is no harm being done, Mr. Griffin?

Mr. Griffin: No, no harm.

The Court: There is no objection to Mr. Burns proceeding because of course it is his case and I do not like to interrupt if he is basing it on something.

Mr. Burns: Q. There were certain statements made by the witness Tennant, and these statements have been made use of by
20 this witness in connection with his answer to that question.

The Witness: It is a question of seamanship and nautical manouvering I am trying to explain.

Q. Now, would you explain, Captain, how you would navigate that bridge under those conditions? A. Under the conditions that the "Eurana" was in?

Q. Yes? A. Well, in the first place I shouldn't have been there at that time, I should have been very decidedly later, not half an hour before the tide turned. If I happened to be there I should wait a bit, unless things were very favourable; but you
30 see with a following tide you are taking—it is not so safe as with slack water, it stands to reason.

The Court: Q. Now, I do not quite understand. What is it you say witness? You said to the counsel in the first place that if you were navigating through that bridge you would not be there at that time? A. No.

Q. Then you went on to say that if you got there, what?

A. Supposing I happened to be there under—some way or other there, I should wait a bit for the tide to turn—to slacken up.

Q. Yes? A. Before I got too close, the other side of Berry
40 Point, I would have left Barnet—I would have left Barnet later. The time that steamer left Barnet, it was within the last hour of the ebb—one hour, so of course she was down there in about twenty minutes before she gave the signal—pretty close.

Mr. Burns: Q. Then assuming that you were where she was when she gave the signal how would you navigate the opening of the bridge? A. Unless I had a very small handy ship, I

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

H. R. Jones
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Direct.
 (Contd.)

should not be as far as that, I should wait the other side of Berry Point until the tide slacked a bit.

The Court: Q. You should wait the other side of a point?

A. No, Berry Point.

Q. Bay Point? A. Berry Point, is it not?

Q. Well, I do not know that. A. The admiralty chart there.

Mr. Burns: Q. Indicate Berry Point to his lordship, would you, Captain, please?

The Court: Berry Point you call it, do you? I am not familiar with the names. 10

Mr. Burns: That is some distance from the bridge east.

The Court: It is a big point to the eastward, yes, I see that.

The Witness: Berry Point may be considered the eastern end of the Second Narrows.

Q. Oh, yes, I see that now. A. And the tide must be set strong—the ebb tide there. It gets the whole force of the ebb from the North Arm to Port Moody, you see.

The Court: Yes.

The Witness: The point I wanted to emphasize about the questions I have been asked is this, that the proper time to take that opening is at slack water, or near slack water; and if you can get a little tide against you, so much the better. That is the proper time to take this bridge—any expert nautical man that is used to there will endorse that. 20

Mr. Burns: All right.

The Court: I shall not trouble you now, Mr. Griffin. A quarter after two, Mr. Registrar.

(1 P.M. COURT ADJOURNED UNTIL 2:15 P.M.)

(2:15 P.M. COURT RESUMED PURSUANT TO
 ADJOURNMENT) 30

HARRY ROBSON JONES, resumed the stand.

CROSS-EXAMINATION BY MR. GRIFFIN:

H. R. Jones
 Cross-exam.

Q. Witness, I don't know that I got correctly what was the last occasion on which you took a vessel through the Second Narrows? A. Oh, probably the early part of '17.

Q. 1917? A. Yes.

The Court: I beg your pardon, Mr. Griffin, I did not quite catch that.

Mr. Griffin: The last occasion upon which this witness took a vessel through the Second Narrows was in the year 1917. 40

The Court: One minute, if you please.

Mr. Griffin: Q. And that vessel was what?

A. Oh, I have taken so many through between '91 and '17,

that I really forget the names of the vessels—probably took an oil tanker up to Ioco.

Q. So far as you remember it was an oil tanker, was it?

A. Yes.

Q. And that is the last one. Then since the bridge, clearly, was built you have taken nothing up? A. No.

The Court: I understood you to say, Mr. Griffin, that since '91 he didn't take a vessel.

Mr. Griffin: Since 1917.

10 The Court: 1917, thank you.

Mr. Griffin: Never took a vessel up.

The Witness: '91 to '17.

The Court: Q. '91 to '17, yes.

Mr. Griffin: 1891 to 1917.

The Court: Yes.

Mr. Griffin: Q. Now, you spoke of having made investigations of conditions at the Second Narrows. When were those investigations made? A. I spent Sunday, where there was a very slack tide over the—

20 Q. Just give the dates? A. Last Sunday.

Q. Any other day? A. I think the previous day was the Friday before—last Sunday and last Friday.

Q. So what you have given here today so far is based upon your own observations, is based upon those of two days, last Friday and last Sunday? A. Actually on the bridge watching the states of the tide and learning things in general—a great deal.

Q. Then as far as your estimate is based upon what you learned from others— A. In the time I was there I had to be careful of certain places and so on and so on.

30 Q. Now, I have just a short point there, that your investigations that you have made you would see with your own eyes in those two days, and the rest consists of information from other people? A. Yes.

Q. And those other people were Tennant, I suppose, the bridge tender, who gave evidence— A. Yes.

Q. —and Mr. Ward, the manager of the bridge company? A. Yes.

Q. And who else? A. No one else.

40 Q. So that really it comes down to this, that when you speak of having gathered—the evidence that you have gathered, and from reports, you mean reports and information you had gathered from the bridge tender and the manager of the plaintiff company? A. Yes, You will understand—

Q. Please answer that question. Is that true—correct?

A. Such evidence I got was from the servants of the bridge.

Q. Well, but I want to know if there were any others. You have given me two names? A. No.

RECORD

*British Columbia
Admiralty Diss.*

Plaintiff's
Case

H. R. Jones
Cross-exam.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Cross-exam.
 (Contd.)

- Q. Just those two? A. No—not those two, there are several.
- Q. Give me the names? A. But they were all pertaining to this—
- Q. Then you did converse with several people?
- A. What?
- Q. You did converse with several people? A. Oh, yes.
- Q. Then give their names, if any, of them? A. Major Ward, and one of the three engineers that tends the lift at the gate—name of Watson, and a Mr. Holland. Those are the only ones I recollect. 10
- Q. All right? A. There were several others.
- Q. All right, Watson, Holland and Tennant and others that you don't remember. A. Yes.
- Q. I see. A. I don't recollect their names.
- Q. That is all then. And your evidence as to tides, as you said, was based upon the book and your two days' observation?
- A. As affecting the bridge.
- Q. Yes? A. But as affecting the Narrows generally I had a very long experience. 20
- Q. Yes. Now, just verify for me that time—quoting from the report of the engineers who made the investigations of the bridge in 1924 they say, "Range of tide varies from 2 feet to 13." Do you verify that? Is that correct? A. There is a diagram made up by the engineers there showing the force of the tide, I have seen that, I think it is—we have it in our possession.
- Q. Well, if you wouldn't mind answering my question. Is that statement then of the variation in tides in the Second Narrows from 2 feet to 13 feet of a rise and fall—have you any difficulty with that question? A. I don't think there is any—in that diagram no such force as 13 feet mentioned. 30
- Q. No fall of 13 feet? A. No force.
- Q. Fall? A. Oh, fall.
- Q. That is it, rise and fall? A. Oh, well, the tide—
- Q. From a maximum of 13 feet to a minimum of about 2 feet? A. Something like that. The tide tables show that.
- Q. Then you don't know that? A. My reference to the tide table, yes.
- Q. From memory you don't know? A. Well, what particular occasion are you speaking of? 40
- Q. I am taking during the whole course of the year, the variation in tide level or tide rise in the Second Narrows is from a minimum of about two feet to a maximum of 13 feet? A. Something like that.
- Q. Then you do agree with me? A. I think it is—I think you might say fourteen would be more correct, but I won't be quite sure. A reference to the table will show it to you.

Q. My friend says that the word I should perhaps use is range of tides. Does that help you—the amount that the tide rises in one tide as compared to another? A. Yes.

Q. And you understood me? A. When you want to get at that you look at your tide table.

Q. I see. Now the commissioners in that same report say the conditions—listen to this:

“The conditions of rise and fall vary from the case where two tides of almost equal magnitude occur in twenty-four
10 hours to that where the difference is most pronounced.”

Is that correct? A. I don't quite follow that.

Q. If you like I will read it to you again, Captain. I am quoting from this same report, conditions—

A. What report is that?

Q. It is a report of the engineers who made the investigation into the bridge at the Public Inquiry in November, 1924. You have heard of that? A. I have, yes, but I don't know what—I can't criticize an engineer's report.

Q. I am not asking you to, I am asking you if it is correct
20 in the Second Narrows that,

“Conditions of rise and fall vary from the case where two tides of almost equal magnitude occur in twenty-four hours to that where the difference is most pronounced”—meaning between two tides in twenty-four hours. Is that a correct statement? A. The tide tables are remarkably correct.

Q. Oh, please answer my question. Is that a correct statement of the facts in the Second Narrows? A. Whether there is any variation in tides?

Q. No, no, that conditions are such that sometimes—have I
30 got to translate it as I should read it—that in some cases there will be in twenty-four hours two tides of almost equal magnitude? A. Yes.

Q. Whereas in other twenty-four hours there may be two tides so different that the difference between them is most pronounced? A. Exactly.

Q. Very well, then, you agree with me? A. There are many of these tides in a year, yes.

Q. That is what I asked. I take it then that the average range of tide would be about $7\frac{1}{2}$ feet? A. You mean through the
40 whole year?

Q. Yes? A. I must say I have never calculated that.

Q. Oh, but if the maximum is 14 that would be about right, wouldn't it? A. I daresay. I can't say.

Q. Well, wouldn't you, as a mere matter of expert obviousness agree that that is correct so that I can base further questions on it? A. I think probably the motion would be somewhere about that, but I don't know.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseH. R. Jones
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Cross-exam.
 (Contd.)

Q. Then if that is so—if that is so then a tide of 8.7 would be very nearly average? A. Oh, no, it is considerably above the average, certainly.

Q. Well, above the average as the difference is between 8.7 and 7.5, is it not? A. No, that is presuming 7 is the average. I am not sure, I don't know whether it is or not.

Q. I see. A. I should say to get that average you would have to go through the 365 days in the tide tables and it would be a long operation.

Q. Yes, but that was— A. To strike the average. 10

Q. If you say that fourteen—that the range is from 2 to 14, then you would get the range by adding the two together, wouldn't you, and dividing by two—the average range? A. Yes, it seems reasonable.

Q. Well, that makes an average of 8 then, doesn't it? A. I don't know.

Q. What? A. To get at the average of the tides you would have your work cut out. You would have to add up the whole 365 days to get the average. You are asking me a question what is the average, I am sure I never went through that arithmetical 20 calculation.

Q. But if the average range is got at by adding the minimum and maximum together and dividing by two, then 8 is the result, is it not? A. Yes, but there are so many tides, for example, these minus tides, as well as plus tides, which is important—I can't tell you what is the average tide. I doubt if any man who is using the tide tables generally—he couldn't tell you offhand what the average mean is.

Q. All right, I will leave that, witness, and get on to other things? A. But 8.7 is a large average for it, that is very certain 30—a strong tide.

Q. Well, we will leave that. I am reading from the tide table of 1927, I begin on page 30—

The Court: You had better put that in—exhibit 10? What year?

Mr. Griffin: 1927, my lord. The one which was in force then.

The Court: 1927.

Mr. Griffin: Yes.

(DOCUMENT MARKED EXHIBIT NO. 10)

Q. Where it is stated as follows: "In making use of the 40 tables it is important to have the time correctly. This is especially necessary in the case of slack water which may last only for a few minutes." Is that statement, that the slack water may last only for a few minutes correct? A. Everything is correct in that table, yes.

Q. No, but I mean is it correct as to the Second Narrows?

A. Certainly. The Second Narrows and any other narrows besides them.

Q. Oh, yes, but I am only concerned with one for the moment. I read from page 67—

The Court: 57 or 67?

Mr. Griffin: 67, my lord.

Q. The statement is there contained:

“The duration of slack water is quite short in a number of narrows here given, of which the Second Narrows is one, except in
10 the Sansome Narrows where the strength is less. Is it correct that in the Second Narrows as it says the duration of slack water is quite short? A. That question depends upon the tide. There are some tides may last the whole day where the difference between high and low water is very small, those are called slack tides; and there are medium slack, you see; but on the tides of any importance, the large tides the periods of slack is very short.

Q. Now, I am reading from this book whose accuracy you strongly press, and I don't find these qualifications there. Do you dispute the accuracy of the statement in the manner in which it
20 is given in the tide table? A. I don't dispute anything that is in the tide table. The tide table is absolutely correct. I have seen many tide tables round the world, but none more correct than those.

Q. I then read from page 72 as follows:

“Slack water is thus the time at which the horizontal motion is reversed, just as high water and low water are the times at which the vertical motion is reversed; it must not be supposed that these coincide in time, however, as practically speaking they never do. There are some conditions indeed
30 which make slack water occur near half tide or midway in time between high water and low water.” Do you concur in that statement? A. Let me read that.

Q. The last paragraph. (Handing book to witness).

A. Where is it—the last paragraph?

Q. The last paragraph there. (Indicating to witness). Do you understand what vertical motion means? A. I don't understand that.

Q. I just want to know if you concur in that paragraph. If you don't understand it then probably you will not be able to
40 agree with it? A. I am trying to understand it. Yes, yes, I understand it. That is all right.

Q. Then do you concur in it? A. Yes.

Q. Do those conditions prevail in the Second Narrows? A. Oh, yes, yes, all over the harbour—the First Narrows as well and all the other narrows.

Q. Now, I take it that you as a navigator will agree that the happening of an accident does not prove in itself careless navigation, does it? A. Not necessarily.

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

H. R. Jones
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 H. R. Jones
 Cross-exam.
 (Contd.)

Q. Now, take, for example, to be frank about it, this bridge has had a great many accidents as you well know? A. No, very few. There have only been about—I understand there have been about 3,000 ships pass through there and only two major accidents. The one that you are interested in is one.

Q. I know, there will be evidence showing 60 or 70 accidents?
 A. There may be small ones.

Q. Suppose therefore—if you will take that from me for the moment—if such be the case, is it not correct that the mere happening of an accident does not of itself prove bad navigation. 10
 Does it? A. Well, there is no accident where if you had done something else it would not have occurred.

Q. Please be frank, witness. You came here to be an expert, didn't you? A. Yes.

Q. And you have been a navigator? A. I beg your pardon?

Q. And you have been a navigator? A. Yes, all my life.

Q. And you have had accidents? A. Well—

Q. Just answer that yes or no: Have you or haven't you?
 A. For thirty-seven years no, and then I had a nervous break-
 down and I had two or three slight ones, yes. 20

Q. Yes, then, I am only putting it to you to see if you will be fair to other navigators except yourself that the happening of an accident does not prove bad navigation, does it? A. It is difficult to say; I should want to know the conditions before I could answer that question.

Q. No, I ask you that, you have nothing before you but the fact that a navigator had an accident. That does not prove he was careless, does it? A. Well, in case—there are so many accidents in cases of collision, one is wrong where the other is right.

Q. There might be neither of them in the wrong, might they 30
 not? A. Hardly.

Q. But it can happen? A. Possibly.

Q. Did you conceive that you were at fault in your accidents? A. As a rule an accident is caused by an error of judgment.

Q. An error of judgment, but that is not negligence, is it?
 A. No.

Q. Well, that is what I mean—that is what I asked you. Then you do agree with me that the happening of a marine accident does not prove negligence, does it? A. That again depends 40
 —a man may be inefficient, and may be sick and might be drunk.

Q. Yes, all of those might occur, and some may show negligence and some may not, isn't that right? A. Yes.

Q. Then I take it the major proposition I put to you is clear, that you agree that the mere happening of a marine casualty does not prove anybody was negligent? A. In most cases I think, yes; maybe a few cases where it does not.

Q. Well, you answer the question I put to you, don't fence with me, answer it yes or no. It does not necessarily prove it, does it? A. Accidents generally are caused by some error of judgment unquestionably.

Q. And sometimes they are not? A. Very rarely.

Q. And you know there are cases of errors of judgment which are not negligence, isn't that true? A. I suppose.

Q. Now, as a matter of fact, you yourself had several accidents, hadn't you? A. For thirty-seven years I never touched
10 bottom, never had an accident.

Q. All right, I will read them to you? A. In the last years of piloting I had a few slight accidents, yes—none of them major ones. I had a nervous breakdown.

Q. You had an accident with a ship called the "Barrister?" A. Yes, in the pass—the other side of the pass.

Q. Active Pass? A. And if I hadn't been very careful with her she would have been a total loss, instead of which you went down to Seattle. It was in the early days when—and in six days she had loaded her full cargo for the United Kingdom.

Q. You had an accident between Evans, Coleman & Evans
20 and the Johnson Wharf and broke a ship's propellor, didn't you?

A. I don't recollect that.

Q. Do you deny it? A. I don't recollect it.

Q. Will you deny it? A. I simply say I don't recollect. For twenty-five and a half years I was piloting; I may have had some slight accidents.

Q. I understand these were in your last years of piloting?

A. Last years' piloting was the only one where I met several minor accidents owing to a nervous breakdown.

Q. Then you had a Japanese ship which went ashore on the
30 Sandheads in 1915 or 1916? A. That is right, yes.

Q. Then you had the Makura— A. The boat was undamaged.

Q. Did you have the Makura ashore on the North Shore? Didn't you? Answer the question yes or no, please? A. In answering that question—

Q. Please answer it first, yes or no? A. In answering that question I am going to answer it this way—

Q. Please answer it my way first, yes or no, and I will give
40 you a chance— A. I struck bottom—it is a very different thing, the running aground of the Makura. Was it the Makura—yes.

Q. All right, I just asked you a short question to get rid of it— A. The first time I ever touched bottom navigating these Narrows in five and thirty years.

Q. Isn't it a fact that in consequence of that you were demoted from your position as a pilot and made a junior pilot? A. No.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
H. R. Jones
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

H. R. Jones
Cross-exam.
(Contd.)

Q. Well, what was it in consequence of then? A. I was not made a junior pilot, I was dismissed from the service.

Q. Well, that is even worse—I didn't know it was as bad as that; and it was in consequence of that accident? A. To explain the dismissal, I would say railroaded out.

Q. Yes, by whom? If you go that far? A. The parties that were personally antagonistic to me.

Q. And the ground alleged against you, that these accidents were not— A. Yes.

Q. And you have never since done any piloting? A. Oh, 10
yes.

Q. Well, when? Not from 1917, you admitted it?

A. After that I was appointed as lieutenant in command at Sidney, Nova Scotia, where there were thirty-two pilots, who were under the C. E. O., Chief Examining Officer. I was chief examining Officer. There were a great many very important ships came in there with American troops, and although I was comparatively strange to the waters, they would not trust the pilots there and I had to pilot those ships. So strange to say, I found myself piloting in Sidney very important ships in waters that I had no great 20
familiarity with, so that I was piloting after it in very important cases.

Q. That is what year? A. 1918.

Q. 1918, but never on this west coast? A. No.

Q. Never on this west coast since these accidents? A. Oh, I have been running small crafts—not piloting, no.

Q. And have you not in fact offered your services to steamship interests as pilot since that date? A. I believe I have once or twice.

Q. And haven't you uniformly been refused? A. I have 30
been told they had their own special pilots and they didn't want anybody else. The whole pilotage system is very disorganized as you know.

Q. And that is the party whose navigation was concerned in the marine case which sat with assessors, the case of the "Barrister?" A. I didn't catch that.

Q. In the case of the "Barrister," didn't the court sit with nautical assessors? A. I don't know.

Q. In the investigation. There was an investigation with nautical assessor as officers—or on the bench? A. Oh, yes, a 40
marine court of inquiry.

Q. Marine court of inquiry? A. Yes.

Q. And your conduct was censured, was it not? A. I really forget.

Q. You forget that? A. Yes.

Q. Is it not a fact that Captain Wingate— A. I was wrong. I was wrong, I had—I committed an error of judgment. It was very thick weather—couldn't see the bow from the bridge.

Q. And I don't assume that you call that negligence, do you?
A. Oh, dear no.

Q. Oh, dear no. And wasn't Captain Wingate, who was the pilot of the "Eurana" on the occasion mentioned in this cause, was he not one of the nautical assessors? A. I think he was. I really forget. I think that is the first time I met him. That was down in Victoria, was it not?

Q. What time were you there last Sunday looking at these tides? A. Half past five in the morning.

10 Q. How long did you stay there? A. I beg your pardon?

Q. How long did you remain? A. Until—half past five a.m. to half past one p.m.

Q. That is all? A. Yes, on Sunday.

Q. And on Friday how long? A. Several hours, I don't know exactly how long.

Mr. Griffin: All right, thank you, that is all.

RE-DIRECT EXAMINATION BY MR. BURNS

20 Q. On those two occasions, Captain, were they or were they not the same conditions—tide conditions about the time of the "Eurana" accident—and weather conditions? A. On Sunday—on Sunday, yes.

Q. Tide and weather? A. Yes. It is rather curious—I wish to present this to the court: I have been questioned about piloting—I happened to have a certificate from the pilotage authorities—authorities that do not exist today—under the old licensing system,

Mr. Burns: I think I will put this to the court.

The Witness: My friend here has been trying to throw aspersions on my nautical ability. That answers it pretty well.

30 Mr. Burns: Well, that is the usual course. I present this to your lordship.

The Court: Let me see what it is, Mr. Burns.

The Witness: That is issued by the Secretary-Treasurer and Manager of the old Vancouver Pilotage Authorities, Gardner Johnson.

The Court: Have you seen it, Mr. Griffin?

Mr. Griffin: No, my lord.

The Court: You might just show it to Mr. Griffin.

40 The Witness: I have many others superior to that, if your lordship would like to see them. I had a nervous breakdown after twenty-five years—had same slight accidents.

Mr. Burns: I don't know whether I should file it or not, my lord.

The Court: I do not know if Mr. Griffin has any objection to it. As I understand, you tender it as a certificate of the old pilotage board—for how many years was it?

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

H. R. Jones
Cross-exam.
(Contd.)

H. R. Jones
Re-direct

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseH. R. Jones
Re-direct
(Contd.)

Mr. Burns: Twenty-four years.

The Court: Twenty-four years, and had not the slightest accident, is that it?

Mr. Burns: Slightest mishap or accident to any vessel in his charge in all weathers and all times of the year.

The Court: Of course, the witness has stated that.

Mr. Burns: He has stated it.

The Court: It is uncontradicted. It is not strictly speaking evidence. I do not know whether Mr. Griffin objects to it or not.

Mr. Griffin: I have really no objection to his having the 10
advantage of it, but as I say it is not evidence.

The Court: He has no objection, you may file it.

Mr. Burns: Yes, I will file it. It is something volunteered by the witness that I think I should file it, my lord.

(DOCUMENT MARKED EXHIBIT NO. 11)

(Witness aside)

Proceedings at
Trial.

Mr. Burns: With reference to exhibit 5, my lord, this is the order of the Board of Railway Commissioners, No. 33962 dated the 31st day of July, 1923,—

The Court: Exhibit 5. 20

Mr. Burns: Exhibit 5.

The Court: Yes.

Mr. Burns: I note that, that this order—

The Court: 31st July of 1923.

Mr. Burns: Yes, my lord.

The Court: Yes.

Mr. Burns: That is the order authorizing the construction of the proposed bridge, and I note at the end of it it states, "Detailed plans of the said structure and superstructure of the said proposed bridge to be filed for the approval of an engineer of the Board." Now, as a matter of fact, following out that order there were innumerable detailed plans of various parts of the bridge which were filed for approval— 30

Mr. Griffin: Well—

Mr. Burns: I am making a statement.

Mr. Griffin: He can't make statements as counsel, for he must be able to prove them and if he can't—in only a matter that he may be a party to, but he might submit this to be proved—

Mr. Burns: I am just leading up to this statement, my lord, that innumerable of these plans—these detail plans, which are 40
working plans as your lordship well knows—were filed for approval by the engineer of the Board and duly signed by him. We have two or three of them here—we have a whole chest full as a matter of fact in connection with the construction of the bridge. I only mentioned two because I propose to put in one of them that we have here indicating this position—at least, indicating the

nature of the plans—the detail plans which are approved, and offer to the court all the others. I do not know any reason particularly for filing them and incumbering the record with them, but I state that they are available if required.

The Court: It comes to this that there are certain plans there—

Mr. Burns: Yes.

The Court: A number of which you have which are open to the inspection of your learned friend, but you do not wish to put them in now.

Mr. Burns: Well, I think if I put them in, there are so many of them I thought of following the same course and proposing to put one in.

The Court: Well, we will test it on that, do not put in anything more than is really necessary.

Mr. Burns: And I have all the rest ready to put in if they are desired. I think that statement covers the situation. This one I am putting in is a detailed plan of sections of piers Nos. 3 and 4.

Mr. Griffin: If your lordship pleases, I would like to enter objection to that, for the following reasons—

The Court: You see now, I just want to see, Mr. Griffin, he details the detail plans of—

Mr. Burns: Of sections of piers 3 and 4.

The Court: Sections of piers—

Mr. Burns: “No.” I suppose that is for north 3 and 4, no, “Number.”

The Court: “Number”, yes.

Mr. Burns: Piers No. 3 and 4.

The Court: What is the object of them, Mr. Burns? Will that help us at all supposing it is in.

Mr. Burns: Well, the only thing is—

The Court: It is only a question of actual construction, is it not?

Mr. Burns: Yes, my lord, detailed plans of construction.

The Court: Well, that is what I mean. What I mean, that is probably construction, that does not mean so to speak the laying out of the locus at all, does it?

Mr. Burns: No, my lord.

The Court: Well, you do not want that really.

Mr. Burns: Well, you don't need it—except the question in my mind is this, my lord, as to whether the filing of these detailed plans for the approval of the engineer of the board is a condition to the order, that is the only thing that is in my mind and I want to cover the point.

The Court: I see.

Mr. Burns: I will read the order—

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

The Court: Yes, let me have the order. What you are now really doing is this, is it not, that you tender these plans to show that you complied with this order?

Mr. Burns; Yes, with the last paragraph of the last portion of that order.

The Court: In case it should be said that it is a condition precedent that detailed plans of the said structure and superstructure are required, in order to validate your proceedings you say you have them here now and tender them.

Mr. Burns: Yes, my lord, and I was suggesting to put one in simply as a sample, as a matter of fact, but I am taking that position as counsel—

The Court: It does not prove anything.

Mr. Griffin: Not a thing my lord, but I might arrange with my friend—not encumbering the record, if my objection is sustained. Those plans are and could only be filed under sub-section “B” of section 248 which provides as follows: (Reading.) Now, my lord, these have to be presented to the Board of Railway Commissioners with the application. They must precede the application, they must be before the Board before it acts upon them and your lordship has before you the fact that the order of the Board is dated 31st July, 1923, and the plans that my friend tenders is dated the 2nd August, 1923; therefore, it was not before the Railway Commissioners when they made their order and could not legally be filed afterwards, so that my submission is that it should not be received.

The Court: Well, let me see that again, Mr. Registrar. You see, Mr. Griffin, it says these detailed plans are to be filed. That is a term in futuro.

Mr. Griffin: Yes, my lord, I concede the order would indicate filing in futuro, but the statute would not permit such. The order so far as would indicate futurity is without the statute. The Board must have it before them before they make the order of approval. In other words, to put the point another way, the Board are not entitled to give their approval of a general plan unless at the same time they file details before that.

The Court: That is what I thought you would come to?

Mr. Griffin: Yes.

The Court: In other words, it is beyond the power of the Board to give an order of this description?

Mr. Griffin: Yes.

The Court: Now, what do you say as to that?

Mr. Burns: I say with reference to that, my lord, that I am submitting this—or tendering these detailed plans as compliance with the order of the Board. Whether that is a proper procedure or not is a matter of argument, that is, it is part of my case.

The Court: Your position is this, the order they had jurisdiction upon—

Mr. Burns: That is what was done.

The Court: You wish to show as a matter of precaution that you conformed to it anyway.

Mr. Burns: Yes, my lord.

The Court: And if they had no power to make it, why, then, of course, it is a thing of no consequence at all, but if they had you are showing you complied with the conditions.

10 Mr. Burns: Yes. In other words, I am really following out de facto procedure to show what we did.

The Court: Well, it seems to me from that point of view, Mr. Griffin, there can not really be any objection. It is a question as to whether—as you say—really whether the Board's order is simply a nullity; that he was not bound to conform to it is another thing. It will go in for that purpose.

(DOCUMENT MARKED EXHIBIT NO. 12.)

Mr. Donaghy: My lord, there remains the proof to be brought forward that this bridge has been constructed in accordance with these plans and so on. That I had proposed to prove by the evidence of Mr. Swan. I shall not attempt to have any other engineer go over it, because it would be a very lengthy and expensive matter of course to follow that out and show in a way the detail had been followed.

The Court: I understand then what you mean is that—what we will call the evidence, the facts, apart from the actual manner in which the bridge was constructed, is concluded.

Mr. Donaghy: Yes.

The Court: You now propose to show that you did perform —you did erect this bridge in conformity to the plan.

Mr. Donaghy: Yes, and the engineer is the one who can do that.

The Court: Yes.

Mr. Donaghy: Now, there is one other thing, my lord, that I wish to mention and reserve.—

The Court: A little louder.

Mr. Donaghy: I wish to have your lordship's leave to reserve the bringing of proof of another matter. There is a question as to whether the authority which we have produced in the form of an order of the Board of Railway Commissioners authorizing the raising of the bridge five feet is made under the proper section. It says, and it is professed it is made under Section 251. There is a further question as to whether or not an order in council had been passed authorizing the raising of the bridge five feet. Now, we are having further inquiry made, my lord, in regard to that. That has to be made in the Department at Ottawa, in the Privy-

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

Council records. I am asking leave to bring that in if it is found. Neither of these matters will interfere with the course of the evidence for the defence.

The Court: What orders-in-council—or what formal orders are those, or documents that you wish to fortify later as you suggest, that would be what—which section?

Mr. Donaghy: Yes, I wish to have the opportunity of ascertaining if an order by the Governor-in-Council was made under section 248 authorizing the raising of the bridge five feet.

The Court: Order No. 248? 10

Mr. Donaghy: Yes.

The Court: And raising the bridge five feet, in the other respect. What you have now is what, Mr. Donaghy?

Mr. Donaghy: What I have now is an order contained in exhibit—

The Court: Of the commissioners.

Mr. Donaghy: Of the Board.

The Court: Of the Railway Board, yes.

Mr. Donaghy: An order of the Railway Board.

The Court: Of the Railway Commissioners, yes. What you have now is— 20

Mr. Donaghy: Order of the Railway Board authorizing the alteration—the raising of the five feet. That is all, my lord. That closes our case, my lord.

I should say this in explanation—it has not been mentioned—if your lordship will agree, counsel have agreed that the assessment of damages should be a matter of a reference.

The Court: Oh, that always is in admiralty, when you prove they are as substantial as they are now, it goes to the Registrar, so you need not trouble about that. It is admitted it is substantial here. What do you say now, Mr. Griffin? 30

Mr. Griffin: Of course, I should not—as far as I can see I should not be asked to go on now. My friend in other words wants to close his case as far as he has gone, and then open it all up again later. That could never be in the interests of the defence.

The Court: No, but the matter is simplified largely in this way, is it not, Mr. Griffin, would there be any—wouldn't you like to—I mean from this point of view, wouldn't you like to—wouldn't you prefer proceeding with the evidence as to—he has closed his case on what we will call seamanship, you see. There are two distinct branches to this case. There is one, of course, as to whether or no they have in any event conformed with the proper construction in accordance with the Act of Parliament—that is one thing. The other thing then is an entirely different thing, as to whether or no in the circumstances however they arise, that it could be said that you were guilty of bad navigation. Well, I understood you yesterday to say on that part of it that you had witnesses that you would like to go on with. 40

Mr. Griffin: Oh, yes, I planned to go on with it at that time I understand that my friend has closed his case, and that all he would do would be when the point arises, that if he found that he wanted Mr. Swan, and if he could induce your lordship or convince your lordship that he had a right to adjourn to get him, that then he would get him; but that his whole other case was to be closed. Now, on the note here that I have, "His lordship suggested that Mr. Donaghy proceed as far as he may, starting tomorrow, and directed that the trial proceed accordingly, and if
 10 in the course of same it appeared that it would be an injustice to plaintiff to continue in the absence of a material witness, plaintiff could renew his motion for adjournment.

The Court: Yes, that is right.

Mr. Griffin: That is the note taken by the Registrar.

The Court: Yes, that is just what I have got here.

Mr. Griffin: He therefore has proceeded with all the evidence that he has on all points, reserving the liberty that your lordship gave him to apply for the adjournment that he thought fit later on; but in the meantime he has to give all his evidence.

20 The Court: Wait now. We will just see. Have you any other evidence, Mr. Donaghy, now? Have you any evidence except Mr. Swan's that you wish to bring?

Mr. Donaghy: No other witness.

The Court: That is what I meant.

Mr. Donaghy: Yes, that is right.

The Court: Now, Mr. Griffin, that simplifies it a great deal.

Mr. Donaghy: The only other witness.

Mr. Griffin: The only other witness?

Mr. Donaghy: Yes.

30 The Court: That simplifies it a great deal, and it does seem—I think we have got this far in this matter—of really very great importance as it is to the public and the bar, it is a really very important case, and one wishes to proceed cautiously and with patience, because I do not wish, in court like this, to take the thing hurriedly.

Mr. Griffin: Very well, my lord.

The Court: So it does seem to me, that having had that statement from Mr. Donaghy—a very frank statement, I cannot quite see now why there is anything in your part, you see, to meet the
 40 other.

Mr. Griffin: Well, I might ask your lordship to give me fifteen minutes to confer with my clients and my friend who is with me and decide on that; but I have got it clearly in mind that there will be no witness but Swan to be attempted to be called later. Secondly, I would like your lordship to decide whether my friend is to have liberty to find the order-in-council or not. I submit that now he has made production of documents with great care and they

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

have been inspected, and we have even made enquiries in Ottawa and no such order-in-council appears there as far as I know and I submit that he should have no such right to reserve time to fish in the files of the Public Departments—no more than I would have. I would have felt very cautious about asking your lordship to allow me to submit my evidence in that way, and therefore I ask your lordship to refuse that request, and leave it to the other one, and then I will consider a few moments and probably accept.

The Court: Well, there would not be any objection surely, would there, to this, Mr. Griffin, supposing, for instance, from 10
 enquiry—supposing, for instance, that they telegraphed, as I presume they have, to Ottawa, and from making investigation in the Department there, if by any chance there is anything else it is only reasonable—you would not suggest that should not be laid before the court, would you?

Mr. Griffin: I would suggest adjourning until tomorrow morning and let my friend decide tomorrow morning and then I might proceed.

The Court: What time is it now?

Mr. Donaghy: In Ottawa, that is the trouble—day time. 20

The Court: Yes, and the Departments are shut now.

Mr. Griffin: Then I would be content with this, your lordship, that my friend should file that evidence later on—tomorrow, if at all. You see I can't leave it open for him to search for weeks. That would be unfair to me.

The Court: But what I cannot understand, Mr. Griffin,—you are quite right in being cautious, of course, in maintaining your position. You do not want anything to be sprung on you.

Mr. Griffin: No.

The Court: You are quite right, but let me see your distinc- 30
 tion there, because I do not wish to have anything sprung on you in a case of this kind. It is a very bad thing if there were some documents we should have in, because in the Privy Council the Lord Chancellor found there was such a case, and it might be that that spectacle would be just as annoying to this court as to the Privy Council, to make such a frightful blunder. So I do not wish any documents brought in here, so that it would look as though this court was in the dark and gave a very erroneous decision, but your objection, it seems a very important one, as I realize, that this is really the wrong tribunal, you will say, to have made this order. 40
 Now, surely, that is a matter of public consequence, that time should be given to fully advise the court on that point.

Mr. Griffin: Well, my lord, may I put it this way, there is one document—the order-in-council is one document my friend has referred to. I don't want to have it extended beyond that, that is one thing, whether the orders-in-council are under section 248, my friend can find out by telegraphing tonight and have it

tomorrow; and if your lordship will limit him then to anything he can advise your lordship of in the morning of Friday, then I think I would accept that, too. That would give him the whole day to search.

The Court: Well, you see, Mr. Griffin, do you not see this point—I cannot quite see how you are at all prejudiced, why you wish, so to speak, tie him down to such a very short time, because you will have a number of witnesses on this point of navigation.

Mr. Griffin: Yes, my lord, I have.

10 The Court: Well, it would be this way, I only suppose you will have quite a number, as I have generally found in cases of this description, that there are quite a number coming forward to give the court the benefit of their experience. Now, such being the case, we will very probably pass all tomorrow. Why should not your opponents have the opportunity while this case is in progress before the argument closes, of finding out if there is anything of that kind.

Mr. Griffin: Because it affects my judgment of what I put in.

20 The Court: I do not wish you to be too precipitate. You would not be hurt; supposing you were continuing with your argument, a telegram came from Ottawa to the effect that they had discovered something. Very well, then, you see what would happen, what would have to happen. That would have to be submitted to you and then you would be entitled to present such further argument on it as you thought in that case and in the circumstances would be permitted. So you may rest assured that every opportunity shall be given to you, Mr. Griffin, of entering any objection to any document that may be produced. Such being the case

30 I do not see how you are at all damnified.

Mr. Griffin: Yes, my lord, my suggestion is that the whole case stand over until Monday, by which time my friend can absolutely find out if that order-in-council exists. I am practically satisfied it does not.

The Court: You can see at once that would not do, because the Court of Appeal begins on Tuesday. You would throw that right into the Court of Appeal, in this very room. I cannot hold this thing that way. I came over here especially, you know, you understand, for the purpose of trying to elucidate this matter as

40 much as possible. It would never do to lose three days. I cannot see how you are in the slightest degree prejudiced, because certainly the learned counsel was very frank, I must say that, in saying it was the only witness, and the others are documents of state.

Mr. Griffin: Yes, I could put it in this way—in other words, I might file documentary evidence which might be inadvisable if that order-in-council were in, and yet advisable if it were not in, or the reverse. I do not wish to file my documentary evidence, particularly until I find that out.

RECORD
British Columbia
Admiralty Dist.
Proceedings at
Trial.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

The Court: Well, possibly there is this solution of it, it is only documentary evidence, any witness or witnesses is not open to them at all. Well, you will proceed with that. Your friends, I am sure, will undertake—have you telegraphed already?

Mr. Donaghy: No, we figured on telegraphing.

The Court: Now, you will undertake—

Mr. Donaghy: No, my lord—

The Court: To inform Mr. Griffin immediately.

Mr. Donaghy: We are sending a night lettergram, my lord, because it is long. 10

The Court: I see.

Mr. Griffin: If your lordship would give me an indication of some limited time, I would apply later on—

The Court: Limited time, I would give you the privilege of argument on this before it is concluded. They must advise you on that.

Mr. Griffin: Surely, my lord, you will support me in this, that my friend should offer that, if at all, before they ask me to embark upon a discussion of the documentary evidence and put mine in. 20

The Court: They might, that sounds very plausible.

Mr. Griffin: It is reasonable enough.

The Court: In other words, you would not wish to argue that branch of the case.

Mr. Griffin: No.

The Court: Because that is all documentary.

Mr. Griffin: That is so.

The Court: You would not wish to argue the case until they can say that the case is closed upon documents as well as upon testimony? 30

Mr. Griffin: That is 'it, my lord. In other words, as soon as I am through with my evidence on seamanship, I will say now I am through on that branch, now, you must make up your minds whether you found your order-in-council.

The Court: Yes, that is fair.

Mr. Griffin: Would your lordship allow me an adjournment.

The Court: Would fifteen minutes be plenty of time.

Mr. Griffin: Yes, my lord, fifteen minutes would be ample.

The Court: I don't want you to be too precipitate in this matter. 40

(RECESS FROM 3:20 TO 3:30 P.M.)

Mr. Griffin: My lord, I have decided to accept the suggestion made and to proceed on the basis indicated by your lordship.

Mr. Smith: Captain Wingate.

DEFENCE

WALTER WINGATE, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH

- Q. Captain Wingate, you live in the City of Vancouver? You live in Vancouver? A. Not now, I don't.
- Q. Well, where do you live? A. Victoria.
- Q. Victoria; and you are a pilot by occupation? A. I am.
- 10 Q. What experience have you had at sea? A. I have been to sea for thirty years—held a master's certificate for twenty-two.
- Q. Twenty-two; and what experience have you had in command of B. C. vessels? A. I have been seven years in command of deep sea vessels.
- Q. How long have you been a pilot? A. I have been piloting now for a little over two and a half years—about two and a half years.
- Q. And your experience as a pilot has been on the British Columbia coast? A. Entirely, almost entirely.
- 20 Q. You are familiar with the Second Narrows? A. I am.
- Q. How many times approximately have you piloted vessels, and by that I mean deep sea vessels, through the Second Narrows since the bridge was built? A. Up to the present date, approximately fifty.
- Q. Approximately fifty. Do you remember going through the Narrows with the "Eurana" on the 10th of March? A. I do.
- Q. Do you remember the time that you had gone through previous to the "Eurana" time? A. I do.
- Q. Do you remember on that occasion noticing anything particular about the tides? A. That they are irregular as regards
- 30 high and low slack.
- Q. On the occasion that you piloted a vessel down previous to the "Eurana," how did the tides behave in comparison with the tide book? A. About half an hour early, the tide.
- Q. Yes, just explain that, what was half an hour earlier? A. The slack water.
- Q. Low water slack, was it? A. Low water slack.
- Q. Yes, then on the occasion previous to the "Eurana" you found that the low water slack occurred half an hour earlier than the time given in the tide tables?
- 40 A. The tide tables.
- Q. Yes?
- The Court: How long did he say that previous time was before, Mr. Smith?
- Mr. Smith: I don't believe he said that, your lordship. I will ask him that.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Wingate
Direct.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Direct.
 (Contd.)

Q. How long previous to the "Eurana" time was this time you mention now? A. I think it was about a week.

Q. About a week. What is your experience of the tides in the Second Narrows? A. In what respect?

Q. Well, take two respects: Firstly, with respect to whether or not the tide turned at the time given in the tide table? A. I have found the tide absolutely right with the tide table, I have found it as much as nearly an hour out from the tide tables.

Q. Yes? Are you speaking now with reference in particular to low water slack? A. Both. 10

Q. Both high and low water slack? A. Both high and low slack.

Q. Yes, then, what is your experience with the tides in the Narrows with reference to the period of time when the water is actually slack? A. With the big tides, practically no slack. Small tides, quite a long period of slack.

Q. What would you consider the tide that existed on this day, on the 10th of March, 1927, when you were at the Second Narrows Bridge, a big tide or a small tide? A. Fairly big tide—above average. 20

Q. About the average at that time? A. Above the average.

Mr. Donaghy: Above.

Mr. Smith: Q. Oh, you said above the average? A. A little above the average.

Q. A little above the average, yes. Have you ever found that the tide turned later than the time given in the tide tables? A. I have.

Q. How much? A. The last occasion I came through the bridge it was half an hour.

Q. The tide was half an hour later than the time given in the tide tables? A. Later, yes. 30

Q. In the case of an average run out, what is your experience of the length of time actually occupied by slack water? A. I don't think it would be more than a few minutes.

Q. Can you give some description of the manner in which the tides run through the Narrows? A. The first of the flood coming up comes up underneath before you can see it actually on the surface, and crosses the south shore, and is deflected by the filling—the fill on the south side of the bridge—deflected right across the opening of the bridge. 40

Q. You are speaking about the first of the flood? A. First of the flood.

Q. And at that time that you mention how does the surface of the water appear? A. It may be absolutely slack.

Q. Whilst this flood tide is running underneath? A. Running underneath.

The Court: What did he say his conception of the tide at the moment was, Mr. Smith—did he tell you?

Mr. Smith: No, he is just speaking generally of his experience of the tides in the Narrows, my lord.

The Court: Oh, yes.

Mr. Smith: Q. Then your experience is that the flood tide flows underneath and is deflected from the south shore across the opening of the draw? A. Yes.

Q. And that it might be quite slack water on the surface. A. Yes.

Q. Then what happens after that? A. The tide will begin to make and just—and the direction will—at first it will go right across the bridge practically.

Q. Yes? A. As the tide begins to make and the surface current is showing the tide will straighten up a little more, but still set off the south shore towards the north shore.

Q. Yes, and then in time the surface current will do what? A. Well, when it is running full strength at the last of the flood it will run perfectly straight.

Q. Perfectly straight; so that in time you have a full current rushing through the Narrows? A. What?

Q. In course of time you have full current rushing through the Narrows? A. Yes.

Mr. Smith: I am showing the witness a plan, my lord, which has not yet been put in, but I propose to prove it tomorrow morning. It is a plan that your lordship has, simply with a little addition added.

The Court: It is the same as exhibit 8 that I have got, is that it, Mr. Smith?

Mr. Smith: That is it, my lord.

The Court: Only you have got exhibit 8 with an addition.

Mr. Smith: With an addition, yes.

The Court: We will call this exhibit 13.

(DOCUMENT MARKED EXHIBIT NO. 13.)

Mr. Smith: Q. Will you point out to his lordship the fill on the south shore which you say deflects the first of the flood tide across the draw of the bridge. Perhaps you had better make it with a cross.

The Court: Q. Mark it in red, "D"? A. "D".

Q. That is the fill? A. The fill.

The Court: Which affects the tide.

Mr. Smith: Perhaps you had better outline it in red.

The Court: Yes, and keep the red line—draw the red line showing the deflection.

Mr. Smith: Yes, my lord.

A. (Indicating).

The Court: That is the flood tide, Mr. Smith, you mean, the flood tide.

Mr. Smith: The first of the flood, my lord.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Direct.
 (Contd.)

The Court: Deflected with the first of the flood.

Mr. Smith: The first of the flood.

Q. Now, perhaps, witness you would put a blue mark right round the fill—as showing with the red line the deflection of the tide at the first of the flood—you might outline in blue the fill itself.

The Court: Outline the fill in blue, yes.

A. (Indicating.)

The Court: Show that to Mr. Donaghy.

Mr. Smith: In blue is the fill in, and the red is the direction of the current (showing map to counsel.) 10

Q. Now, have you previously, when going through the Second Narrows Bridge—

The Court: Just one moment. How long did I understand you to wish me to understand that this deflection shown by the red arrows continues?

Mr. Smith: I don't know if I asked the witness that very clearly, my lord. I will ask him—

The Court: Yes, better clear it up if you can.

Mr. Smith: Q. How long does the deflection as shown by the red arrows on the chart continue? A. Probably the first ten 20 minutes of the flood underneath, gradually changing its direction toward the east.

The Court: Yes, thank you.

Mr. Smith: Q: Had you on previous occasions had any experience in the set of the tide at the draw of the bridge?

A. Several occasions.

Q. And that set was in what direction? A. Across the bridge towards the north shore.

Q. Towards the north shore; and at what stage of the tide did you more particularly experience this set? A. The very 30 first of the flood.

Q. Yes, at low water slack? A. Low water slack.

Q. Now, that being so, have you any particular procedure which you followed with regard to the time of arriving at the Second Narrows Bridge, always bound west? A. I'd sooner be late than early.

Q. Sooner be late than early? A. Sooner be early than late.

Q. Yes, you would try to arrive there in good time?

A. Good time. 40

Q. And your reasons for arriving early were what? A. My reasons for arriving late?

Q. No, early, why did you desire to be there in good time?

A. I would leave to go down, if I found the tide was late I would wait before approaching the bridge. If I got down too late and found the tide making I would not be able to make the bridge.

Q. Have you any other reason? A. No, I think that is ample.

Q. That is to get there in time? A. To get there in time.

Q. From getting there early did you avoid anything? A. I avoid being too late.

Q. Yes, and did you avoid any eddy or undercurrent? A. I beg your pardon?

Q. Did you find any eddy or undercurrent? A. I had been through the bridge previous to that occasion four times at low water slack.

Q. Yes? A. I had felt the set to the north shore, but not
10 with any great strength.

Q. I see? A. I have gone through and not felt it.

Q. Yes, and the times when you went through and did not feel it, were these the times when you were early or late? A. That was the time I was early.

Q. Yes. How long before the time given in the tide tables as slack water did you use to try to arrive at the bridge? A. I tried to arrive at the bridge at slack water.

Q. Yes? A. And determined that by how I find the tide at Berry point.

Q. Yes, well, just explain that? A. If on getting to Berry
20 Point I find the tide slack—at low water slack, I don't wish to lose any time getting to the bridge; but I find the tide still ebbing at Berry Point I get the ship stopped and wait for the slack.

Q. Have you any method of determining at Berry Point whether the tide is ebbing or not? A. You can see the tide on the surface.

Q. On the surface, can you see it on anything in the water?
A. At the buoy ahead.

Q. There is a buoy at Berry Point? A. No, the buoy is
30 half a mile west of Berry Point.

Q. On the north shore? A. On the north shore.

Q. And does the buoy give you indication of how the tide is running? A. It does, a very good indication when you are close to the buoy.

Q. And the buoy is how far above the bridge? A. A little over a mile.

Q. In coming down on this trip in question with the "Eurana," you left Barnet on that day at what hour? A. 5:25.

Q. The "Eurana" was lying alongside of Barnet, was she?
40 A. She was.

Q. Yes, was headed in what general direction? A. Her head was to the eastward.

Q. To the eastward? A. Yes.

Q. You left the wharf and straightened her out? A. Backed away from the wharf, and we squared away to midchannel at 5:35.

Q. 5:35, and the general direction of the ship's head then—
A. West-southwest.

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 (Contd.)

Q. West-southwest, and your course with reference to the Narrows was where? A. Midchannel.

Q. Midchannel. The weather was how? A. Fine, clear.

Q. Can you say roughly when you were abeam of Roche Point? A. About 5:53.

Q. And when were you abeam of Berry Point? A. I beg your pardon, I was thinking of Berry Point when you said—the time that we were abeam of Roche Point, I didn't—

Q. You didn't keep that? A. I didn't keep that.

Q. Did you get the time when you were abeam of Berry Point? A. Abeam of Berry Point, 5:53. 10

Q. 5:53, and your course then was roughly how? A. At Berry Point I held to the southward, probably about southwest a half west.

Q. How was the tide when you had arrived at Berry Point? A. At Berry Point, every appearance of slack.

Q. And how did you judge that? A. No eddies showing at all on the surface, ship steering absolutely perfect.

Q. And did you see the buoy that you spoke to me about a moment ago? A. I did. 20

Q. And how did the tide appear at the buoy? A. As we arrived close on the buoy there was no tide apparent at all at the buoy.

Q. What conclusion did you come to when you saw that the tide was slack at the buoy? A. That the time was right to go through the bridge.

Q. And did you come to any conclusion then as to whether the tide had turned earlier or not that day? A. No, no sign of tide at that time.

Q. Yes, but did you decide then that the tide had turned earlier or not? A. Unquestionably earlier. 30

Q. Unquestionably. Earlier than the time given in the tide tables? A. Yes.

Q. That is what you mean, is it? A. Yes.

Q. Now, up to that time—of the movement until you reached Berry Point—what in your opinion was the speed of the vessel?

A. From full away I imagine we gathered a speed of about nine knots.

Q. At Berry Point then you thought— A. Berry Point.

Q. You gathered a speed of nine knots? A. About nine knots. 40

Q. At what rate of speed did you desire to approach the bridge? A. At about—

Q. To go through the bridge? A. At about four.

Q. Is that the usual speed that you go through at? A. The speed varies a good deal, but that is the speed I try to arrive at, approaching the bridge.

Q. What then did you do at Berry Point with a view to arriving at the bridge with a speed of four knots? A. Slowed down.

Q. At what hour did you slow down? A. 5:54.

Q. And what was the next thing that you did? A. 5:54 we slowed and signalled for the bridge.

Q. Do you remember—can you remember how long it was after you went slow that you signalled for the bridge? A. Very shortly afterwards.

10 Q. Well, about what? A. It might have been a minute—half a minute.

Q. Yes. And how far at that time were you from the bridge? A. A mile and a third—a mile—fully a mile and a third from the bridge.

Q. Yes, and when you were in that position how long did you estimate it would take you to get to the bridge? A. About fifteen minutes.

20 Q. Now, from Berry Point, will you just describe the navigation of the "Eurana," commencing from the time, for instance, when you rang down slow ahead? A. Steered about southwest a half west from midchannel for the buoy.

Q. Yes? A. A little if anything to the north side of the channel.

Q. Yes? A. From the buoy set a course about direct for the north pier of the bascule draw. On passing the Knuckle, which is about sixteen—seventeen hundred feet east of the draw, hauled ship's head over towards south pier.

The Court: What is that point you say, on passing what? A. What I call the Knuckle, your lordship.

30 Q. Yes? A. That is a shoal point to the eastward of the bridge.

Q. Is that the other witness referred to at the point "A"?

A. Yes, my lord.

Q. You call that the Knuckle? A. Yes, my lord.

Q. Just repeat that, when you got off the Knuckle? A. Off the Knuckle—

Q. Abreast of the Knuckle now? A. Abreast of the Knuckle.

Q. Yes? A. Headed the ship—

40 Q. Abreast of the Knuckle, that is the point "A"? A. Yes, approximately off the south pier of the draw.

Q. Off the south pier of the draw? A. Yes. When clear of the Knuckle—

The Court: What distance do you make that, Mr. Smith, from the Knuckle?

Mr. Smith: Oh, I think he gives that about—perhaps you can determine it more accurately with reference to the water mains, Captain.

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 (Contd.)

The Witness: Yes—it is about the first water main—the most easterly water main.

The Court: Q. How far is that from the bridge? A. 1700 feet, I think, approximately.

Q. That is what the other witness gave. You think that is about right? A. I beg your pardon?

Q. That is what the prior witness, Captain Jones gave. You think he is about right? A. About right, yes. When about 1200 feet from the bridge I headed her square for the middle of the draw. That would be at a small angle to the line of the bridge. The ship up to that time steering perfectly, no sign of tide at all, and the conditions apparently perfect for going into the bridge, or through the draw. When close to the bridge—about a thousand feet from the bridge, we gave her half speed on the engine to increase her steering ability. At that time, having in mind the only possibility of anything that could happen then would be this undertow or undercurrent setting across the bridge, I gave the ship a little starboard helm—ordered a little starboard helm. With the starboard helm on she still maintained a perfectly even course for the centre of the draw, showing that some undercurrent was there. I then ordered more starboard helm given, and ordered the engine set full ahead for further increasing her steering ability, at same time ship started—ship's head started to swing off to northward, swinging very sharply with increasing momentum. We gave—allowed a short pause to see whether the ship would not answer her helm, and as the ship's bow headed past the north pier it was perfectly evident she would not make the bridge. 10

The Court: Now, what does he mean by the north pier—the whole of the bridge or bascule pier. 20

The Witness: The north pier of the bascule draw, sir. 30

The Court: Q. The north bascule pier? Yes? A. I ordered then both anchors let go, and the engines full speed astern to avoid if possible hitting the bridge, or at least to minimize the impact of collision. Both anchors were let go promptly. The port anchor very evidently held, as they were unable to hold the chain with the brake—sparks flying from the wildecat, showing the momentum of the chain going out and the pressure from the brake. Starboard anchor when let go, and the brake was put on, brake immediately checked cable and the anchor dredged through the bottom. The ship ultimately brought up in the bridge, 75 fathoms of chain on the port anchor and 45 fathoms on the starboard. The ship— 40

Q. Wait now, let me get that. You say one or both anchors held? A. One anchor dredged, sir, and the other anchor took hold of probably some unevenness on the bottom.

Q. I see, the port anchor dragged, you said? A. The starboard anchor dragged and the port anchor held.

- Q. The starboard, yes, so that when you brought up against the bridge you had how much out? A. Seventy-five fathoms—
- Q. You had seventy-five fathoms out on your— A. Port anchor.
- Q. On your port, yes, and forty on your starboard? A. Forty-five.
- Q. Forty-five? A. On the starboard.
- Q. Yes? A. The ship struck the bridge with a momentum of approximately one knot; finally brought up in the bridge at an angle of about forty-five degrees with the bridge and approximately 120 feet of the ship under the bridge.
- Mr. Smith: Q. Was the ship substantially damaged? A. The foremast was taken out by hitting the forestay, pulled the top mast down, and then the superstructure struck the main mast and bent it aft.
- Q. So that she was—I just want to have it on record—she was damaged? A. The bridge, wheelhouse and chart room were wrecked.
- Q. At what time do you consider that you struck the bridge? A. 6:10 p.m.
- Q. And how long were the engines going full speed ahead before you struck? A. Not more than a minute, I think.
- Q. Now, I think I am confusing you there. When you struck the engines were going full astern, were they? A. Full astern.
- Q. Well, how long were they going full astern before you struck? A. I don't think more than a minute.
- Q. And how long were they going full ahead before you put them full astern? A. About a minute.
- Q. About a minute? A. A little—perhaps two minutes.
- Q. And roughly what position was the vessel in when you placed your engines full ahead? A. About 500 feet from the bridge—600 feet from the bridge.
- Q. Yes, and what position were you in—
- The Court: Did I understand you, Mr. Smith, to give that—she was about five hundred feet from the bridge when he went full speed astern?
- Mr. Smith: No, full speed ahead, my lord, when the draw was—
- The Court: Yes.
- Mr. Smith: That is correct, is it not, witness? A. Approximately.
- Q. And what was the purpose of going full ahead? A. Increase the helm power.
- Q. And your helm was at that time how? A. Hard astarboard.
- Q. And did the helm remain hard astarboard until after the collision? A. I believe it did.

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 (Contd.)

Q. Well, are you not sure? A. The man was sent off the bridge as the collision became imminent.

Q. Yes. A. And whether he actually put the helm amidships when he did leave the bridge, I couldn't say.

Q. Up until that moment? A. Until that moment.

Q. The helm was hard astarboard? A. The helm had been hard astarboard.

Q. After you had collided with the bridge did you notice the tide? A. I did.

Q. What state was it in then? A. It was—at the north pier 10 of the draw there was a slight—very slight surface current to the eastward. At the pier on the starboard side of the vessel there was a slight drain to the westward.

Q. You are referring to the two piers of the fixed span? A. Of the fixed span.

Q. Immediately to the northward of the bascule draw? A. The first pier I mentioned is the north pier of the draw.

Q. Yes. A. And was then on the port side of the vessel.

Q. Yes? A. The second pier is the north pier of the fixed span. 20

Q. Yes? A. On the starboard side of the vessel.

Q. That is right. Did you see any effect on the tide of the piers themselves? A. That is the effect which I mentioned.

W. Wingate
 Cross-exam.

CROSS EXAMINATION BY MR. BURNS:

Q. You say, Captain, that you have gone through the bridge about fifty times approximately? A. Approximately fifty times.

Q. That is as a pilot? A. As a pilot.

Q. Since you have been acting as a pilot? A. Since I have been acting as a pilot.

Q. I suppose always on deep sea vessels? A. On deep sea 30 vessels.

Q. The fifty times was all on deep sea vessels? A. On deep sea vessels.

Q. Then, have you gone through the Second Narrows on deep sea vessels previous to the bridge being there? A. I did not.

Q. Never have done that? A. Never have done so.

Q. What would you say was the proportion of that fifty times that you have gone through the Second Narrows say previous 40 to the "Eurana" accident? A. The "Eurana" accident, say maybe 25 trips through the bridge.

Q. Twenty-five; and your observations in connection with the tides, I take it, are what gave you this knowledge that you speak of previous to the "Eurana" trip? A. Twenty-five trips.

Q. Yes, so that the time you were piloting the "Eurana" you had all this information that you have given the court as to the tide currents? A. To some extent my latest experience had but confirmed the knowledge which I had then.

Q. Well, then, you haven't—I will take that this way that so far as your experience since the "Eurana" accident is concerned there is nothing occurred to do anything but confirm what you knew at the time of the "Eurana" accident? A. Except that the "Eurana" accident was the first time when I gathered the experience that that undercurrent could have such strength.

Q. I see. You mean you saw no evidences of this so-called undercurrent previous to the "Eurana"? A. Yes, but not of such weight.

10 Q. Would you make that a little more definite, Captain, as to what degree or character of strength? A. Well, I have gone through the narrows at low water slack on five previous occasions, and I think on three of them that I had to use very considerable starboard helm to make the bridge, but the ship answered and showed her manoeuvring—or manageability with her helm on those three previous occasions when I felt that set.

Q. Give me the particulars of those three previous occasions, please? What ships? A. Why, offhand, I couldn't do that.

Q. Was any of them the "Eurana"? A. No.

20 Q. Have you got any definite recollection of those ships other than the impression that you have got? A. At the time of the accident—immediately afterwards I reviewed my various trips that I had been through the bridge and the set of the tide at those different times, and I found that I had taken five vessels through at low water slack—not a high low slack, but an ordinary low water slack.

Q. And from your experience you gathered the information that you have given us? A. I have.

30 Q. That there was a so-called undertow under the surface?
A. I have. I have also from other pilots—discussing the navigation of the bridge with other pilots corroborated my experience—

Q. Never mind that, I am speaking as to your own experience. A. My experience is such.

Q. That you knew at the time. And you met with this undertow that you speak of to such an extent that you had to starboard your helm against it? A. Yes.

Q. On three of the five occasions? A. On three of the previous occasions.

40 The Court: I did not quite catch that, Mr. Burns. Would you mind repeating that.

Mr. Burns: The witness says that he met with this undertow that he speaks of on three of these five different occasions, the effect of it being that he had to starboard his helm.

The Court: Yes, I understand that, but he as I understood him to say—correct me if I am wrong—still she answered her helm in the draw.

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 W. Wingate
 Cross-exam.
 (Contd.)

The Witness: Yes.

Mr. Burns: Yes.

The Court: But your point is that he met those three times before.

Mr. Burns: Yes, my lord.

The Court: Yes.

Mr. Burns: Q. Did you have any difficulty at all before?
 A. No, the ship answered her helm apparently.

Q. Yes, am I correct in this deduction, that the "Eurana" time was something extraordinary entirely. Is that what you are seeking to convey? A. I believe that I struck it at an exceptional time when that undertow was probably at its strongest with a ship heavier possibly than any ship I had taken west through the bridge before at low water slack.

Q. What would be her draft at that occasion? A. Twenty-five feet six I think approximately.

Q. Do you remember the draft of the other ships that you took through? A. They were none of them as deep as that at low water slack.

Q. Well, I mean the depth of her draft—at least, her draft would depend upon her load? A. Yes.

Mr. Smith. He means the ones that you took through.

Mr. Burns: Yes, that is what I am speaking of, I am not speaking of anything else. I say what I mean.

Q. Well, how near would that draft be on those other ships to the draft of the "Eurana" at this time? A. Two feet more.

Q. What? A. Two feet more—two feet more.

Q. That is there would be less draft by two or three feet?
 A. Yes.

Q. And the "Eurana" was two or three feet more? A. Yes.

Q. Have you checked up times—certain times as compared with the tide table times of the tides that you took these other ships through? A. I did check up—

Q. That is to say, how much before low slack according to the tide table would these other trips be? A. The greatest difference I have found—that, of course, is an estimate and an approximation only, as I use no instruments. It was only by vision and the action of the ship, that I can judge—and close on one hour is the greatest difference I have found between the time in the tide table and the time in my experience.

Q. Well, what do you mean by that, Captain. You say that you have found a difference of an hour in the tide tables with reference to the turn of the tide at the Second Narrows? A. Pretty close to an hour, sir.

Q. When did you find that? A. Very definitely with the "Eurana".

Q. On this particular occasion? A. On this particular trip.

Q. Well, the ship was anchored aft after hitting the bridge, with three tugs attending her alongside, and the anchors were ordered shortened in an hour and a half before high water slack, and the "Eurana" swung to the ebb tide fifty minutes before high water slack.

Q. That is after she disengaged from the bridge? A. After she had disengaged, the ship.

Q. Then the ship swung fifty minutes before? A. Fifty minutes before, the ship swung to the ebb tide.

10 Q. Yes? A. Before I could get the anchors up.

Q. Any other time? A. Several times. The next time I came down through the bridge, I found the tide over half an hour ahead.

Q. Any other time? A. Several times, one being—I can't be specific.

Q. Could you say when your next time was? A. The "Robin Hood" was the next time.

Q. What date was that? A. I have it in my little book.

20 Q. Well, could you just look at it? A. March the 30th, 1927.

Q. What time? A. The afternoon, about—I went through the bridge shortly after twelve.

Q. Noon? A. Noon.

Q. Which way? A. Bound west.

Q. Bound west? A. Yes.

Q. Could you say how soon after noon—at least, when you observed this? A. Within the first twenty minutes after noon.

Q. Twelve twenty? A. About twelve twenty.

30 Q. And you say at that time the flood came in how many—thirty minutes sooner? A. That was high water slack.

Q. Oh, that was— A. The ebb tide was running when I went through the bridge.

Q. And it was thirty minutes earlier than the tide table? A. I can refer to the tide table. I can't just remember now offhand what time the tide was.

Q. Well, have you got that? Was that 1927—just find out (Handing table to witness)?

A. Thank you. It was 14.59.

Q. What is that? A. It says 14.59—at 2.59.

40 Q. 2.59? A. It may have been twenty minutes late, I don't remember, but—

Q. That is— A. That is high slack—that ship was out through the bridge over half an hour before high slack with the tide running strong.

Q. So that your statement—I just want to get this definitely, Captain, your statement is that on March 30th with the "Robin Hood" you passed through the bridge— A. Yes.

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 Case
 W. Wingate
 Cross-exam.
 (Contd.)

- Q. —half an hour before high slack, going west? A. Yes.
- Q. What was the ebbing strength? A. The tide was running ebb, we say.
- Q. Where were you coming from then? A. Barnet.
- Q. Now, any other occasion where you figured that the tide tables were inaccurate? A. My last trip with the "Forth Bridge."
- Q. What? A. The last time I came through the bridge.
- Q. When was that? A. Not very long ago. The 11th of September. 10
- Q. What is the ship? A. The "Forth Bridge."
- Q. Oh, the "Forth Bridge," that is where I misunderstood you. Explain that situation? A. Supposed to be high water slack at 5:16. At 5:16 I was in the middle of the draw, the tide was still flooding. The tide in this case was late, not early.
- Q. Would you say how long it flooded after that—or at least how much before you were there? A. Half an hour. The "Park Bridge" belonging to the same company passed through the bridge half an hour later and the pilot found the tide was slack.
- Q. Never mind now giving anything that some person else saw. 20
- Mr. Griffin: He can say it if you ask his reason.
- Mr. Burns: I didn't ask him that.
- Mr. Griffin: You asked him how he knew.
- Mr. Burns: I asked the witness for his own experience in connection with the matter and I don't want any hearsay. I didn't realize that he was trying to get something.
- The Court: I did not quite catch what he said, Mr. Burns. He said, it was supposed to be high water slack when we were there. What did he tell you was the actual state? 30
- Mr. Burns: At 5.16 supposed to be high water slack.
- The Court: Yes.
- The Witness: The tide was still flooding, sir.
- Q. High water slack? A. Still flooding.
- Q. To what extent? A. So strong that I would not come near the bridge from the buoy.
- Mr. Burns: I think you said, Captain, that you went through the bridge at 5:16? A. I went through the bridge at 5:16.
- Q. Supposed to be high— A. High water slack.
- Q. High water slack, and it was still flooding? A. It was still flooding. 40
- Q. And you say that you sized it up that she would be flooding for another half hour, that it was half an hour ahead of the time table? A. Half an hour ahead.
- Q. Of the tide table, according to your statement. Now, what other occasion? A. The "Robin Adair"—I can't say the date—the "Robin Adair," it was quite late.

Q. Can't you turn your book up and see it? A. I am very much afraid that that date is gone.

Q. Were you going west? A. Westbound.

Q. Yes? A. It is in this—it is obliterated, in my pencil.

Q. What is that? A. I won't be absolute on that occasion of the date. It is rather obliterated by my thumb.

Q. Well, could you give me approximately the date, because we have a record of every ship. What is the entry just before and the one just after, wouldn't that give you something to go on?

10 A. Yes. It is between December 8, and January 24.

Q. And January 24 of this year? A. December 8, 1926, and January 24 of 1927.

Q. Well, that is a year ago—a year last December? A. Yes.

Q. Now, then, what do you say with reference to that? A. The tide was flooding—I came down a little ahead of time and found the tide flooding so strongly I had to wait off Berry Point till the tide should be easy enough for the ship to be manageable.

Q. And that was in comparison to the time of the tide table?

A. A good half hour.

20 Q. Half an hour before what? A. The tide half an hour late.

Q. The tide was half an hour late, that was in connection with high water slack? A. High water slack.

Q. High water slack. Any other occasion of this kind?

A. I don't remember specifically.

Q. Now, this one you spoke of is the only one that occurred previous to the "Eurana" accident, that is so, is it not? This last occasion you spoke of—the "Robin Adair" was it? A. Yes.

30 Q. Is the only one that was previous in time to the "Eurana" accident? A. No, I had—knew of my own experience that the tide varies as much as half an hour before the "Eurana" accident.

Q. Well, then, what experience is that based on? A. Twenty-five trips through the bridge, sometimes I found the tide slack, sometimes I didn't.

Q. Well, what incidents can you give me? A. I can't offer—at this date and my memory, without looking up the records of the bridge I could not tell you specifically.

40 Q. Now, by looking at your book can you give me the name of those five ships that you spoke of previously? A. Two, I can't.

Q. Well, give me three, then. Give me what you can—that you came through in low slack, you said? A. I will have to have the tide book.

Q. Isn't your entry there with the name of the ship and the time you passed the bridge? A. Not always in my book.

The Court: Perhaps, Mr. Burns, it is so near the hour of adjournment you might just indicate to this witness anything that you would like him to look up and he would be prepared.

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 Cross-exam.
 (Contd.)

Mr. Burns: Thank you, my lord. I would like the witness to look up these five ships, and give me what you can in the morning as to the particulars of the incidents.

The Court: I shall not trouble you any more, Mr. Burns. Tomorrow morning at half past ten.

(COURT ADJOURNED AT 4:30 P.M. UNTIL THURSDAY, SEPTEMBER 27TH, 1928, AT 10:30 A.M.)

Thursday, September 27th, 1928, 10:30 a.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT)

WALTER WINGATE, resumes the stand:

10

CROSS-EXAMINATION CONTINUED BY MR. BURNS:

Q. Now, Captain, when we adjourned yesterday I was talk- about the different occasions when you noticed the difference between the tide and the time of the tide tables. You gave me three instances, the "Robin Hood," the "Forth Bridge" and the "Robin Adair." That is when you were going through? A. Yes.

Q. Have you ever noticed any other occasion? A. I have several, there is a list I have—I have looked them up, and my notes of the occasions, some of them are quite definite in regard to time.

Q. Well, that is what I want to get? A. First, the "Robin Hood," I confused the time with the question of the "Robin Goodfellow." The essential facts are right, the high tide was the greatest variation that I had before found in the "Robin Hood" on the 30th of March.

Q. Give me that time? A. The ship passed through the bridge some time after two, with the slack round three.

The Court: Q. Now, wait a minute, that is very confusing for my notes, that change you are making. You told us yesterday—what was this? A. The "Robin Hood."

Q. The "Robin Hood," yes, and that date was what? A. The 30th of March.

Q. Did you mention the "Robin Adair" as well? A. Later on I did.

Q. Later on, yes, now, wait. It is very confusing—you should be more careful? A. The date is the same, sir.

Q. Now, the change you wish to make is what? A. From 12:20—

Q. Speak slowly now and let me get that because that is important? A. From something after twelve p.m.—

Q. And the date? A. On the 30th of March.

Q. What year? A. 1927.

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Q. Yes, proceed? A. To something after 2 p.m. that same day.

Q. That does not show the change exactly you wish to make you see? A. I made the remark of passing through the bridge at 12:20 p.m.

Q. On the 30th of March in the "Robin Hood?" A. Yes.

Q. The facts are now— A. That it was around 2:20 p.m.

The Court: Yes.

Mr. Burns: Q. What about the tide, just explain that. You
10 had better explain it all over again? A. The tide was nearly an hour earlier I assumed by the strength of the tide.

The Court: Q. The tide you found there on the spot was an hour earlier than it was reported to be in the tide table, is that what you mean? A. That was my estimate.

Mr. Burns: Q. Now, how did you check this and bring this different information this morning as against what you said yesterday? A. I found the note of the "Robin Goodfellow."

Q. Of the which? A. The "Robin Goodfellow."

Q. You found a note on the "Robin Goodfellow?" A. The
20 "Robin Goodfellow."

Q. Is that— A. A sister ship to that ship.

Q. Well, how does that affect it? A. She passed through the bridge at 12:20.

Q. Well, did you have any charge of the "Robin Goodfellow?" A. Also, on a different date.

Q. No, but not on that date? A. Not on that date.

Q. Well, how did the "Robin Goodfellow" have anything to do with it? A. You asked me to explain the confusion of my time which I gave you yesterday from memory.

30 Q. I see. Then you got that from some person else, is that it? A. I did.

Q. So it was entirely hearsay? A. No, from my own records.

Q. Now, you say you got it from your records, but just a minute ago you said that you got it from some person else. Now, explain that, witness, please. Well, how did you get the information you are giving us now as against the information you gave us yesterday? A. I looked up my records. Yesterday I gave you it entirely from memory.

40 Q. Well, you say now that you looked up your records, but just a minute ago you said you found it out by reason of the "Goodfellow," I understood you to say? A. I confused the occasion of the time of the "Robin Goodfellow"—the same name and the same ship at a different date going through at that hour.

Q. Oh, I see, then what I understand is that you looked up the record.

Q. That you didn't have—records of your own? A. Of my own.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

Q. And your mistake yesterday was caused by thinking of the "Robin Goodfellow" instead of the "Robin Hood," was it?

A. The "Robin Hood."

Q. Yes, pardon me, and it is in order to get these matters right. Have you got your records there? A. I have.

Q. Let us see what you looked up? A. Extracts from my records. I would like to give you four concrete instances of which I have records.

Q. Well, have you got your record there that you—or is that just simply a copy from it? A. It is extracted from it. 10

Q. Where is your record? A. The records are composed of my pilot's reports, my note book. The pilot's reports are in—some of them are in the pilotage office. Other records are in my note book.

Q. Well, then, give me that information now? A. Yes.

Q. Give his lordship this information? A. The 23rd of July, 1926, ship "L. A. Christensen," eastbound, passed through the bridge shortly after 11 a.m.; ship late on the tide, but tide quite slack apparently.

Q. Now, what do you mean by that, Captain, ship late on the tide and tide quite slack. Can't you give that—with reference to your note, give your evidence in such way so we can understand it. 20

Mr. Smith: Give the time of the tide, Captain?

Mr. Burns: Q. Just as if I knew nothing about it, I would like to get it. Can I put it this way, Captain, because that is all the information I want really to bring before the court: Was there a difference between the actual tide and the time of the tide as shown in the tide tables on this particular occasion, if so, what? A. The tide was late. 30

Q. Well, to what extent? A. Probably fifteen minutes.

Q. You say probably fifteen minutes, do you mean approximately? A. Approximately.

Q. What was the stage of the tide? A. Low water, a very low low water; records, 0.5.

Q. Practically slack, was it, or was it slack? A. It was slack—quite slack.

Q. And it was slack later by fifteen minutes approximately than the tide tables showed? A. Than the tide tables showed.

Q. Yes, and what others, and give it in that way? A. The 8th of August. 40

Q. The year? A. 1926. Steamship "Circunus" passed through the bridge 11:45 a.m., westbound.

Q. Now, was there any difference in the time of the tide and the time as shown in the tide tables in this instance? A. Low water slack by the tide table was ten minutes past twelve.

Q. Yes? A. Tide apparently quite slack, but evidence of

first of flood making underneath; high tide 2:05; 11 foot rise; ship drawing twenty-four feet.

Q. Was the tide later or earlier than the time of the tide shown in the tide tables? A. At least twenty-five minutes early.

Q. Earlier? A. Earlier.

Q. According to your observations? A. Yes.

Q. Any other? A. "Golden Gate," 11th of August, 1926.

The Court: Q. Proceed. Do not take so long, you know.

A. Time of tide 2:38 p.m.

10 Mr. Griffin: May I interrupt, Captain. Just give what Mr. Burns wants—give the difference in time, whether late or early, that is all he wants.

A. Tide about twenty minutes early.

Mr. Burns: Q. Any others? A. 5th of September.

Mr. Griffin: Q. Year? A. 1926.

Mr. Burns: Q. Time? A. A.M. tide—ten something.

Q. I didn't say time. Well, give the name of the ship first?

A. "Poljana," westbound.

Q. And what time were you there? A. Right on time with
20 the tide. Tide right.

Q. What time was it? A. I have just O.K. in my book. The time of the tide was in the book. 11:14 a.m.

Q. And how was the tide? A. Right.

Q. Right? A. Yes.

Q. You mean— A. Agreed with the book.

Q. Agreed with the book, well, why are you giving me that?

A. You asked if I had ever found an instance when the tide agreed with the book as well as others.

Q. I didn't ask you any such thing, witness, and it would
30 be absurd if I had asked you. Your intelligence ought to have shown you that, even if you thought I had said it. I am not asking you instances where the tide agrees with the tide table, I am asking you for those that don't agree, according to your evidence and nothing else? A. 11th January, 1927, Steamer "Robin Goodfellow."

Q. What time were you there? A. About 12:20 p.m.

Q. And how was the tide? A. The tide—

Q. As compared with— A. Half an hour early.

Q. Half an hour early. Any others? A. I have no exact
40 data on the others.

Q. Now, what about the "Robin Adair?" A. The "Robin Adair" on the 9th August—

Mr. Griffin: Q. Year? A. 1926.

Mr. Burns: Q. Time? A. I haven't a record of the time.

Q. Well, what about the "Robin Adair" with reference to the point we are discussing with you? A. The tide was so much out that I had to let go the anchors after passing Berry Point.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Wingate
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

Q. In what way was it out? A. I don't remember whether it was early or late, but I couldn't approach the bridge at the stage of the tide, although I left in the right time for making the bridge.

Q. What was the stage of the tide? A. I don't remember. I can't check up whether it was p.m. or a.m., except that it was daylight.

Q. Well, was it low water slack or high water slack? A. I think it was high water slack.

Q. Now, you said yesterday that the "Robin Adair" was an instance between December 8th, 1926, and January 24th, 1927, do you remember, you read off your book? A. Yes. 10

Q. And the entry was smeared in some way because of the lead pencil? A. Yes.

Q. You gave those outside dates and said within those dates the "Robin Adair" instance? A. Well, I did handle the "Robin Adair" in those dates but that wasn't the occasion which really had forced itself on my mind, because the "Robin Adair" on the 20th November was not a loaded ship, and it was when she was a loaded ship that I had difficulty; and on the 9th of August she was a loaded ship. 20

Q. And the entry that you were looking at when you gave your evidence yesterday was an entry of the "Robin Adair" when she was light and not loaded, was that it? A. The—

Q. That is between December 8th, 1926, and 24th January, 1927, she went through light and not loaded, and you have corrected it now and found that the occasion in question was when she was loaded? A. When she was loaded.

Q. So this was when she was light— A. On November 20th. 30

Q. What is that? A. On November 20th.

Q. On November 20th? A. Yes.

Q. Then the dates yesterday, between December 8th, 1926, and January 24th, 1927, they were erroneous? A. Those were the pages which were missing from my book, and I didn't look farther back to November to see.

Q. Now, you have looked up to give every instance you can as I understand you? A. I have.

Q. Of where you claim that the tide tables were inaccurate? A. I have. 40

Q. You would agree with me, Captain, would you, that tides out an hour, half an hour and so on, as you have testified that any table made up of that kind of figures could not be called highly accurate, could it? A. In water such as we have here you don't expect a tide to be—any tide table to be absolutely accurate within half an hour.

Q. Will you answer my question, please, now. I ask you,

in view of your testimony as to these various occasions where you found the tide table times out half an hour or an hour— A. Yes.

Q. —on those different occasions, whether you could as a seaman say that such tide tables could be properly stated to be highly accurate? A. No, I couldn't say so.

Q. In other words, in view of your evidence, any statement to the effect that the tide tables are highly accurate would be erroneous, wouldn't it? A. It would.

Q. Now, the tide tables of the Pacific Coast for 1928, you
10 recognize that. (Showing book to witness)? A. Yes.

Q. Captain F. Anderson, hydrographer—

Mr. Burns: I will put this in, my lord. The page I am referring to—

The Court: These tables now are not the ones in already.

Mr. Burns: No, my lord, 1927 went in yesterday.

The Court: You are putting in the tables for 1927.

Mr. Burns: No, 1927 went in yesterday, my lord.

The Court: Oh, yes.

Mr. Burns: These are the tables for 1928.

20 The Court: 1928, exhibit 14.

(DOCUMENT MARKED EXHIBIT NO. 14)

Mr. Burns: Q. I refer to the page following the contents, and the statement with reference to the tide table made above the name of Captain F. Anderson, hydrographer—the last paragraph: "Accuracy of tide tables and correct time." "As the accuracy of tide tables is represented—" now, you might follow me so there will be no question—

The Court: What page, Mr. Burns?

Mr. Burns: It is not a numbered page, my lord, but it is
30 the page following the contents.

The Court: Oh, yes.

Mr. Burns: It really should be three, because the next page is four.

The Court: I see, yes, page three.

Mr. Burns: "As the accuracy of tide tables is represented by the length of the tidal observations on which they are based, those for all the six principal ports, mentioned above, are now highly accurate. In making use of the tables, it is important to have the time correctly." And so on.

40 Now, Captain, in view of what you have just said, that is a misstatement in your opinion—erroneous? A. I beg to differ, sir.

Q. Well, explain it? A. These tide tables that you base as being highly accurate are applied to the Port of Vancouver. The difference of the tide between the Port of Vancouver and the Second Narrows Bridge, the observations have not been carried

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Wingate
Cross-exam.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 W. Wingate
 Cross-exam.
 (Contd.)

on to that extent referred to in the book, as far as I have been able to gather from the tidal surveyor at Vancouver.

Q. So that is how you deal with it. Now, Captain, you said there were five occasions upon which you went through the bridge at the same stage of tide as that which existed at the time of the "Eurana." Have you any particulars of them? A. I have got four instances, referring to the ship "L. A. Christensen," the "Circunus," the "Golden Gate," the "Poljana."

Q. So that four of those five occasions that you mention are four of the ships that you mentioned this morning? A. Yes, sir. 10

Q. And what about the fifth, or is there a fifth? I mean going through on the same stage of tide as you went through on the "Eurana"? A. I have not been able to check up the fifth ship, and the reason I gave five ships was that on the "Eurana," on the day following the accident I checked up and made a note then that I had been through the bridge five times at similar stage of tide, but the five ships at this date I can't check up definitely.

Q. All right. Then were you going west on all these times? A. One occasion I was bound east. 20

Q. One east and three west? A. Three west, of those.

Q. You said that on three of the five occasions you noticed this, what you term undertow? A. The ship "Christensen," ship "Circunus," and the "Golden Gate."

Q. Were you bound west on all of these occasions? A. I was bound east in the case of the "Christensen."

Q. Now, just the first one, because I want particulars of these. What was the first in point of time of those three? A. The "Christensen."

Q. When was that? A. The 23rd July. 30

Q. And you were going east? A. Bound east.

Q. At what stage of the tide? A. Low water slack.

Q. Low water slack. Where did you feel this undertow. Explain that to us? A. When the ship was fully three-quarters of the way through the bridge, she set strong over to the north shore.

Q. How soon was the first of the flood? A. I estimated then I think about fifteen minutes early.

Q. I know, but I mean how soon—

A. No, late. 40

Q. Had it started when this set occurred that you speak of? A. No appearance of tide at the bridge—pasing through the bridge.

Q. That is to say the water was absolutely slack? A. Apparently absolutely slack.

Q. And you say there was a set while she was still in the bridge? A. When she was practically through the bridge—three-

quarters of the way through the bridge she started over to the north shore strong.

Q. Without any indication of that set or anything of that kind on the surface? A. On the surface.

Q. Did you go back to look or did you— A. I had to stay with the ship.

Q. What is that? A. I had to stay with the ship.

Q. Yes, I understand, but if I said go aft, possibly you would understand me? A. No, sir, I can't leave the bridge.

10 Q. I see. So that you observed that from the bridge? A. From the bridge.

Q. Now, what was the other—the next one? A. The "Circunus."

Q. And that was August 8th, 1926? A. 8th, 1926.

Q. You were going west? A. Bound west.

Q. Low slack? A. Low slack.

Q. Tide apparently quite slack—I am just reading what you gave, so we will understand it? A. Yes.

20 Q. And evidence of first of flood underneath. Now, where were you—where was your ship when you received this evidence of the first of flood? A. Probably about 400 feet from the bridge—from the bridge opening.

Q. What is that? A. Probably about 400 feet from the bridge opening.

Q. That is before you got to the bridge? A. Yes.

Q. And will you just explain the effect? A. I had to use a little starboard helm to make the middle of the bridge, and keep the starboard helm on the ship.

30 Q. Are you accurate in your distance, Captain, with reference to that 400 feet. I want to get your evidence as definitely as possible on this point? A. Ship moving, at this stage of time, I might be 200 feet one way, but not closer. I might have been 200 feet farther from the bridge, but not nearer.

Q. I see. So that that 400 feet from the bridge might have been 600. A. Might have been 600.

Q. I see. When you say 600 is that the extreme limit, or would it be 700. Might it be 700? A. I don't think so. I don't think so.

40 Q. Well, you would not be surprised, I suppose, whether it was 600 or 700. Or would you be surprised if it were 700—I mean as a matter of fact. Remembering of course, Captain, to give as definite as you can. I realize— A. As definitely as I can give you, it was between 600 and 400 feet from the bridge.

Q. Now, the next one was which—the "Golden Gate?" A. "Golden Gate."

Q. August 11th, 1926? A. Yes, sir.

Q. You were going west with her? A. Yes, sir.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Wingate
Cross-exam.
(Contd.)

Q. And you say you felt this undertow on that occasion?

A. Yes.

Q. Where was your ship when you felt that? A. Oh, I should say 600 feet from the bridge in this case.

Q. That is, your minimum of 400 would be in this case a minimum of— A. 600.

Q. 600, and just how much latitude would you give the other way? A. 900.

Q. It might be anywhere from 600 to 900 feet? A. Yes.

Q. And just explain what happened? A. Ship felt set and had to keep starboard helm—keep certain amount of starboard helm on to make the middle of the bridge. 10

Q. No indication of this at all on the surface? A. Yes, the tide was showing on this occasion.

Q. What is that? A. The tide was showing on this occasion.

Q. The tide was showing— A. On the surface.

Q. That is, the flood had started? A. The flood had started.

Q. In that case you say the flood was earlier than— A. Yes.

Q. —than the tide table. So the moving surface showed the incoming tide? A. Yes. 20

Q. And you were meeting it? A. Yes, sir, so much so that it is very definitely fixed, that a scow coming down for the ship left Dollarton before the ship, passed by the ship and went right up to the bridge, she could not get through, the tide was running so strong, and the ship lost the tide by having to wait for the scow.

Q. And that would be surface effect, wouldn't it, so far as the water was concerned? A. Yes, sir.

Q. So that the tide was then pretty strong flood? A. Yes, sir. 30

Q. When your ship was between this 600 and 900 feet. And would you say that there was any difference in the water, that is between the surface and underneath as to its set or current?

A. I wouldn't say in this case—I couldn't say.

Q. That there was any eddy? A. I couldn't say in that case there was any eddy.

Q. So this is not the case of an eddy at all— A. Set.

Q. Well, set—incoming tide? A. Yes.

Q. And you were meeting it, it was earlier and that is why you were meeting it? A. It may have been running stronger underneath, I couldn't—impossible to tell. 40

Q. So we can score that out as far as undertow matter is concerned. How was the surface, in what direction was the current of the incoming flood in this case we are speaking of? A. Apparently setting a little to the north shore.

Q. What was a little on the north shore, what do you mean

by that? A. Well, at an angle with the course of the ship to the bridge.

Q. Well, I mean, what do you mean by a little. I want that explained a little more definitely. You say the current was setting a little to the north shore? A. It might have been five degrees, might have been fifteen degrees.

Q. Not more? A. At this stage I would not commit myself to anything further.

Q. I see, so that your little means anywhere from five to
10 fifteen degrees? A. Fifteen degrees as regards the tide.

Q. So that as far as this undertow is concerned, apart from the "Eurana" case, these two instances you give are the "Circunus" and the "Christensen?" A. Yes.

Q. Now, in the "Christensen" case and the "Circunus" case do I understand that the surface water, according to your testimony— A. Yes, sir.

Q. —was quiet? A. Apparently absolutely slack.

Q. Absolutely slack, and that you claim that there was an undertow effect beneath? A. Yes, sir.

20 Q. Any idea of how far down? A. No.

Q. In the "Eurana" case with the same conditions actually occurring, that is the surface absolutely slack and the so-called undertow beneath? A. Yes, sir.

Q. So that those three instances were absolutely identical?
A. No, sir.

Q. What do you say? A. No.

Q. What is that? A. No.

Q. Well, you see the point I am speaking of. Mind you I
30 am not saying that as a statement, I am just saying it so that you may confirm it for some other question. A. In the "Eurana" case the surface was absolutely—apparently absolutely slack, but the strength of the undertow was—

Q. Stronger? A. Tremendously stronger.

Q. Well, apart from strength—I am not attempting to get anything more than information from you, Captain, at present. Apart from the strength—the relative strength of the undertow, those three instances were absolutely identical. Is that a fair statement? A. Comparatively so.

Q. Yes? It is not a case of the surface water going one
40 way and the undertow going the opposite way? A. No.

Q. No. Well, now, then, from your observations, Captain, would you say that that was a usual thing there or not on certain tides—on the same tides? A. From my observations I would gather that on large tides those conditions exist at low water slack.

Q. That is to say—well, I presume this only needs to be mentioned to be agreed to, that a tide always does practically the same thing in the same conditions—meeting the same conditions. That is a truism, is it not? A. Some cases—

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Wingate
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

Q. That is, let me put it this way, the same height of tide, or the same force of tide meeting the same conditions would act in the same way, wouldn't it? A. With the variations which are due to certain surges in the tide.

Q. Well, then,—

Mr. Griffin: Let him finish, please. You are really arguing that, so let him argue it.

Mr. Burns: I didn't mean to argue.

Mr. Griffin: Go on, finish it, Captain.

The Witness: Variations that are due to practically any tide 10 which has certain surges, and a tide that you get on a similar foot tide and the next tide on the same footage, you might not get the same eddy or the same undercurrent.

Mr. Burns: Q. That is largely applicable to the slack or near slack water? A. Close to the slack water.

Q. But take the same kind of tide at that point, for instance, you would naturally look, because of the tide's operations, for the same results? A. I would look for the existence of that undercurrent.

Q. Now, did you put this down to this fill, do I understand 20 you? A. It is the logical cause of that eddy.

Q. By the way, I didn't get—at least, I haven't got in my mind the position you were in in the "Eurana" when you met this condition, that is the distance from the bridge. I think I have a note of it somewhere. Just under a thousand feet, wasn't it in that case. Yes, you said when you were about 1,000 feet from the bridge you gave her half speed to increase the helm, and then you gave a starboard helm, and showed undercurrent. Now, how soon after you gave her half speed ahead—you gave her half speed to increase—to aid the helm, did you feel this undercurrent? 30 A. Probably about 900 feet from the bridge.

Q. About 900 feet?

The Court: What order did he give them? I was looking at the exhibit for a moment.

Mr. Burns: Well, it could be taken this way, my lord, that in the "Eurana" case he felt this undercurrent when he was about 900 feet from the bridge.

The Court: Yes.

Mr. Burns: Q. When you say 900 feet I suppose you mean there would be some leeway both ways? A. There would be lee- 40 way both ways.

Q. Yes, that thousand feet might be 1200 feet—well, it couldn't be under 900 feet—we will put that minimum. A. I don't think it was over a thousand feet before she showed a sign of it.

Q. Well, we will say 900 to 1000 feet, would that be right? A. I think so.

Q. Now, you spoke of this Knuckle, Captain.

The Court: That is exhibit 8, is it?

Mr. Burns: Pardon me, my lord.

The Court: Is that exhibit 8 you are looking at?

Mr. Burns: Exhibit 8, my lord.

The Court: Yes.

Mr. Burns: Q. You spoke of this Knuckle—

The Court: At point "A".

Mr. Burns: Q. At point "A", just note that. In your
10 opinion, has that Knuckle got any bearing on the tide affecting
the tidal current or currents? A. Some amount.

Q. On an ebb tide there is a certain amount of back eddy,
dead water there, is there not—under the Knuckle? A. On the
last of the ebb tide.

Q. Wait, I will come to the last of the ebb tide. I am
speaking of the ebb tide that always set—or at least I mean to
say the flowing ebb tide, there is a certain amount of back eddy,
dead water through "A". A. I have never been close enough
in to the Knuckle to see whether it was dead water as regards the
20 ship or not.

Q. Then you couldn't say from your observations as to
whether there occurs or exists dead water or back eddy under
the Knuckle. When I say under the Knuckle to the west of the
Knuckle when you are going west. Is that right? A. You would
have to be pretty close in.

Q. Well, that may be so, I am asking you whether you say
that you don't know from your observations whether that water
that I speak of exists or not. Is that right? A. Not where I
have the ship.

30 Q. What is that? A. Not where I have taken the ship is
there any back eddy.

Q. That again is not an answer to my question, Captain, I
am asking you a simple question: You don't know from any
observation you have made whether there exists dead water or
back eddy under the Knuckle, meaning westward of the Knuckle
on the flowing ebb tide—that is on an ebb tide. A. Between the
Knuckle and the bridge, close in shore, yes, I have seen an eddy
of slack water in shore.

40 Q. I see. Well, now, just show on the map where you did
see that? A. Right about there. (Indicating.)

Q. Approximately? A. Yes.

Q. You might mark that. Mind you the evidence will show
this. A. (Indicating.)

Q. To what extent would that be—I mean eastwardly or
westwardly? A. None to effect the ship.

Q. I am not asking you that again, Captain. If you would
just— A. Well, sir, I have not studied the thing except—the

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

tide, as to how it would affect the ship, you are asking to answer questions now which—to consider things—from memory, things which I never considered before, or had need to consider.

Q. Well, if you didn't need to consider it then there is no aspersion to be cast upon you if you didn't do it. All I want is a reply to my question, that is, a reply directed to my question, and that his lordship will tell you I am entitled to have. You can make any explanation you like, but we can't get along unless you apply yourself to that feature of the matter.

I was asking you to what extent—if you knew to what extent eastwardly or westwardly that dead water or back eddy that we have been speaking about is? A. Close in shore in—very close inshore for perhaps 1200 feet. 10

Q. 1200 feet east of the bridge? A. East of the bridge.

Q. Would you say that it goes right up to the line of the bridge, westwardly? A. Just back of the fill.

Q. Mind you, I am talking about an ebb tide? A. Yes, sir, You didn't say which state of the ebb tide.

Q. No, no, but at some time during the ebb tide? A. Yes.

Q. And how much—up to what point, or approximately what point eastwardly—within two or three hundred feet of the Knuckle? A. Well, the Knuckle is 1600 feet from the bridge and I said 1200. 20

Q. Well, it would be about 400 feet from the Knuckle approximately? A. Approximately.

Q. From your observations could you say how far out that dead water or back eddy extends, that is, out into the stream—or how far out does it affect the water? A. Not farther I should assume than twenty-five feet draft or twenty-foot draft, depth of water. 30

Q. That is, there would be no effect according to your idea as far as this back eddy or dead water is concerned outside of twenty feet in depth? A. Yes, sir.

Q. And do you know how far that is from the shore? A. It varies, the contour of the shore is very irregular from the bridge to the Knuckle.

Q. Now, Captain, on this trip down, you slowed down, you say at 5:54—I am directing your attention now to your trip on the "Eurana?" A. Yes, sir.

Q. Approaching the bridge at 5:54, and you signalled for the bridge very shortly after that? A. Yes, sir. 40

Q. Can you describe or fix the position of the ship at that time with reference to the land? A. Close round the buoy.

Q. Closer to the buoy than the land? A. Yes, sir.

Q. And what would you say, that you were midway—at least, between the buoy and the land, directly out—now, I am speaking approximately: if I want anything definite from you

I will ask you a definite question, but I just want your approximation—your idea approximately where you were?

Mr. Griffin: Mr. Burns, you have not given him which shore you are speaking of?

Mr. Burns: Well—

Mr. Griffin: He would have to be between the buoy and one shore.

Mr. Burns: Yes, but if my friend desires to be definite in that respect, of course, I will, but no person would imagine for
10 a minute that he would be between the buoy and the north shore.

Q. I am showing exhibit 7 the admiralty chart, can you show me on this chart where the buoy it? A. About there. (Indicating.)

Mr. Griffin: Mr. Burns, that is not really fair to us, it is not relevant—

Mr. Burns: Well, I don't want anything of the kind—it is better to have these things on the soundings, I think, but I want to have this marked if I can have it.

Q. Would you mark that—what do you say, in blue pencil—
20 the buoy? A. That is marked as the buoy there.

Q. Oh, is it—I see. Well, that is all right.

The Court: Q. Is that on the east of Berry Point?

A. East of Berry Point, sir, on the north shore.

Mr. Burns: Q. Your counsel would have you between the buoy and the north shore—he would have you in a great fix?

A. Yes, but you ask me between the buoy and the shore.

Q. The buoy is as a matter of fact to the north and west of Berry Point, is it not? A. North and west of Berry Point.

Q. Yes, north-east. Now, would you show me as nearly as
30 you can while you were in there—at this point, 5:54 when you increased your speed—when you slowed down?

The Court: Put the letter "C". That scale is pretty small, is it not? A. Very small, to judge distances.

The Court: Yes, it is.

Mr. Burns: Possibly we might use this other map. My friend suggests that this map is a little larger scale, I was wondering—I think it is.

Q. That would be more effective for our purposes, Captain.

A. I think so.

40 The Court: That is exhibit 15.

(PLAN MARKED EXHIBIT NO. 15.)

The Court: What do you call this, Mr. Burns?

Mr. Burns: It is Vancouver Harbour, British Columbia, 1928. It has got the signature of the Vancouver Harbour Commissioners on it—the Chief engineer.

The Court: We will call it Vancouver Harbour map.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

The Witness: It is numbered 31952.

Mr. Burns: Oh, it is numbered, my lord, 31952—

Q. Well, on this map, then, Captain, you might fix if you could with pencil? A. Yes.

Q. Fix first of all the buoy. Put that in red, will you, because the other is blue. A. (Indicating.) It can be only approximate.

Q. Yes, well, that is the understanding? A. I will call it "B", buoy?

The Court: Q. No, call it "C", because you have "B" already on the chart. Oh, pardon me, that is a different chart; put it "A". When I come to think of it, Mr. Burns, that may be confusing, we have one "A" on another. Better mark that "C" now. A. (Indicating.)

Mr. Burns: Q. Now, you might fix approximately where your ship was? A. 5:54.

Q. 5:54, when you slowed down.

The Court: Mark that "D".

Mr. Burns: Mark it "D". A. (Indicating.) Shall I make it—

The Court: "D".

Mr. Burns: Q. Mark it "D". A. (Indicating.)

The Court: Let me see that.

Mr. Burns: If the Registrar will mark that, I want the witness to make some additions to it.

Q. You signalled for the bridge, you say, very shortly afterwards? A. Yes, sir.

Q. Well, what would you say?

The Court: You might have another copy of that for me during the intermission.

Mr. Burns: Yes, my lord. I am sorry that I haven't had this up better.

The Court: Oh, no, it is no inconvenience now.

Mr. Burns. I didn't realize that a large scale map would be more convenient for the court.

The Court: Yes.

Mr. Burns: Q. Very shortly afterwards—you say one minute or half a minute—half a minute to one minute?

A. Within the minute.

Q. Within the minute? A. Within the minute.

Q. You signalled for the bridge, and you were fully a mile and a third from the bridge? A. Yes, sir.

Q. And would you figure under the circumstances, everything going all right that it would take you about fifteen minutes to get to the bridge. That is your evidence, I take it? A. Yes, sir.

Q. When did you lay the course to the north pier, that is the north pier of the bascule? A. When off the buoy.

Q. That is when you got off the buoy? A. Yes, sir.

Q. You laid the course then on the north pier of the bascule, and carried that course until you got to the Knuckle? A. Yes.

Q. Until you were abeam of the Knuckle or— A. Abeam of the Knuckle.

Q. And then you changed the course to the south pier? A. Yes, sir.

Q. Now, you say that the Knuckle is about 1600 to 1700 feet, could you establish that more or less on the plan? A. You might establish that by the most easterly of the water mains shown
10 there.

Q. You would say then the Knuckle was just at the point of the most easterly— A. Most easterly water main.

Q. Water main, that is shown on this map, exhibit 15. Now, when you were abreast of the Knuckle, could you say what time that was? A. I didn't take notes of times.

Q. I know you didn't. A. And check up—I would have to just figure by the distance.

Q. If you can't, just say so. I simply want to know what information I can get? A. No, not definite for the moment.

20 Q. When you slowed down, you slowed down to a speed of nine knots, I understand? A. The ship had a speed of about nine knots.

Q. What is that? A. The ship had a speed of about nine knots.

Q. Yes; and at 5:54 you rang her down with the idea of getting her— A. Slow.

Q. What—what next? A. Getting her down to approach the bridge at about four knots.

30 Q. When you say approach the bridge, could you say what point in distance from the bridge you would be approaching?

A. 500 feet from the bridge.

Q. 500 feet. Your idea then was to get her down from nine knots to four knots by the time you got 500 feet from the bridge?

A. Yes, sir.

Q. Then under those circumstances—we have fixed the Knuckle, what time would you say you were abreast of the Knuckle approximately? A. Approximately it would be about 6:03.

40 Q. 6:03, you say you were abreast of the Knuckle. And how far off the Knuckle were you? A. At the Knuckle the ship would be almost in midchannel, that is, midway between the five fathom contour lines.

Q. Well, now, then, would you fix your ship there at the Knuckle? A. Any particular marks to put on it?

Q. What? A. Do you wish me to mark this?

Q. Yes, mark it? Have you got a pencil? A. No.

(Pencil handed to witness.)

Mr. Griffin: I might interpose to say that I think it would

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

be impossible for any witness on that exhibit without the five fathom line to make any progress with the question, but here is the map that his lordship has referred to made by Mr. H. D. Parizeau, which does show the five fathom line on both sides.

The Court: I would like to see that.

Mr. Burns: I wish you had mentioned it before.

Mr. Griffin: I did mention it yesterday. (Handing map to court.)

Mr. Burns: Well, I didn't realize it. I am sorry, it is my fault.

The Court: Yes, I think this is much better. This really is a proper chart. 10

Mr. Burns: Yes, it is a help, my lord, I didn't realize it.

The Court: Yes, I think it is the one we want.

Mr. Burns: Well, the only thing with reference to this is, my lord, that I can bring the witness from this last map on to this when he gets this point.

The Court: Yes, quite so. That will be exhibit 16. That is a Canadian chart, you see.

(CHART MARKED EXHIBIT NO. 16.)

20

Mr. Burns: Q. Now, you understand, Captain, that the next point that I want you to give us an approximate fix for, I might take you to exhibit 16—plan exhibit 16 as that shows—it shows the pipe lines that you have been speaking of—the water mains and the bridge on a larger scale. A. Yes.

Q. Now, could you give me that? A. Yes—

Q. Better put it in blue.

The Court: Yes, "E" in blue, that carries on. We had "D", now, this is "E" on 16. A. (Indicating.)

Mr. Burns: Q. That would be about how far off the point —the Knuckle? A. That is a little over 500 feet off the shore line—600 feet off the shore line approximately. 30

Q. Then you stated that when you were about 500 feet from the bridge you had to square for the middle of the draw, that is change in your course? A. At that point I hauled over for the north pier, then I said, when past the Knuckle I hauled over on to the south pier.

Q. Yes, I understand that. Well, then, you say at about 1200 feet—when you got to about 1200 feet from the bridge you then changed your course to the middle draw of the span? A. Square for the draw. 40

Q. Square for the draw; at that time there was no sign of tide, you say? A. No sign of tide then.

Q. That is to say, absolute slack? A. The ship—absolute slack.

Q. And you gave her half speed at that point? A. A little before then, I think.

Q. Oh, well— A. Just simply to increase her helm power.

Q. I know, I understand the reason, you gave the reason for the increased speed, was to increase the helm power; but where was the point that you did increase that speed to half? A. I think it was right—just after passing the most easterly water mains.

10 Q. Well, would you say just after passing the most easterly water mains—I see you give these water mains—you gave her increased speed, and it was then, was it not, that the undercurrent showed? A. Not there.

Q. Oh, well, then, where? I am just trying to cover your ground? A. When the ship was within a thousand feet of the bridge was the first sign of it.

Q. Oh, I see, then— A. Between 1200 and 1,000 feet was the very first sign.

Q. When you increased the speed you were a greater distance than 1200 feet from the bridge, were you? A. Yes, sir.

20 Q. Well, would you say 13—14? A. 1500.

Q. 15—1500 feet? A. 1500 feet.

Q. And it was when you got to 1,000 feet approximately, that you felt this undertow? A. The first sign of the undertow.

Q. Now, do you know the time. I suppose the way you felt the undertow was the swinging of your ship? A. The first suspicion was, having given the ship a little starboard helm, she didn't answer that helm, she kept absolutely plumb.

30 Q. Well, then, when did she take this sheer that you speak of? A. Not till she was 600 feet—600 feet from the bridge she started to sheer.

Q. 600 feet? A. 600.

Q. By the way, there is one question I want to ask you with reference to that buoy: could you give the distance approximately that you were from the buoy when you passed? A. Might have been 300 feet, might have been only 200.

Q. Not more than 300? A. I don't think it was more than 300, but I have no—I could check that up from the chart better than I can by memory.

40 Mr. Griffin: What distance was that, Mr. Burns, please. I didn't catch the question.

Mr. Burns: The distance he left the buoy on his starboard.

Q. From the chart, which chart—the admiralty chart?

A. From the admiralty chart.

Q. Well, you have it there? A. This chart would be about 600.

Q. That is, you had passed the buoy about 600 feet from it—600 feet to the south of it? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

Q. Now, then, we are here, Captain, at 1,000 feet, you felt the effect of the undertow to the extent of having put on some starboard helm, and that carried along until she was about 600 feet from the bridge when you felt this sheer. Is that so?
A. Yes, sir.

Q. Was anything done so far as the engines were concerned in that period? A. The engines were put full ahead.

Q. When were they put full ahead? A. I think it was 6:05.

Q. And where were you when they were put full ahead?
A. About 800 feet from the bridge. 10

Q. About 800 feet. So that you increased the speed to full at 800 feet from the bridge? A. 800 feet from the bridge.

Q. And you say you did that to help the helm, did you?
A. To help the helm.

Q. And did it help the helm? A. It did not.

Q. It did not help it? A. It helped the helm, but it wasn't sufficient to save the ship.

Q. Well, you see, you haven't got near the point yet that you are addressing your mind to, witness, I think. I am referring to the time the engines were put to full? A. Yes, sir. 20

Q. About 800 feet? A. From the bridge.

Q. Yes, before you had made this sheer we speak of?
A. Yes.

Q. That is right, is it not, or is that—were the engines put full ahead in order to counteract this sheer. Is that right?

A. She was feeling the undercurrent.

Q. Yes, oh, I understand that. Well, you felt this undercurrent—or this undertow from a thousand feet down to 600 feet, did you get as strong a sheer at 600 feet, it was a strong undertow?
A. Yes— 30

Q. Am I right in that?

The Court: Excuse me, Mr. Burns, I notice the witness was using the same expression here, underflow or undertow.

Mr. Burns: Undertow, yes.

The Court: That is quite a different thing. Underflow you said.

The Witness: Undercurrent, sir.

The Court: That is what I mean, because undertow is a back flow, you see.

Mr. Burns: Yes, I quite understand, and as a matter of fact I remarked it myself—at least, I thought it was a misuse of the word. 40

The Court: Yes, I was just wondering whether I heard you or the witness correctly.

Mr. Burns: Well, undertow has been used by both of us, my lord, and I have accepted it, although I am critical of it, because it was used by the witness.

The Court: Q. You had better explain to the learned counsel what exactly you mean, you see, as undertow ordinarily speaking is not of course—is a flow backwards. You do not mean that, do you? A. I have spoken of the direction, my lord, as being across the bridge to the north.

Q. Well, that is what I mean? A. Yes.

Q. But now get your mind in touch with the learned counsel. He is using the term that as I say—and you have used it, that is what I don't know whether you really mean what you say
10 here, just define it. You talk about undertow as a backward flow. Now, I understand what you mean is that this was an undercurrent, that is a forward or across flow. A. Across channel, sir.

The Court: That is it, that is not undertow, you know. That is undercurrent or underflow, but not tow.

Mr. Burns: Quite true, my lord. I noted the difference when the Captain was using that.

The Court: Oh, yes, it is not your fault, Mr. Burns, not at all. I do not mean it is anybody's fault, but I want to know exactly what he means.

20 Mr. Burns. I quite agree and I would suggest that he settle it now.

The Court: Yes, just get it definite now. You get the definite—just the exact expression which will illustrate his meaning.

Mr. Burns: You suggest undercurrent? A. Yes, sir.

The Court: That is the idea.

Mr. Burns: We will speak of undercurrent then.

The Court: Yes: that is better, I do not think I will misunderstand it now.

30 Mr. Burns: If I used undertow different times I followed it by using undercurrent, because I didn't like the word.

The Court: Yes, I know, Mr. Burns. You see my observations are no reflection at all upon your words, but I just thought at the time, this case is very important, it might go further, and it might be—there is an important word, it was not as correct, that is what I had in view, that it was an antagonistic expression which might convey a false impression of the racing, so to speak, of the current backwards through the bridge instead of forward.

40 Mr. Burns: Q. Now, Captain, in order to correct the notes of your evidence and so on along this line, the understanding is that where the word "undertow" has been used, "undercurrent" was meant? A. Yes, sir.

Q. Then the question of direction and that sort of thing could be settled, depending—in each particular case.

Now, then, I understand you to say—mind you these distances are approximate—certainly I don't suggest a foot in 600 feet, I don't mean that, but we are just trying to get an approximation to understand the situation. But you say from 1000 feet to 600

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

feet you felt this undercurrent that has been described, but that at 600 feet it became so strong—or at least it gave the ship a sudden sheer, that is, I think, the expression you used? A. Yes, sir.

Q. Now, between 1000 feet and 600 feet—approximately 800 feet, you gave the engines full ahead? A. Yes, sir.

Q. At that time did the order have the effect of keeping her straight—help the helm to the extent of keeping her straight? A. Momentarily.

Q. When you say momentarily, what do you mean? A. On the completion of the order the ship's head was still holding her own. 10

Q. Holding her own, on her own course? A. On her own course.

Q. But as you say only that helped—the starboard helm and the engines full ahead, is that right? A. Yes.

Q. And for how long did that occur—or continue, rather. A. Perhaps a little over a minute—not over a minute. Within the two minutes the ship showed so strong a sheer that we did not expect her—could not expect her— 20

The Court: Do not drop your voice, you know, at the most crucial part. You said for a minute the ship had—repeat that—the ship had shown so strong a sheer, that what? A. That it didn't seem possible she could recover sufficiently to go through the bridge.

Q. Now, just exactly—I don't know whether you gave it to the learned counsel, I did not catch it exactly, how far would you be from the bridge when that occurred? A. At the beginning, about 800 feet, and at the end, perhaps 500 feet.

Mr. Burns: Q. So that we have this picture, Captain, now, haven't we, that you commenced to think that she showed when you were about 800 feet from the bridge, first? A. At 800 feet, I had no cause to believe that the ship would not go through the bridge as I had taken others before. 30

Q. Well, then, when was it, or what distance were you from the bridge when you came to the other conclusion? A. About 500 feet.

Q. After this sudden sheer? A. Yes, sir.

Q. You said it was 600 before, but that is approximate? A. Well— 40

Q. Now, between 1,000 feet and 600 feet you had got an effect I am assuming, from this undercurrent to such an extent as first of all you had to give her starboard helm definitely— A. Very little.

Q. To counteract it? A. At first.

Q. Well, increasingly, well I put it that way, increasingly giving her starboard helm? A. Yes, sir.

Q. And that is correct, is it, Captain, that from the time you first felt this undercurrent you applied the well known act of giving her starboard helm to counteract—helping her to steer?

A. Yes, sir.

Q. And so far as that operation was concerned, as the ship went on that was increasingly necessary; in other words, to give her more starboard helm to keep her straight, is that right?

A. Not to any extent until suddenly.

Q. That is to say so far as the starboard helm is concerned, could you say how much starboard you gave her? A. I expected her to swing before—possibly five degrees of helm. The order I gave was a little starboard helm.

Q. I see, so that the result of that would be approximately five degrees. Did you increase that in orders from that time until the sudden sheer? A. Yes, sir, on giving the order full ahead—about the same time as full speed ahead.

Q. Now, let me see, is this right: You gave her a little starboard helm at 1,000 feet; you gave the order full ahead at 800 feet, then at 800 feet you also increased the starboard helm?

A. Yes, sir.

Q. Is that right? A. Yes, sir.

Q. With what result, from between 800 feet and 600 feet?

A. The ship began to come against her helm.

Q. What is that? A. The ship began to come against her helm.

Q. In spite of it? A. In spite of it.

Q. Did that show immediately, or approximately immediately? A. Gradually, I think, rapidly.

Q. Until finally at 600 feet or approximately between 500 and 600 feet, say, you say you had this sudden sheer? A. Yes, sir.

Q. And then it was that you ordered to let go the anchors?

A. After the ship's bow had passed the direction of the north pier.

Q. Yes, but previous to that, when you were 800 feet away, you gave the order more starboard helm and full speed ahead, you figured that that would counteract— A. Get her clear—

Q. Yes, naturally, because those were the orders you gave, and you saw then that that was not sufficient. You realized that was not sufficient, for instance, for the sudden sheer? A. No, sir.

Q. Was she holding then? A. How could I tell?

Q. Well, mind you, just say no if you want to? A. No, sir.

Q. So far as the distance she went between the time you gave full ahead and more starboard helm and the sudden sheer, you figured that she would be all right, did you? A. I didn't just get that clearly.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

Q. I say up to the time of the sudden sheer did you figure that those things that you had done would be sufficient? A. Yes, sir.

Q. And it was not until the sudden sheer came that you realized it was not. Now, this sudden sheer, Captain, was that a matter of a gradually increasing force, or was it a sudden application of force? A. It must have been a fairly sudden application.

Q. I couldn't imagine you giving any other answer in view of what has been stated. In other words, at 600 feet or approximately 600 feet there must have been some force applied of a definite nature? A. Yes, sir. 10

Q. And then quite strongly, on that line of demarcation plain between that force and the force that you had been counter-acting in the way you have described. That is right, is it not? A. Yes, sir.

Q. And as a result of that when you met this force and the ship took that sudden sheer, then there was no question in your mind at once that you could not make that bridge? A. Yes, sir. 20

Q. And the only thing you could think of then was to save the ship? A. Yes, sir.

Q. Or make the impact as light as possible. Now, then, could you place on that last map, exhibit 16—just point where you were when you made this sudden sheer. I mean, when I say this point again, it is only approximate, of course? A. Blue?

Q. Yes, you can mark it blue? A. (Indicating.)

Q. That would be "F"? A. (Indicating.)

The Court: Yes, that is right.

Mr. Burns: Q. Now, in marking that point, Captain—does your lordship want to see this? 30

The Court: Yes, thanks.

Mr. Burns: Q. In marking that point, witness, you have used a ruler and dividers, and have you marked it out from some figures or facts in your mind? Could you explain to me just what you did? A. I measured 800 feet from the bridge. You asked me to mark the point.

Q. Mind you I just merely want to get an understanding of this as we go along? A. I measured 800 feet from the bridge and made a mark on the chart. 40

Q. That is it, then, did you measure from the shore, too? A. I did.

Q. What measurement was that? A. About 150 feet off the 25-fathom line.

Mr. Griffin: The 5-fathom line. A. The 30-fathom line.

Mr. Burns: Q. Which? A. The 30-fathom line.

Mr. Griffin: Q. What is that? A. The 30-foot line, I mean.

Mr. Burns: Q. The 30-foot line.

The Court: That is in which chart?

Mr. Burns: I am not going to hurt your witness.

Mr. Griffin: No, I am sure you won't. I just want to get it right.

Mr. Burns: I desire not to be interrupted when I am speaking with him.

10 Q. So that you understand, witness, I am simply seeking information, and it is not that I am casting any aspersions on you at all, I want to know now how you get the 30 foot line by using the dividers from the shore as you did. Isn't the 30 feet shown in the chart? A. It is shown on the chart, yes.

The Court: Yes, that is right, Mr. Burns, the Canadian charts are shown in feet, the admiralty charts are shown in fathoms.

Mr. Burns: Q. Yes, so that thirty-foot line is shown on this chart? A. Yes, sir.

20 Q. What operation were you doing there? What operation of your using the dividers from the fix of your ship to the shore—or to get the fix of your ship from the shore? A. Yes, sir.

Q. What operation were you doing there? What operation were you doing there? A. Measuring the distance from the shore.

Q. Oh, well, what was the distance from the shore. A. Approximately 150 feet from the thirty-foot line.

Q. Oh, I see. Approximately 150 feet from the thirty-foot line? A. From the thirty-foot line.

30 Q. I see; and that is the point where you made this sudden sheer? A. That is where it really began.

Q. And you realize that you could not make the gate? A. Maybe realized, and maybe a little after that.

Q. Well, how long after? A. A minute.

Q. And how far had you gone? A. 400 feet.

Q. What? A. 400 feet to 350 feet.

Q. That is bringing it down to 450 to 400 feet from the bridge? A. Yes.

40 Q. Before you said it was 5 to 600 feet? A. Well, each of those measurements I understand you asked me are agreed on as approximate.

Q. Absolutely, absolutely, but the only reason I spoke of it is because you used the other amount—the other figure before, and I want to keep you using the same figures or know the reason why you change, that is all. A. Yes.

Q. Although they are all approximate. Can you answer this question again: When did you realize, or where were you

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

W. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

from this fixed point "F" when you realized you could not make the opening? A. During the next minute.

Q. I said where were you in relation to this fixed point "F"?

A. Well, I have already said, 600 feet from the bridge.

Q. 600 feet from the bridge? A. From the bridge.

Q. Yes, using the same class of figures, you had gone 500 feet from this point? A. Well—

Q. That is right? A. It looks like it.

Q. And you didn't come to any realization of that kind between this point "F" and the 200 feet when you hit the sudden 10
 sheer. It was only when that sudden sheer—at least, the sudden undercurrent gave you the sudden sheer that you realized that. Is that correctly put? Or did you have a suspicion of it before?
 A. It is very difficult to explain to you, sir, that ship—I had given the ship full ahead and the helm.

Q. Yes? A. And all those orders have to go through different channels. They are performed by other people, and you must allow a little time for your orders to have some effect.

Q. Yes? A. And that you can't come, on a ship, to any very sudden decisions, or are you thinking this one moment and 20
 another thing the next moment.

Q. Well, then, that— A. But approximately one minute after the ship's engines had been given full ahead I realized that the ship would not make the bridge. There was imminent danger then of collision.

Q. Yes, and that was because, you say, of this sudden sheer?

A. Yes, sir.

Q. Now, then, did you come to this point in your mind, that after you had given the order full ahead and more starboard helm, that that seemed to be enough for the time being. You say that it 30
 takes time for orders to get down. A. Yes, sir.

Q. A certain short time must elapse? A. Yes.

Q. Until you get the effect of the orders? A. Yes.

Q. Now, when you get the effect of these orders, which you must have done in the distance— A. Yes, sir.

Q. And time, did you figure that as enough? A. I figured that was the proper things to have done.

Q. I am not quarrelling with what you did, but I am asking you now as to whether you thought at the time that was enough, when you had got the effect of these orders on the ship. Was 40
 that sufficient in your mind at that particular time? A. It was.

Q. It was; and was sufficient in your mind up to the point of this sudden sheer, is that right? A. It was.

Q. Can you give any evidence or data as to the extent of the direction of your ship this sudden sheer was responsible for, that is, how far did it swing your bow, for instance? A. In how long? If I may put the question.

Q. Well, answer it your own way? A. She swung from a course plumb for the middle of the draw and she never stopped swinging till she was headed right into the middle of the fixed span.

Q. Did she swing fast? A. Very fast as her head passed the north pier of the bascule span.

Q. Well, I mean, did she swing fast at the first? A. She must begin, sir, and in the beginning the motion has to start slowly.

10 Q. Yes, in a big ship like that, I understand that. Considering the ship and considering the way she answers her helm and all that sort of thing, her conditions, would you say that she swung fast? A. I would.

Q. I don't mean as fast as a launch or anything? A. I would.

Q. But she immediately swung fast, comparatively speaking? A. Yes, sir.

Q. When was the point that you came to the conclusion that she could not make the opening? You didn't come to that conclusion right at the start when she started to swing, did you?
20 A. No.

Q. Well, then, I suppose, some little time elapsed between?
A. I have answered that question.

Q. Well, answer it again, then? A. About 500 feet from the bridge.

Q. Well, I am speaking of time now, you see? A. About 6:07.

Q. What is that? A. About approximately seven minutes past six.

30 Q. Well, could you say this, how long in time, even in seconds, I don't care within a few seconds or minutes, about how long after she had started swinging in the way you have described had she got to such a point that you concluded you could not correct her. A. About twenty seconds.

Q. About twenty seconds. It was then that you ordered the anchors lowered, was it? A. Yes, sir.

Q. Would this be fair, put it this way, that as soon as she started to swing you gave up? A. Almost immediately.

Q. Almost immediately? A. Yes.

40 Q. So that this force that hit her was so abnormal that as soon as it hit her you practically gave up? A. Yes, sir.

Q. Of course, the natural thing, in navigating in the situation you were in there, would be to help your helm, wouldn't it, if you could. It wouldn't have been a bad idea, I am just suggesting that— A. No, sir, I do think I know what you are driving at—

Q. Well, I am going to ask you, wouldn't the natural thing be for you to have dropped your port anchor? A. Not under those circumstances.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseW. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

Q. Why? A. Because I think that the immediate result would have been a crash on the north pier of the draw.

The Court: Q. Would have been what? A. Crash on the north pier of the draw.

Mr. Burns: Q. As a matter of fact, that is a regular procedure, is it not, where a ship is not obeying her helm? A. I often do it, sir, but not under those circumstances.

Q. When making a wharf or any difficult position?

A. Yes, I have often done it.

Q. But you figured you were going to hit the bridge anyway, 10 didn't you? A. There was a chance if the holding ground was good that the ship might not hit the bridge, or might hit it so easily that the damage would be minor.

Q. There was a chance and a good one, wasn't there, Captain —A. Yes, sir.

Q. —if you dropped your port anchor and added to the help you had given your helm? A. Never made the bridge, sir.

Q. I suggest to you that is the usual thing to be done in circumstances of that kind? A. Not in similar circumstances.

Q. Would you say the point where you felt this under- 20 current and it gave you the sheer would be just approximately the same distance from the shore as your fix "F"? A. I think the fix "F" is where I felt the undercurrent.

Q. Well, that is where you hit it? A. Yes, that is where I hit it.

Q. Where she hit it? A. Where I felt it.

Q. What speed would you say the ship was going at when this undercurrent hit her, that is, when the strong undercurrent hit her? A. Four—four and a half knots.

Q. Would the undercurrent that you had been meeting pre- 30 vious to the strong one—I am using strong in contradistinction to the undercurrent that you had been meeting up to that point—A. Yes.

Q. Would the undercurrent that you had been meeting previous to the strong one have the effect of retarding the way of the ship? A. Yes, sir.

Q. And the strong undercurrent would have the same effect, would it—whatever effect on the way of a ship is concerned, it would be retarding, would it? A. The first current, I think might have been a little more northeasterly. The second current 40 would be more northerly and wouldn't have the same effect of retarding the way of the ship, as being diagonally across the line of the ship.

Q. You figured that you were going down against this one undercurrent which was northeasterly, and then you hit another current entirely— A. It gradually changed its direction to a more northerly direction.

Q. Well, if it gradually changed then it was the same current—the same undercurrent, was it? A. The same salt water within 800 feet.

Q. But an added force, is that it? A. Yes, sir.

Q. Now, you let go both anchors as soon as she sheered, did you, practically? A. Yes, sir, as soon as the ship sheered past the pier.

Q. How much cable or chain did you give her—give the port, for instance? A. 75 fathom chain when she was brought up on
10 the port anchor.

Q. I know that. You have given that evidence. I am asking you your order to lower the anchors, what chain did you give the port anchor? A. Shortly after the anchors were let go orders were given to check cables.

Q. Yes, but the idea of giving her all the chain you could, if you would answer me that question without— A. No, sir, I couldn't.

Q. Well, then, the order was given to check? A. Yes, sir.

Q. Cables, with the idea of— A. Stopping the ship.

Q. Of stopping the length of the cable given to the anchor,
20 was it not? A. No, stopping the ship. The anchors were let go for that, sir, not with any—it might have taken a hundred fathoms chain, it might have—45 fathoms might have been sufficient.

Q. Let us see if I can make myself clear, witness. You gave the order that the anchor should be let go? A. Yes, sir.

Q. Then subsequently you gave the order to check them?
A. Yes.

Q. Check the chain? A. Yes, sir.

Q. That was with the idea that enough chain had got out,
30 was it not, that there had been enough chain given? A. No, sir.

Q. Well, what was the idea of checking the chain? A. Putting the weight on it, sir, immediately, as soon as the anchor has a chance to get a fair grip of the bottom, you then put weight on the chain.

Q. All right. Then, what length of chain can you say had been given her at that point. That is my question in the first place? A. I think 30 fathoms of chain.

Q. You think thirty fathoms of chain, that is the port?
40 A. Before she felt the weight of the brakes.

Q. That is the port, is it? A. Port and starboard.

Q. Both? A. Yes, sir.

Q. What was the depth of water you calculated? A. Fifty feet, first—fifty to sixty—fifty feet of water.

Q. And you let more out on the port as you went on—on the port anchor, let more chain out? A. No, sir, that is not the proper answer.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

Q. Well, give the proper answer. I am trying to help out—
 A. The anchors were checked; starboard cable, we succeeded in
 braking her at 45 fathoms.

The Court: Q. What? A. In braking the cable at 45
 fathoms. There was so much weight on the port anchor that they
 could not stop that chain going until 75 fathoms of chain went out.

Mr. Burns: Q. So that 75 fathoms was given her right
 away practically under those circumstances, is that so? A. That
 lead gives a wrong impression, sir.

Q. Well, then, correct it, I don't want anything more than 10
 information, but give it to me, if you see what I want, answer it.
 A. The impression is that the port cable was doing its work in
 pulling up the ship.

Q. Yes? A. But the starboard chain had not got the same
 grip on the bottom, it was dragging—was dredging.

Q. Well, did the port anchor then have any effect on the
 bow of the ship—on her direction? A. A little at the end.

Q. That is after she got a firm hold? A. When her nose—
 when the ship's nose was just going under the bridge she ceased
 then to swing. 20

Q. She went under the bridge at an angle of forty-five de-
 grees? A. Yes, sir.

Q. That is, the steam was northwesterly and the stern south-
 easterly? A. Yes, sir.

Q. Approximately. Now, then, what did you do when the
 vessel struck—I mean I suppose you were getting out of the way,
 or something? A. I got off the bridge before the bridge was hit.

Q. Yes. Well, then, when was it that you took note of the
 tide—how long after the ship hit? A. As soon as I got on the
 main deck off the bridge. 30

Q. And what did you see then as to the tide? A. There
 was a slight sign of flood on the north pier of the bascule draw.
 There was a slight sign of ebb tide on the north pier of the fixed
 span.

The Court: Repeat that again, I did not get that. You said
 first you noticed a slight sign of flood where? A. On the north
 pier of the bascule draw.

Q. Yes, and— A. A slight sign of ebb on the north pier of
 the fixed span.

Q. Give me that? A. That will be the next pier to the 40
 north, my lord.

The Court: I beg your pardon?

Mr. Griffin: That would be just the next pier to the north,
 my lord.

The Court: What is it called—let me see that big blue print.

Mr. Griffin: If your lordship pleases, may I interrupt my
 friend to suggest this that for graphic reference there is a splendid
 photograph of the bridge.

The Court: I was just wondering if there was one. Yes, thank you.

Mr. Griffin: You might put that in and take it out of the book.

The Court: Q. Now, look at exhibit 8, witness, and just repeat what you said with reference to that. You see the bascule marked in red there? A. Yes, sir.

Q. Yes, well, then, just give me the numbers of the piers according to that exhibit 8, you see. When you struck you got off the bridge and you noticed some sign of flood on the north pier of the bascule draw. A. Pier No. 2.

Q. What? A. Pier No. 2.

Q. Pier No. 2, yes? A. And a slight sign of ebb on Pier No. 1.

Q. Yes, on or off? A. On—against the pile—against the pier, sir.

The Court: Yes, now, let me see that. Yes, Mr. Burns excuse me for interrupting.

Mr. Burns: Yes, my lord, that just gives the information I desire to get.

Q. So far as the north pier—that is the north to the starboard of the ship? A. Yes, sir.

Q. You describe that as a slight drain to westward? A. Yes, sir.

Q. You did that yesterday, I wanted to check that up. How soon after the accident would you say that you observed this? A. Within a minute after the engines was stopped—within the next minute.

Q. When did the engines stop with reference to hitting the bridge, or can you say how soon after hitting the bridge? A. Stopped immediately after the ship was brought up.

Q. Well, how soon after hitting the bridge did you make this observation with reference to the tide? A. Within the next minute.

Q. But you say that the engines stopped immediately the ship— A. Brought up.

Q. Hit the bridge? A. No, sir, the engines were going—kept going astern until the ship was finally stopped.

Q. Stopped by going into the bridge? A. And the anchors.

Q. All right; then the engines stopped? A. Yes, sir.

Q. Then you say that you observed the tide about a minute after the engines stopped? A. Yes, sir.

Q. And then subsequently you say that you observed the tide about a minute after the vessel hit the bridge. Now, I want to get the time after the vessel hit the bridge, about how long after the vessel hit the bridge? A. I suppose about three minutes after she first hit the bridge.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Wingate
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Wingate
 Cross-exam.
 (Contd.)

Q. About three minutes and you say that there was definite evidence of the tide flooding at the north pier of the bascule? A. Yes, sir.

Q. You could see the current going? A. Yes, sir—you could just see it by being close to the water. If I had been on top of the bridge I don't think I could have detected that movement. The ship's rail then was quite close to the water.

Mr. Burns: That is all, thank you.

Mr. Smith: If your lordship pleases, there are two questions I forgot to ask the witness. I would like to ask him now. 10

Q. Witness, is the bridge an impediment to navigation? A. Yes, sir.

Q. Is it a menace to navigation?

Mr. Burns: That is a question that has to be decided in this case if at all.

The Court: Yes.

Mr. Smith: Well, I just desire to have it on record *pro forma* for what it may be worth, my lord, and that is the witness' opinion, it is in fact an impediment to navigation.

Mr. Burns: Well, I submit that all this witness could give 20 amounts to his experience.

The Court: It is rather a peculiar question, Mr. Smith, I am debating—I mean I am wondering if there is really any objection to it. Of course, I have really to decide, you know, because that is for me to determine.

Mr. Smith: Well, there are, of course, my lord, instances where bridges are built—

The Court: I do not wish to say, you know, from that aspect you might not ask it, because, of course, you are bearing in mind Section 8 of the Charter—I think you used the expression obstruction to navigation. 30

Mr. Smith: Yes, my lord.

The Court: But in that limited way, I do not know, Mr. Burns, that it would be proper to reject it, but just exactly what is the weight I cannot say unless it is borne out by the facts in detail, I must say I do not see; but it is purely an expression of his opinion. I do not think the question is really technically objectionable, so I will allow it. You might frame it again. What do you wish now exactly to ask him, just reframe that.

Mr. Smith: Well, I shall reframe it in this way: Whether 40 in the opinion of the witness this bridge is an obstruction to navigation.

Q. Will you answer it, witness? A. Yes, sir.

Mr. Smith: That is all.

The Court: Now, Mr. Burns, of course, you can ask him if you wish any question on that.

Mr. Burns: Pardon me, my lord.

The Court: You may ask him if you wish any question on that because it is an indulgence that Mr. Smith asks, that he overlooked. It is open to you now if you see fit to cross-examine on that.

Mr. Burns: No questions, my lord.

The Court: Q. Just one moment. Now, these other ships that you have mentioned, witness, when you were on board, when in charge of them you noticed there was this undercurrent, were any of them of a size approaching this vessel? A. In tonnage the
10 "Circunus," very closely approximate.

Q. What do you mean by that? A. Her net tonnage is very much the same.

Q. Yes? A. The "Golden Gate" would be about 500 tons less net tonnage. The "L. A. Christensen" and the "Poljana," about the same as the "Golden Gate."

Q. Now, then, as to their length? A. The "Circunus" would be about the same length, or perhaps a little longer.

Q. And the other two? A. A little—a little shorter, not more than ten or fifteen feet.

20 Q. How much water do they draw as compared to this vessel? Were they laden at the time? A. The draft—I gave in the instance of the "Circunus," it was drawing 24 feet.

Q. Yes, I remember that? A. The "Golden Gate" was drawing 22 feet 6.

Q. Wait a moment. Yes. A. The "Poljana" was drawing 19 feet.

Q. Yes? A. I haven't a record of the "L. A. Christensen," but I should say it was about 17 feet 6.

Q. Is that L. A. or Ella? A. No, L. A., initials.

30 The Court: L. A., yes. That is all, thank you.

(Witness aside).

Mr. Smith: My lord, we have one very short witness we might take now, Mr. Hermon—about five minutes only.

JAMES WILLIAM HERMON, a witness called on behalf of the Defendant, being first duly sworn, testified as follows: J. W. Hermon Direct.

DIRECT EXAMINATION BY MR. SMITH:

Q. You are familiar with this chart. This is a copy of exhibit 8 which I have here.

The Court: Let me look at exhibit 8.

40 Mr. Smith: Q. Yes, this is exhibit 8. You are familiar with that chart. (Handing chart to witness). A. Yes.

The Court: Where does he live and what is his occupation?

Mr. Smith: Q. Yes, what is your occupation, Mr. Hermon? A. British Columbia Land Surveyor.

Q. And where do you live? A. Vancouver, office 429 Hamilton Street.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Wingate
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 J. W. Hermon
 Direct.
 (Contd.)

Q. And how long have you carried out the profession of surveyor? A. Oh, for—since 1919, about 9 years—10 years.

Q. Speak up, witness? A. Nine or ten years.

Q. And in the course of your professional duties have you made surveys at the localities of the Second Narrows Bridge? A. I have.

Q. You are familiar with this plan, exhibit 8? A. Yes.

Q. And did you in company with a Mr. Cameron make soundings on the east of the Second Narrows Bridge at the location where it is shown as marked there? A. Yes.

Q. Is this the plan that you agreed upon with Mr. Cameron as being the correct plan of the soundings at that time? A. Yes, sir, that is the plan.

The Court: Q. Who is the man he made that with?

Mr. Smith: Mr. Donald Cameron.

The Court: How do you spell that.

Mr. Smith: Donald Cameron, my lord. I think my friend will admit this.

Mr. Burns: Oh, yes.

Mr. Smith: There is no question about that, so that I tender this plan showing the contour of the land referred to by your lordship—the 30 foot contour line, as exhibit 17, I think.

(PLAN MARKED EXHIBIT NO. 17)

Q. And did you in February, 1925, survey the bridge in its then site? A. Yes.

Q. Is this a correct plan of the site of the building of the bridge then, with more particular reference to the south shore and the fill in at the south shore? A. Yes, it is.

Q. And is the filling in today exactly as it is shown on that plan? A. No, there is a little more fill today than there was then.

Q. But otherwise is it the same? A. Otherwise it is the same.

Mr. Burns: What is the date?

Mr. Smith: February, 1925. Exhibit 18.

(DOCUMENT MARKED EXHIBIT NO. 18)

Q. Now, did you take the harbour plan, which is exhibit 8, and upon that plan plot firstly the soundings on the east of the bridge, and secondly, the fill in which I referred to on the last exhibit, to the south of the bridge? A. Yes, I did.

Q. Is this the result then of having these two things transplanted? A. Yes.

Q. So that this plan then which I am now tendering as an exhibit is simply the harbour plan, exhibit 8, plus the contour line

showing the soundings at the shoal, plus the fill in at the south end of the bridge? A. Yes.

Mr. Smith: I show that to your lordship—just for the purpose of handy reference, my lord.

The Court: Yes, very good.

Mr. Smith: I tender that as the next exhibit.

(DOCUMENT MARKED EXHIBIT NO. 19)

Mr. Burns: No questions, my lord.

(Witness aside).

10 The Court: Have you any other short witness, Mr. Smith?

Mr. Smith: No, my lord.

The Court: I think you said no cross-examination, I think,

Mr. Burns.

Mr. Burns: Yes, my lord.

The Court: We will adjourn then, Mr. Registrar.

(COURT ADJOURNED AT 12:55 P.M. UNTIL 2:15 P.M. OF THE SAME DAY.)

Vancouver, B. C., September 27, 1928, 2:15 p.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT)

20 Mr. Griffin: Mr. Cleveland.

ERNEST ALBERT CLEVELAND, a witness called on behalf of the Defendant, being first duly sworn, testified as follows: E. A. Cleveland Direct.

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Mr. Cleveland, you are a civil engineer and formerly practised your profession in the City of Vancouver? A. Yes.

Q. And your firm when you were in business was Cleveland & Cameron? A: Yes.

Q. Of which Mr. Donald Cameron was the other member? A. Yes.

30 Q. You are not now practising your profession? A. No.

Q. But in the year 1912 you prepared, your firm of Cleveland & Cameron prepared in conjunction with Sir John Wolfe Barry and partners plans of a bridge across the Second Narrows?

A. Yes.

The Court: 1912?

Mr. Griffin: Yes, my lord.

Mr. Burns: I am very sorry, they are in the office. However, I am quite satisfied. You can use these—

Mr. Griffin: Well, I think they are common ground. My

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

J. W. Hermon
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 E. A. Cleveland
 Direct.
 (Contd.)

learned friend is undertaking to produce them. I have not them and I do not think it will be necessary to do more than identify them. I will do that when they arrive.

Q. Just to put it on record, those plans provide for a centre span, two centre spans, each having—no, I amend that again, one centre span, but having two openings of 225 feet each on each side of the centre or fender pile? A. That is so.

Q. The general height of the bridge, what height? A. 45 feet above ordinary high water.

Q. The one I am showing you is not the same one, but will serve for the purpose of illustration— 10

The Registrar: Shall I mark the plan, exhibit 20, when it comes, my lord. I will reserve it.

Mr. Griffin: May I put this on the Bench.

The Court: Yes, please.

Mr. Griffin: Q. The one which I show you until the arrival of the real one is one made by the Canadian Bridge Company Limited of Ontario, but possibly your memory will enable you to say that is substantially the same? A. Yes, it is substantially the same. The length of the centre span over all is— 20

Q. Not identical, but very similar? A. Approximately the same. The two openings are the same.

Q. Now, the effect of that is to make the more northerly of the two openings very considerably to the north of that shown in the plan of the existing bridge, is it not. This is the opening? A. I have not seen the plan of the existing bridge.

Q. Then I will take exhibit No. 8. If you will just take No. 8 and give me a general answer as to whether— A. I find it very difficult to find some common point on which to work on. High and low water marks are shown on the other plan, but high and low water marks are not shown on the northerly side of the southerly end of exhibit No. 8. 30

Q. Doesn't the inspection of them enable you to answer that general question, though? A. The northerly end of the swing span in exhibit No.—on the plan.

Q. Exhibit 20, call it 20.

A. Of exhibit No. 20 is approximately 470 feet southerly from the low water mark on the north shore of the harbour. The northerly end of the bascule span on exhibit No. 8 is approximately 600 feet according to the plan from low water mark on the north shore. 40

Q. Making a difference in the two northerly limits of those channels of about— A. Of about 130 feet according to the plans.

Q. I just wanted it generally. I ask to put that plan in of the Canadian Bridge Company as exhibit No. 20.

Mr. Burns: Pardon me. The originals will be here.

Mr. Griffin: I intend to put in both.

(PLAN REFERRED TO MARKED EXHIBIT NO. 20)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseE. A. Cleveland
Direct.

(Contd.)

Q. As a preliminary to the preparation of the plans which you prepared, which have not yet arrived, did you make personal observations of conditions at the Second Narrows? A. Yes, I did, quite a considerable amount of work at the Second Narrows and among other things took readings of the current velocity in the Narrows over a period of about twenty-five hours continuously.

Q. And those were taken with the aid of an instrument called a tide meter? A. A current meter.

10 Q. Yes, from a boat? A. Yes, from a tug boat anchored in mid stream.

Q. In the process of those investigations did you find where the volume of the greatest velocity of the tide is relatively to the surface? A. I found that the maximum tidal velocity according to the current meter readings was about 20 feet beneath the surface of the water.

Q. You are, of course, familiar with the configurations of the Narrows and the contours of the channels on both sides of the present bridge? A. Yes.

20 Q. Can you state as to the effect that those configurations and those contours create in respect to the tidal currents east and west of the bridge? A. At the time those observations were made there was of course no bridge at that site, and I had observed that the tidal velocity, where greatest, followed very closely the maximum depth of the channel and that along the sides there were eddies and confused currents.

30 Q. I think his lordship would like to know at what distance east and west of the site of the present bridge those eddies and confusion of currents occur? A. I am not informed as to where the site of the present bridge is precisely, the site of that on which this design was based, the design exhibit No. 20.

Q. The only way I can inform you of that is to show you more plans. I suppose you are familiar with the actual site of the bridge from personal observations on the ground? A. Yes.

Q. Then I think if you would state the distance where you found those eddies and confusion of current east or west of the site of the actual bridge? A. On both sides of the centre line of the bridge, that is to say, east and west on both shores.

40 Q. But how far east and west? Say on the south shore, to fix the point as near as possible? A. The south shore—the configuration of the south shore is such that there is a bay some little distance west of the south end of the bridge, a rather short distance. The bay begins as a matter of fact I should judge within 100 feet or so of the southerly end of the bridge, this bay lying to the west of the bridge, and at that point there is—there was quite strong tidal currents, confused currents. Those eddies and

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 E. A. Cleveland
 Cross-exam.
 (Contd.)

turbulences extend along the southerly shore for some little distance. I could not say how far.

Q. And then east of the bridge? A. Along east of the bridge on the southerly shore for some little distance.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Mr. Cleveland, did you make any written data on your observations? A. The observations were recorded and there were doubtless communications to the office of Sir John Wolfe Barry and partners concerning the result of the observations.

Q. Have you any of that data? A. I have not any of it nor have I any access to it unfortunately. 10

Q. Can you, speaking from memory, give the rate of the velocity you found in different places? A. I could not. I recall quite well that the maximum velocity that I got during those 24 or 25 hours of continuous reading—the maximum velocity was somewhat less than what I had been led to believe by the notations on the chart, how much less I do not recall.

Q. Well, then, was your examination confined to a day or two days' operation by you? A. Yes, one continuous period of 25 hours so as to get the whole tidal cycle within that particular period. 20

Q. And you had a tug with you? A. Yes.

Q. Which was anchored? A. Yes. Four anchors, as I remember out in midstream.

Q. Did you shift the tug? A. No.

The Court: Did you say yes or no? A. No.

Mr. Donaghy: Q. Just one more question. You say the tug was anchored in the middle of the channel? A. Midchannel.

Mr. Griffin: The documents showing the plans prepared by your firm and Sir John Wolfe Barry have now been produced. Is that it? A. Yes. 30

(PLAN FILED AS EXHIBIT NO. 21)

Mr. Griffin: Q. This may be new. My learned friend will probably not object. Was a contract let for that construction work? A. No contract was let.

Mr. Donaghy: Well, would he know?

Mr. Griffin: I will ask him his authority.

The Witness: No contract was let.

Mr. Griffin: Q. Was any contract let of any kind in connection with it. Some sort of contract I am informed had been made. 40

Mr. Donaghy: I do not see, my lord, where it becomes relevant. There may have been a contract. Assuming there was a contract to prepare the plans there was no contract let for con-

struction. I think my learned friend should be more particular in his questions so I can judge whether it is a proper question or not.

Mr. Griffin: Q. I will ask the question in an alternative form, whether a contract was let for construction? A. No contract was let for the construction.

Q. Was any contract made with regard to the preparation of the plans? A. Yes, there was a contract.

Mr. Griffin: Thank you. I do not need to press that.
10 (Witness aside).

JOHN F. BRUCE, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. Where do you live, Mr. Bruce? A. At 1510 11th Avenue East, City.

Q. In the City of Vancouver? A. The City of Vancouver.

Q. And you are a diver? A. A diver and rigger.

Q. What experience have you had as a diver? A. Well, I have had thirteen years in the navy, the British navy, as a diver,
20 and about ten years since I left the navy.

Q. That is a total of twenty-three years diving experience? A. Yes, that is off and on.

Q. Where have you done your diving for the last ten years since you left the navy? A. In North Russia for sixteen months and for the Northern Construction Company and the Ballantyne Pier, No. 2 elevator, on the Vancouver Sewers for the Sewerage Board, the City Water mains and the Greater Vancouver Water District.

Q. And am I right in saying with the exception of one and a half years diving in Russia the balance of the last ten years you have been diving in and around the harbour of Vancouver? A. Yes, the balance of the ten years; no, it would not be the balance of ten years, it would be about eight years I have been diving in Vancouver.

Q. About eight years you have been diving in Vancouver? A. Yes.

Q. Have you done any diving at the Second Narrows? A. Yes, I have done considerable diving there.

Q. When was the first time you did any diving at the Second
40 Narrows? A. 1924, the early part of 1924.

Q. You did the diving then as I understand it for the Northern Construction Company and who else? A. The Northern Construction Company and the City of Vancouver and the Greater Vancouver Water District.

Q. What was the Northern Construction Company doing at

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Defendant's
Case
E. A. Cleveland
Cross-exam.
(Contd.)

J. F. Bruce
Direct.

RECORD
 British Columbia
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 Defendant's
 Case
 J. F. Bruce
 Direct.
 (Contd.)

that time? A. They were laying the cylinders in the Second Narrows Bridge in the Second Narrows.

Q. And from that time in 1924 your principal diving has been done where? A. The First and Second Narrows.

Q. In connection with what? A. The City Water Mains.

Q. Now, has it been necessary for you to make any special study of the tides in the Second Narrows? A. Yes.

Q. Why? A. Well, I found on starting in that the tide book was just something to go by. It was not accurate in any sense at all, and the tides varied so much as forty-five minutes on the flood tide to fifteen and twenty minutes or half an hour at the low water. 10

Q. And had you to do your diving at any particular stage of the tide? A. I could only do diving at approximately slack water which would be the slackest water you could get at the time. Really there was no slack water, only at the centre of the channel you would practically get no slack water at all.

Q. That would be both high and low water slack? A. High and low.

Q. Before the bridge was built how did the tide flow through the Narrows? A. Well, the tide apparently flowed from my observations there and I put in about six or eight weeks there both nights and days and all stages of the tide and the tide always apparently flowed east and west through the shores of the Narrows. 20

Q. The bridge we know was built in 1923 and '24? How has its construction altered the course of the tide? A. Well, the obstructions there, that is the cylinders and casings and also the fill—

Q. Start away from one end of the bridge. Suppose we start from the south shore and state how the construction of the bridge has altered the tides? A. On the south shore there is a fill put in there which runs out for 150 feet to the cylinders, the first two cylinders. That is No. 5, is it, No. 5 pier. 30

Q. No. 5 pier? A. Yes, they run there under water. They run out—they run out for a distance of 25 feet.

Q. Just wait a moment.

Mr. Griffin: May I suggest my learned friends put in for convenience a side elevation of the bridge as actually constructed. Your lordship has before you many plans, but not the side elevation and it would be a great convenience. I have one before me with the piers all marked. That, of course, has my notes upon it, but you can put in a clear copy. Would your lordship give a number to this and my learned friend would put a clear copy, this one having notes upon it. 40

(PLAN REFERRED TO MARKED EXHIBIT NO. 22)

Mr. Smith: Q. You said, witness, at the south end of the

bridge there was a rock fill extending to Pier No. 5? A. Yes, I am continuing out under low water for about twenty-five feet.

Q. Twenty-five feet further? A. Further out in low water which is not dry. It is not dry, it is low water, but the foot of it extends out.

Q. Do you mean by that it extends out beyond Pier No. 5? A. Beyond Pier 5, that is, to the north of Pier 5.

Q. What effect has that fill of rock upon the tide? A. Well, on the south-west of the pier on the south shore there is a big bay
10 there and before the bridge was built this bay existed and after this rock fill had been placed there with the turn of the tide this fill had a tendency to set the water off at an angle on the incoming tide or the flood tide, set it off at an angle in a northeasterly direction across the front of the bascule span and struck it about 150 to 250 feet from the centre of the span; that is, east of the span.

Q. What would it strike east of the span about 150 feet? A. It would strike—there the current would be practically lost, that is the surface current.

Q. In the event of any ship then proceeding west through
20 the Narrows where would it meet this deflected current you speak about? A. It would meet the ship on the port bow.

Q. At what distance from the bridge? A. At approximately 150 feet from the bridge due east.

Q. Does the rock fill not catch and deflect the ebb tide in the same way? A. No, not to that extent, because there is very little of the ebb tide there that is really—some hours before the ebb there is very little tide flowing close to that fill there, so that it does not affect the outgoing tide very much.

Q. So that the real effect of the fill is to catch the flood tide?
30 A. It catches the flood tide.

Q. Now, do you know anything about any dredging that was done at one time on the north shore?

A. There was some dredging done on the north shore over not being able to get the piles in there. They were washing out and I believe they decided to take the piles out and put in two extra spans and also to reduce the current through the casings and that being placed there—to dredge there.

Q. Where was the dredging done? A. It was done north of No. 1 Pier.

Q. In line of the bridge? A. In line of the bridge.
40

Q. Extending east or west? A. Extended east and west, but I am not sure of the distance, how far it was, but it was not to no great extent that would really make much effect upon the tide.

Q. Are you referring now to west of the bridge? A. I am referring now to both sides of the bridge.

Q. Can you give an idea how far it extended easterly? A. It extended easterly for approximately 200 feet.

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British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Bruce
Direct.
(Contd.)

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*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Direct.

(Contd.)

Q. Where would that be with reference for instance to the western side of the water mains? A. That would be about 700 feet west of the city water mains. There is shallow water then. Then there was dredging done the other side of it.

Q. I am afraid I don't quite follow you. The dredging was done in line of the bridge—in the line of the bridge? A. In line with—well, to the east of the bridge.

Q. To the east of the bridge and— A. Also underneath the bridge.

Q. How far to the eastward of the bridge would the dredging go? A. It extended as I say approximately 300 feet and then skipped a part there and that is where the B. C. Telegraph or B. C. power lines were situated there. They went beyond that and done some more dredging there up to approximately 50 or 75 feet of the water mains. 10

Q. What was the result of that dredging. A. The result of the dredging is in one way, the effect actually on the bridge itself as regards the tide there is very little; the tide passes through there where the dredging was done on account of it being just like a basin, but they did not carry the dredging right through and therefore it was not really affected. 20

Q. Was there any arm of any kind left, any shoal arm? A. About 950 feet to the east there was an arm left there which run out to approximately 100 to 250 feet under water.

Q. I wonder if you would mark that arm you speak about on exhibit 19. Mark it with a blue pencil. Just show it to his lordship? A. (Witness marks plan.)

Q. How does that arm affect the flood tide? A. Well, it affects it that in a southeasterly direction it would strike almost the centre of the Narrows about 1500 feet due east of the bridge. That is just by the Seymour, would make greater volume. 30

Q. Just deal with that point now, Seymour Creek; in what way does Seymour Creek affect the tide? A. Seymour Creek really only runs with a flood tide, at the highest stage of the tide. Otherwise it flows in a southeasterly direction until it strikes the force of the tide whichever way it is running in. Then of course it gets deflected with the tide to a certain extent, excepting at low water or nearly slack water when it runs to the top of the salt water, in some cases due south, but mostly in an easterly direction. On account of the shallow water being at the mouth of the Seymour it either to go east or a southeasterly direction. 40

Q. That is the flow of the water from Seymour Creek down across the Narrows and I notice that Seymour Creek is marked on the plan as you no doubt see. A. Yes.

Q. You said a few moments ago that the presence of the piers in the Narrows had some effect upon the tides. Deal with that point now? A. Well, it is bound to create eddies and one

thing and another by being placed there and also it takes up a good bit of room, the size of them.

Q. You are referring now to the piers? A. I am referring—

Q. To the piers and cylinders? A. The piers and the cylinders.

Q. Yes, and you say that they create eddies, do they? A. They create eddies.

Q. Now, could you just give us a brief description of the construction of the bridge. How does it run for instance; north and south there? A. No, it runs the least little northerly off an angle. It is not at right angles to the Narrows.

Q. Does it run east or west of north. A. It runs east of north, that is like to the north.

Q. To what of south, west of south? A. To west of south.

Q. Now, start from the north shore, the bridge consists of what. What is the first thing in connection with it? A. The first thing it consists of a fill there to the bridge.

Q. The bridge is built on what? A. The bridge is, the road bridge, is built on piles.

Q. Now, if you follow along the bridge you come to Pier No.?
A. 00.

Q. And that consists of what? A. Four cylinders.

Q. With what on top? A. With a concrete slab on top.

Q. And after that pier you come to what? A. No. 0 pier.

Q. And between the two piers there is a fixed span? A. 150 feet in length.

Q. Is the bottom of this fixed span covered at low water? A. Yes.

Q. Do ships ever pass through this particular fixed span?
A. No.

Q. Then what is the next thing you come to? A. The next you come to is another cylinder pier.

Q. That is Pier No.— A. Composed of six cylinders.

Q. With anything on top? A. With a slab on top.

Q. And anything else? A. Two cones about five feet high to give the bridge an additional five feet.

Q. And after Pier 0 you come to what? A. Then you come to another 150 foot span.

Q. Is there any water there at low water? A. Yes, there is deep water there. This is where the dredging was done between 00 and No. 1.

Q. And do ships ever pass through there? A. No, sir.

Q. And after that you come to another pier, do you, pier No. 1?
A. To pier No. 1.

Q. What does it consist of? A. There are eight cylinders there.

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 J. F. Bruce
 Direct.
 (Contd.)

Q. With what on top? A. With a concrete slab on top and five feet cones.

Q. On top of the slab? A. Yes.

Q. Then after passing that Pier No. 1 where do you come to? A. We have then the 300 foot span.

Q. A 300 foot fixed span? A. 300 feet fixed span.

Q. What is that used for? A. Mostly for small boats and booms of logs going through.

Q. That is what one might call the working span for small boats, is it? A. Yes. 10

Q. And then after that what do you come to? A. Then we have pier No. 2.

Q. Pier No. 2? A. Which was—

Q. That is the Pier immediately to the north of the bascule span is it not? A. Yes, it is what the bascule comes down and rests on.

Q. What does Pier No. 2 consist of? A. That originally was a caisson. It is a solid pier of masonry or was. The caisson was approximately 45 long and about 25 feet wide.

Q. When you say 45 feet long you mean in an easterly and westerly direction? A. East and west. 20

Q. And approximately how wide? A. Well, the height I am not sure of. The depth of water around there was—the sounding was 91 feet.

Q. And then after that pier what do you come to? A. Then we have the draw or bascule span.

Q. How wide is that? A. Well, it is 150 feet.

Q. Then after passing the bascule span you arrive at Pier? A. Pier No. 3.

Q. What does that consist of? A. This also consists of a caisson. 30

Q. The same as Pier No. 2? A. The same as Pier No. 2, only not such a great depth, not such a height.

Q. Because the water presumably is shoaling there? A. The water is shallower there.

Q. Then after passing Pier No. 3 what have you? A. There is an arm going to Pier No. 4.

Q. Yes? A. Pier No. 4 also consists of a casing similar to 3, and—

Q. And 2? A. 3 and 2.

Q. How much space is there between No. 3 and 4? A. About 25 feet. 40

Q. And do ships ever pass through that space? A. Nothing passes.

Q. After that what do you come to? A. Then we have another two cylinders which is connected up by cement arms to Pier No. 4.

Q. And do you know the space between those cylinders of Pier No. 4 and Pier No. 4-A? A. Yes, Pier No. 4-A.

Q. What is the space between those two cylinders? A. I am not sure of that, about 15 or 20 feet, I think it is.

Q. What does Pier No. 4 consist of? A. Pier No. 4; that is Pier No. 4, not No. 4-A.

Q. Yes? A. A casing.

Q. The same as No. 3. You told me that before, I think, is that right? A. Yes, that is a casing, No. 4 is a casing.

10 Q. What is No. 4-A? A. No. 4-A is two cylinders.

Q. Then after you pass No. 4-A what do you come to? A. You have another fixed span of 150 feet long.

Q. Is that span the same as the other spans? A. There is approximately two feet greater height from the water; that is from underneath the bridge to the water than what the other spans are.

Q. Is it covered at low water? A. The bottom is covered, yes.

20 Q. Is it used by small craft? A. Yes, well, it is used quite frequently by small crafts.

Q. Then after passing that span what is the next part of the bridge? A. Then we have Pier 5 two cylinders.

Q. And beyond Pier No. 5 we have what? A. There is another cross arm, two cross arms running to another cylinder.

Q. That is at Pier No. 5? A. Running from Pier No. 5.

Q. Between Pier No. 5 and the shore line there is the fill in you have already spoken of? A. There is a fill and a pile bridge and also some piling resting upon sills, just resting upon sills there.

30 Q. Now, can you give me some idea of the surroundings of the bridge. For instance, take the west first, is it clear or otherwise to the west from the point of view of obstructions? A. West is apparently all clear.

Q. Dealing with the east and taking the south shore, what is there to the east of the bridge? A. Within a certain radius of the water mains there is a shallow water running out approximately 325 or 350 feet from the railway line, from the railway embankment there.

Q. You are measuring that distance along what? A. Over a matter of a thousand feet.

40 Q. But what are you measuring it along? You say it juts out 325 feet from where? A. From the railway embankment. The chart I was going by there, they had no low water mark upon it, so you could not check it up upon that.

Q. How wide is this shoal? How far does it extend easterly? A. It extends easterly for approximately, from my observations that is diving on the water mains about 1600 to 1700 feet.

Q. From the bridge? A. From the bridge.

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(Contd.)

Q. Where is that with reference to the water mains you are speaking about? A. It would be 150 feet east of the No. 10 water main.

Q. And where is No. 10? Is that the most easterly? A. That is the most easterly water main.

Q. And the shoal there extends 150 feet from there to the eastward? A. That is as far as I have been in that direction.

Q. Does it extend right to the bridge on the west side? A. Well, as far as my observation has been it has been for about the same distance to the west of No. 1 main. It would be about 150 to 200 feet. 10

Q. Can you give me the depth of the water on the shoal, the distance you mentioned of 325 feet from the south shore; how much water is there at low water on the south shore? A. Approximately 27 to 30 feet. Of course, it varies along there. In some places it may be a little more or a little higher than I have not been over.

The Court: Where is that exactly, Mr. Smith?

Mr. Smith: It extends 325 feet from the shore, my lord, north of the shore, of course. It is at the depth of 27 to 30 feet, did you say? No, I don't want you to mark anything. Now, where is the outer edge of the shoal with reference to the bridge. 20

The Witness: Almost in a line with the Pier No. 3.

Q. Yes, Pier 3 being the pier? A. That the bascule rests on.

Q. At the south end of the bascule draw? A. Yes, at the south end of the bascule draw.

Q. Now, can you describe where the City water mains are to the eastward of the bridge? A. The first two mains, that is 1 and 2, they are 1,000 feet due east of the bridge. 30

Q. And they are known as No. 1 and 2? A. They are known as No. 1 and 2, 18 inch submerged mains.

Q. 18 being the diameter? A. The inside diameter.

Q. What is the maximum outside diameter? A. 34 inches, that is over the valve.

Q. Where are the next mains? A. The next is No. 3, 4, 5, and 6, due east of them, approximately 140—450 feet due east from them.

Q. Are they the same size? A. They are the same size.

Q. Where are the next mains? A. The next are running on an angle of about 75 feet on the north shore at low water due east to about 150 feet on the south shore due east of No. 6 main. 40

Q. And they are numbered? A. They are numbered 7, 8, 9 and 10.

Q. These are the most easterly water mains? A. They are the most easterly ones.

Q. Are they of the same size as the others? A. The same

size. Well, the outside diameter is a quarter of an inch bigger than the others.

Q. But are those most easterly mains laid on the bottom, or are they protected in some way? A. On the south shore there has been dredging done there, dredging done to a depth of 15 feet to lay these water mains in out to a distance of 275 feet.

Q. Yes, then those water mains lie in a trench, do they? A. They lie in a trench.

Q. And does this trench you speak of lead over the shoal
10 you have referred to? A. This trench is cut through the shoal.

Q. I mean that it is cut through the shoal? A. Cut through the shoal.

Q. When were those most easterly water mains laid? A. They were laid in 1925 and '26.

Q. Were they the ones last laid? A. They were the last mains laid.

Q. Will you deal now with the north shore? Are there any obstructions there other than the one which you have spoken about, namely, the arm? A. Well, to the west of the bridge dredging
20 was done close to the bridge, but not carried right through and kind of left a shallow arm there which would obstruct the low water to some extent on the inflowing current.

Q. Where do you say this was, to the west? A. This is to the west of the bridge. When they dredged there they did not dredge right through and take the whole arm off. They just dredged like a pot hole there and then go through under the bridge to approximately 300 feet east of the bridge.

Q. What is there east of the bridge then? A. Then there is shallow water there at the mouth of the Seymour Creek which
30 extends over, runs out from approximately 125 feet from the mouth of the creek and about 75 feet wide, that is east and west.

Q. And where is that shallow water with reference to the westerly water mains? A. When the dredging was done to the west of the water mains they dredged up to what was convenient to be close to the water mains and kind of left an arm under the water which ran out for approximately 150 to 200 feet at low water.

Q. Is it an arm over the top of the westerly water mains?
A. That arm is apparently what the two water mains rest on.

40 Q. And that arm juts out how far at low water? A. Approximately 150 feet to 200 feet.

Q. At low water? A. From low water.

Q. Can you obtain any idea from the present state of the water pipes and the water mains as to the direction and the flow of the currents? A. At 450 feet out from the south shore that is referring to low water the mains are worn through for a distance—approximately four mains, four pieces nine feet long; it would be about 36 feet, the mains are very badly worn.

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 J. F. Bruce
 Direct.
 (Contd.)

Q. What mains do you refer to? A. I refer to all the mains in the locality.

Q. That is at a distance of 450 feet from the south shore?

A. 450 feet from the south shore.

Q. They are worn for a length of about 36 feet? A. Worn for a length of 36 feet.

Q. And the mains are from one to— A. 1 to 10.

Q. What does that indicate? A. It indicates that there is a very strong current along the bottom of that part of the Narrows.

Q. Is there any indication along the bottom itself? A. The bottom in that area is free from all growth which shows there is quite a bit of movement on the bottom and this extends for quite a distance east and west of the mains. 10

Q. When was this marking of the pipes caused? A. Before the bridge was actually built I was diving there for the City on account of the mains being broken. Two of the pipes were broken there and I had to repair the both in this vicinity and then after that a matter of in November, I think it was, of the same year I examined the pipes. I did an examination of the pipes both in the First and Second Narrows and the wear on the pipes around that vicinity then was practically none at all. There was no visible wear. 20

Q. So that the wear was caused when with reference to the building of the bridge? A. The wear has been caused since the construction of the bridge to a depth on one pipe I measured of an inch and three sixteenths.

Q. When were the mains laid other than the easterly mains which you say were laid in 1925? A. Those mains were laid in 1907.

Q. And according to your observation there was no wear on those mains until after the bridge was built? A. No visible signs of wear. 30

Q. Are the mains marked on the west side and also on the east side or on one side only or how? A. The scouring is very noticeable on the west side and top, very little on the east.

Q. What does the bottom of the Narrows there consist of? A. It consists of rubble, sand and gravel and rubble, that is small boulders; a few boulders there, but a very few.

Q. And is there any growth on the bottom? A. No growth at all in that area. 40

Q. Not in that area? And the pipes were marked in what way, do you say? A. They are marked through the current carrying gravel and that up against the pipes and so wearing them, the front and back of the bell on the spigot.

Q. Can you give any idea of the amount of wear upon the pipes? A. The pipe I measured the other day—some varies more than others; the one I followed the other day, the total thick-

ness of the walls of the pipe is an inch and a half and the wear has been one inch and three-sixteenths.

Q. In what length of time? A. In approximately November, 1924, I went over the pipes and surveyed them.

Q. To the present day? A. To the present day.

Q. So that is roughly four years? A. Roughly four years.

The Court: Did you say one and one-sixteenth? A. And three-sixteenths.

Q. In what time? A. In approximately four years, from
10 November, 1924, to the present time.

Mr. Smith: Q. You say new pipes were laid in 1925 and '26? A. Yes, that is 7, 8, 9 and 10.

Q. The most easterly mains? A. Yes.

Q. Do they show signs of wear? A. They also show signs of wear very noticeably in the same area approximately 450 feet from the south shore and for the same distance about 36 feet, say 36 or 40 feet along the pipes.

Q. Is it a usual thing to expect pipes to wear in that way?

A. Well, they have never had any trouble before up to—very
20 little trouble in the Narrows before by the wearing of pipes. It has been mostly in the First Narrows.

Q. You say little trouble before? A. They have never had no trouble before with those conditions of the pipes wearing.

Q. Then this trouble has only happened since when? A. Well, the first time it was noticed was about two years, approximately two years ago when I surveyed the mains for the Greater Vancouver Water District when they took over.

Q. Now, is there any other marking on any of the other pipes that you have seen? A. On No. 1—No. 2 pipe about 75 feet east
30 from low water on the north shore to a distance of 100 feet there is quite a bit of scouring on the west and tops of the pipes there. Twelve length of the pipe, it would be 108 feet.

Q. Then this marking is over a length of 108 feet? A. 108 feet.

Q. On the north shore a distance of 75 feet from low water mark? A. From low water mark.

Q. Is there any marking on the bottom in that area? A. The bottom there is scoured very bad, but not to the extent that it is in the other area.

Q. What do these markings on the north shore indicate?
40 A. It indicates that the current—there is quite a current flows to a southeasterly direction as the other pipes, the other two series of pipes show no marking at all in that area.

Q. The second marking that you mentioned is simply on the most westerly mains? A. On the westerly mains.

Q. The other mains do not show it at all? A. The other mains do not show it at all.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Bruce
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Direct.
 (Contd.)

Q. Therefore it indicates in your opinion a current flowing in what direction? A. Flowing in a southeasterly direction.

Q. That would be commencing from where? A. Well, it would be from where? In relation to what do you mean?

Q. In relation, for instance, to Seymour Creek? A. Well, it is flowing in a southeasterly direction yes in that line.

Q. Now, is that current caused by the flow from Seymour Creek? A. Well, it is a caused to a certain extent and also caused by this arm which I consider—this arm which is lying under water there at shallow water, because Seymour Creek is mostly fresh water and it will run on top and don't mix with salt water very good for some considerable time. 10

Q. Then this second current you speak about is caused as I understand it by the flood tide being deflected from an arm left under water on the north shore? A. Yes.

Q. In a southeasterly direction? A. In a southeasterly direction.

Q. To some extent by Seymour Creek? A. By Seymour Creek.

Q. Have you considered the actual stages of the tide with reference to the times given in the tide tables? A. Can I have that again? 20

Q. Yes, have you considered the accuracy of the tide tables? A. Yes, I have had quite a difficulty in following the tide tables at times, as I find it in Vancouver in the First and Second Narrows. It has been always advisable to be on the diving ground at least an hour before the actual tide time given in the tide book.

Q. Dealing now with the Second Narrows, to what extent have you found the tides of high and low water vary from the times given in the tide tables? A. They vary from 45 minutes at high water to approximately half an hour at low water. 30

Q. What different factors if any affect the tide and cause that difference? A. Well, my experience in diving there is—can I have that again?

Q. What different factors affect the tide? A. What different factors?

Q. Yes? A. Well, the tide in the First Narrows at low water; take the tide at low water in the First Narrows it turns approximately thirteen minutes or around that—it turns in any case at low water before the tide turns in the Second Narrows and therefore there is a great volume of water set up somewhere between the First and Second Narrows. If it cannot stay up in the harbour it must come back through the Second Narrows, if it cannot come out through the First and it goes to show that from—while working there with the Northern Construction Company we had a hole knocked in the cylinder at approximately low water at the time and knocked a hole through with a cedar log and we 40

had to be down patching that hole at least one hour and fifteen minutes before actual low water and before it was time in the tide book, as shown in the tide book, the water had risen again to an extent that we could not work any longer upon this fracture and the tide then, the surface tide then, to all appearances the tide was still running out, that is, still ebbing.

Q. You might give me that again. You say you saw a hole knocked in one of the cylinders? A. A hole was knocked in one of the cylinders on No. 1 Pier.

10 Q. At low water? A. At low water.

Q. And to repair that hole you had to do so at low water? A. We had to do it at low water.

Q. And when you got down there to repair it at low water you found what? A. We got there at low water. We did not get there at low water because we found out by waiting until low water the water had risen again to such an extent we could not do anything to it, although it was actually not the time on the tide book for low water.

20 Q. From your experience, therefore, there it was that low water actually took place some considerable time before the time mentioned for low water in the tide book? A. It took place at least sometime, at least half an hour before the time in the tide book generally.

Q. Therefore you went down there half an hour before low water in the tide book? A. An hour and fifteen minutes before the actual low water as shown in the tide book.

Q. How did you find the tide then? A. The tide then was still ebbing and dropping.

30 Q. And did it continue to ebb from that hour? A. It did up to when we had been working for three-quarters of an hour.

Q. During that three-quarters of an hour what was the water actually doing? A. It was ebbing and also—ebbing on the surface and also dropping at the cylinder, that is, getting lower at the cylinder, so that we could work at this fracture.

Q. I think you have got that reversed, if you will just consider that again. I am afraid I—I don't know if I am putting it very clearly to you, but at low water when patching the hole you went down an hour before the time given in the tide table? A. Yes.

40 Q. And you found then that the water was ebbing? A. The water was ebbing.

Q. And did you work on the hole then? A. We started work on the hole then.

Q. And you continued to work upon it until when? A. Until half an hour before the actual time shown on the tide book.

Q. And that period was what, an hour, did you say? A. That period was three-quarters of an hour.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Bruce
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Direct.

(Contd.)

Q. And during that three-quarters of an hour the water was running out on the surface? A. The water was running out on the surface.

Q. But what was it doing vertically on the cylinder? A. It was dropping on the cylinder up until that period. It was dropping on the cylinder.

Q. Then after dropping on the cylinder, did you continue to work on the cylinder? A. From then on until the actual time of the tide, which was half an hour later, the tide was rising although it was ebbing on the surface. 10

Q. Now, I have got it, so that the conclusion you draw from that is what? A. That the tide or the water must be backing up somewhere. If it was not visible on the surface it must have been backing up underneath.

Q. By backing up you mean it must have been rising vertically? A. Rising vertically.

Q. On the cylinder? A. Yes.

Q. For what period of time before low water given in the tide table? A. At least half an hour.

Q. And during that half hour what was the surface current doing? A. It was continuing to ebb. 20

Q. So that the effect of that is this, is it not, that during the last half hour although the water was ebbing it was in fact actually rising vertically on this cylinder? A. That is quite correct.

Q. During that time that is to say when you were working on the cylinder and the water was rising vertically half an hour, was there an undercurrent? A. Well, from where we was we could only see the ebb tide flowing on the surface.

Q. What conclusion did you draw if any as to whether there was an undercurrent? A. That there must have been an undercurrent or really this could not have happened. 30

Q. And the undercurrent would be running— A. That would be on the flood.

Q. It would be on the flood, in other words, running easterly? A. Running easterly.

Q. Do these conditions also prevail in the First Narrows, that is, you may have a surface current flowing in one direction and the undercurrents flowing in the opposite direction? A. The same thing prevails there. 40

Q. The same thing prevails in the First Narrows? A. Yes.

Q. You said something about the tide book, that it was slack water in the First Narrows before it was slack water in the Second Narrows. Will you make it a little clearer to me. Take the day in question, the 10th of March, 1927, and show me what you mean? A. The 10th of March, Thursday.

Q. First of all, take the Second Narrows? A. You have got the Sandheads there.

Q. What time on that day was it low water slack at the Second Narrows. Take the Second Narrows first? A. 18:20; First Narrows low water slack, First Narrows.

Q. No, take the Second Narrows first? A. Well, all right, we will take the Second Narrows. You have got to get the First Narrows before you get the second. That is, get the height from that, you see. I will explain it in a minute. The Second Narrows
10 low water slack; add 13 minutes to Vancouver Harbour.

Q. Do that? And tell me the time of low water slack? A. You get Vancouver Harbour first, the First Narrows. You take that tide at March the 10th, 18.20; that is 6:20. We turn to Vancouver Harbour on March 10th and it is 18.22 for the Second Narrows, add 13, which will bring it 18:35, which was approximately 13 minutes later at the Second Narrows than at the First.

Q. See if I have got you now. On the 10th of March, 1927, low water slack at the Second Narrows at 6:35 p.m. A. At 6:35 p.m. according to the tide table.

20 Q. And on the same date it was slack water at the First Narrows at 6:20 p.m.? A. That is correct.

Q. Which shows that it was slack water at low water slack at the First Narrows before it was low water slack at the Second Narrows and that indicates what? A. That indicates that the water passing through the Narrows was filling up in the Harbour somewhere for that thirteen minutes. If not, it must be ebbing back or flooding through an undercurrent to some extent.

Q. What in your opinion is the hour when the flood tide flows the strongest? A. The first hour after the ebb tide is the
30 strongest tide in the Second Narrows.

Q. How do you come to that conclusion? A. All the piles and one thing and another which were washed out in the Second Narrows at different stages of operation there, they were all washed out in the incoming tide.

Q. And during what hour of that tide? A. The first hour of the incoming tide, approximately the first hour.

Q. Is there any way of determining the directional force of the tides at the Second Narrows beforehand at low water? A. At low water; will you give me that again?

40 Q. Is there any way of determining beforehand the directional force of the tides at low water? A. Only by the surface—not by surface observation.

Q. Can you do it from the tide book? A. You cannot do it from the tide book. You can only get an approximate guide by the tide book. It is not accurate to that extent.

Q. How far with regard to the tide have you found the tide tables to be inaccurate at low water slack? A. At least thirty minutes.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseI. F. Bruce
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Direct.
(Contd.)

Q. Is that before or after, or both ways? A. That is after the tide.

Q. After the tide? A. Yes.

Q. Is it ever inaccurate in any other way, namely, before the tide? A. On several instances it is, according to the weather; a westerly wind outside and also freshets and rain and snow and one thing and another has quite an effect upon the tides.

Q. What has been your experience in finding out the actual time of low water as compared with the tide book? A. My experience has been the ebb tide where the scene of the diving operations is at least one hour before slack water as shown in the tide book. 10

Q. How do you proceed then? What do you do? A. Then we have to wait, wait around until our mooring buoy shows up which consists of a rope made fast to the work down below, whatever you are working up against, or whatever it is. You have a buoy rope and on this is a cedar buoy which as the tide slacks up this comes to the surface and until the tide slacks up it is kept under water by the current.

Q. Yes? A. And this very often shows up sometimes at low water. It has more often than not; it is fifteen; thirty or fifteen to twenty-five minutes after the tide, after slack water is shown in the tide book. On going down below in a good many instances, I have gone down below and the tide has been running that strong at the bottom that I have only been able to work there a matter of eight minutes and I have been driven off the bottom by the incoming tide. 20

Q. And when you were driven off the bottom as you say what was the surface water like? A. The surface water was still ebbing. 30

Q. Was still ebbing, so that you had gone down there with the surface water ebbing and found an undercurrent flowing east? A. Flowing east.

Q. And have you ever gone down and found an undercurrent flowing east with the surface water doing anything else but ebbing?

A. When the tide has been too strong for me, when I am down below for any length and it may be sometimes I go down for an hour or an hour and twenty minutes in that depth of water, but it all depends on how long I am down that I have to take time to come up and I have set stages which is to work off the C.O.T. in the system. I have to stop at 30, 20 and 10 feet from the surface and the undercurrent there in some cases has been affecting it at that depth, flowing east, while still ebbing on the surface. 40

Q. And have you ever gone down when it was slack water on the surface and found an undercurrent? A. Yes, I have gone down when it has been slack water, apparently slack water, no movement on the surface, and gone down and found it too

strong to be able to work. I could not leave the line. I had to hold on to the line to prevent being swept off the bottom.

Q. Although it was slack on the surface? A. Although slack on the top.

Q. As I understand it when you go down you have no way of knowing beforehand what current you will experience underneath? A. None whatever. Also when I am on the bottom my bubbles, that is air coming from my helmet has been going over 300 feet—

10 Mr. Burns: Well, do you know this. I would like to ask the witness a question before he answers that. It seems to me he must have heard this from some person else as he is down below? A. Well, I was asking my—it is an illustration. It is there for anybody to see what my meaning is.

The Court: How would he know that the bubbles would go that far?

Mr. Smith: I was just going to ask him that.

Q. How do you know the bubbles rose so far away, did you see them yourself? A. Well, my observation there when I have
20 been diving there.

Q. Can you when you are diving see the bubbles as they go to the surface? A. No, I cannot.

Q. Then how can you tell of your own knowledge they came up? A. This is what I have heard from the crew.

Q. We don't want anything you have heard. It is just your own personal experience. Is there any way of telling how the tide runs by your line? A. Well, the lines, you can see the lines in certain stages of the year when you get pretty fine weather and not much fresh water. You can see your lines for quite a
30 distance and I have been on the bottom when my line is almost taking an "S". By looking over my head I can see the lines trailing along the bottom, flowing in on the bottom and almost coming in straight above my head; just a matter of ten or twelve feet from the bottom the line would be going straight and yet flowing in with quite a bend in it below that and the first section of the line is a floating hose which would account for the line floating about
so.

Q. Then from your observation of your line which you have told us about, what do you conclude as to the manner in which the
40 currents are running? A. I conclude that the current is running there some considerable time before the time actually shown in the tide book at low water. It is still flooding in on the bottom.

Q. Flooding in on the bottom? A. Or under the surface.

Q. Whilst on the surface it may be doing what? A. On the surface in nearly all cases it is ebbing after I come up.

Q. After you come up? A. That is at low water.

Q. Now, are those conditions which you have described to

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

J. F. Bruce
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Direct.

(Contd.)

us, those that prevail there day by day at the Second Narrows?

A. In relation to the tides?

Q. Yes? A. Them conditions as regards to the tides turning quicker and the likes of that as to the tide book not being accurate. The whole of my experience there of diving is that the tide book has never been really accurate.

Q. That is at the Second Narrows? A. At the Second Narrows.

Q. And the experience which you have been relating are those usually found, and not something exceptional? A. No, 10 that is as I found them day to day, but some days they vary more than others, according to the stages of the tide. Of course, if deep tides, when there is a little run out, not much run out, you don't actually get a slack water then, there is always a current either at the surface or at the bottom.

Q. Are those the conditions which prevail at the very site of the bridge? A. Well, in one instance, that is in regards to the tide rising there, but other than this I am talking of 800 feet east of the bridge and of a distance of about 1800 feet.

Q. What are the tidal conditions right at the site of the 20 bridge, are they different or are they the same as those you have been describing? A. Well, apparently from the distance to the bridge there must be the undercurrent going past there.

Q. Going past where? A. Going past the bridge.

Q. Have you had any experience of that undercurrent passing the bridge? A. The experience is not actually at the bridge.

Q. Did you ever take soundings at the bridge? A. Well, as regards to that, yes, if you are talking of the bridge, and as regards the soundings is before the bridge.

Q. But I am speaking of the site of the present bridge, 30 whether before the bridge was built or not. I am speaking of the area the bridge crosses, have ever taken soundings? A. Yes, for seven days before the bridge was built, I was asked to assist two surveyors there; Mr. Ray was the name of one and the other surveyor, I have not got it, but they could not seem to get the soundings there. They had great difficulty in getting the soundings.

Q. Why? A. On account of getting slack water.

Q. They were trying to sound at low water slack? A. They 40 were trying to sound at low water slack.

Q. What was the result of that? A. Very erratic readings. They never corresponded from day to day. They never corresponded. One day they would get quite a difference on the same mark as they were the day before.

Q. Why was this? A. It was caused by the undercurrent carrying the line in an easterly or a westerly direction.

Q. What was done in order to get the soundings? A.

Well, I conceived the idea of starting out a matter of 45 minutes before slack water, and pulling up against the tide, and one of the surveyors would be on the shore on the C.P.R. tracks and he would signal to us when to take the soundings, and we would have this lead plumb up and down from the boat and we would drift with the tide and just keep feeling the bottom with the lead, and whenever he signalled we was in line with the two stakes he had on shore, whenever he signalled for us to take the soundings; then we took the soundings, and we carried on like that
 10 for seven days and our soundings, from what I overheard from the surveyors talking, our soundings corresponded very satisfactory from day to day.

Q. What do you conclude from all that with regard to the manner in which the tide was running at slack water? A. What did I conclude.

Q. Yes, in other words, when it was slack water on the surface, how did you find the tide running underneath? A. Well, with slack water on the surface, it was impossible to take soundings with the tide as it was, as there was a strong flow under-
 20 neath.

Q. To the eastward? A. Yes.

Q. And that carried your sounding line to the eastward?
 A. Yes.

Q. Made it impossible to take the soundings? A. Made it impossible to take accurate soundings.

Q. So actually your experience was when it was slack water on the surface there was an undercurrent flowing east underneath?
 A. That is quite right.

Q. That is correct, is it? A. Yes.

Q. Have you had any experience whereby you have found
 30 that there might be surface currents flowing in different directions at the same time? A. Yes, there is. Sometimes for approximately an hour to an hour and 15 minutes before slack water—low water—there is a tide flowed close to the south shore, flooded along the south shore and this is most noticeable under the surface.

Q. But it is also noticeable to some extent, I understand on the surface? A. Yes, but I say it is more noticeable under the surface and when I have been examining the mains there, that is
 40 for the location of breaks, I always start out from the south shore on account of that shore being the most dangerous on account of it being nearer to the shipping and that and irregular bottom, and we, almost every time we examine there, it is at low water, and I have noticed I have always got to start out at low water at least from an hour to an hour and fifteen minutes before the tide book, as there is a strong flood in and after I get out a matter of 150 feet from the shore tide is running, still ebbing.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Direct.
 (Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case

J. F. Bruce
 Cross-exam.

Q. Just one question more. Do you remember speaking about the rock fill at the end of the bridge. Where the end of the rock fill now is, how much used there to be at low water? A. There used to be from 15 to 20 feet.

Q. At low water? A. At low water, approximately 15 to 20.

CROSS-EXAMINATION BY MR. BURNS:

Q. How do you know that, Mr. Bruce? A. Well, from soundings around that area, and the soundings they have taken around there.

Q. Soundings some other person has taken? A. Our own 10 soundings which we took ourselves.

Q. Did you take any yourself? A. I took soundings myself when working for the Northern Construction Company.

Q. And you say as a result of what you did yourself there was 15 feet of water at low water over the ground now covered by the fill or part of it? A. No, I am not saying that.

Q. What are you saying? A. I said out from the fill well, there is quite a bit of difference at low water and under the fill to what it is out from the fill. I am speaking about the foot of the fill which extends out for 15 to 20 feet from the cylinders. 20

Q. Do you mean that part of ground which is now covered by the fill, any part of that ground, was there 15 feet of water upon it before the fill? A. What I am referring to is at the edge of the fill, under water.

Q. You mean at the outside edge of the fill? A. At the outside edge of the fill.

Q. There is 15 feet of water at low water? A. 15 feet of water at low water.

Q. And there is today? A. By all appearance, unless a certain amount of that fill they put in has sloughed in. and no 30 doubt the water would be less there.

Q. When did you do those soundings? A. In 1923, the winter of 1923 and 1924.

Q. Who worked with you? A. Well, I was working for the Northern Construction Company and as far as I know the only man that I know was Mr. Ray at the time and I believe since then I have heard that he is dead. He was a surveyor at that time for the Northern Construction Company.

Q. There were just the two of you? A. No, there was the other man in the boat there as well, and another surveyor, but his 40 name or where he is I have no idea.

Q. But this was in March, 1923? A. No, I don't say it is in March.

Q. It is 1923? A. No, it could not be March, 1923. It was the winter of 1923 and '24.

Q. Would you be surprised to know that at the extreme

edge of the fill where the fill now stands, where the fill now is, there were three or four feet at low tide? A. Well, that greatly surprises me, because it is only a matter of a day or two ago when I looked there myself at low water, and there was considerably more water than that there.

Q. What would you say as to that being a true profile or section of that fill? You see the cylinders.

The Court: What plan are you looking at, is this a new one?

Mr. Burns: I am referring, my lord, to the plan accompany-
10 ing the application for an overhead crossing and approach to the Second Narrows Bridge filed with the Railway Board.

The Court: What exhibit is this?

Mr. Griffin: I would like to see that before my learned friend tenders it. I never heard of it before. I would like an opportunity of perusing that before it is discussed.

Mr. Burns: I may ask this witness, may I not, my lord, whether he agrees with the delineation of the fill?

The Court: You can only do it if you prove it by some person.

Mr. Burns: I will undertake to produce it. As a matter of
20 fact it is to be produced by one of our witnesses.

The Court: It would have to be proved like any other plan unless Mr. Griffin agrees to it.

Mr. Griffin: It was not produced on the affidavit. It is brand new. I have certainly never seen it.

Mr. Burns: I will supply you with copies of that later on. I may bring that up subsequently, my lord.

Q. You would be surprised, you say, if at the outer end of
30 the fill there were only four feet, three to four feet of water within a short distance, five or six feet on the level—at least any extent of water at low water before the fill was there? A. I would be surprised, yes.

Q. Have you noticed the effect of the flood tide against the fill, for instance? A. Yes, I have noticed it at several stages of the tide.

Q. Say right at the start of the tide, the start of the flood?
A. At the start of the flood it is very noticeable there as underneath the span there some time before actual slack water it is either an eddy or a slack right on top of the water.

The Court: You will have to turn around. If I may suggest,
40 if you could speak to him from just at the head of the table it would make him turn more towards me. It is rather hard upon him having to turn to you in one way and endeavour to do the same thing for me.

Mr. Burns: Q. What were you saying, witness? A. The tide, sometime before slack water, approximately 45 minutes before slack water, that is, at the ebb tide, there is practically no flood and no ebb at all underneath that span.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

Q. Which span are you referring to? A. That is between No. 4-A to No. 5 Piers. That is the southern span and then after that there is quite a noticeable eddy or a flood coming in before actual slack water takes place; that is, flowing in along that shore and shooting in a northeasterly direction across the span.

Q. Across that span you have just spoken of or underneath? A. Underneath that span.

Q. Meeting the ebb tide going out? A. Meeting the ebb tide going out.

Q. That is all surface indication, I suppose? A. That is 10 all surface indication.

Q. Well, it meets the ebb tide going out. What happens? A. It meets the ebb tide at different stages of the tide. As it gets weaker it extends there, but in any case it does not appear to extend further than the centre of the bascule span.

Q. The centre of the what? A. The centre.

Q. Of this bascule span? A. This bascule span.

Q. That is this eddy? A. This eddy, this eddy, this cross-current.

Q. You say that occurs at the first stage of the flood? A. 20 No, before actual slack water.

Q. Before actual slack water? A. Before actual slack water on the tide table.

Q. It would be the first stage of the tide as far as the flood is concerned? A. Although the tide is ebbing for the remainder.

Q. But it is the flood meeting the ebb in cases where the slackwater does not exist for any great length of time, I presume?

A. Yes.

Q. That would occur, I presume, or am I right in cases of higher tides, greater tides? A. No, low tides. 30

Q. What I mean by that— A. Well, the lower the tide of course, the later that would be corresponding to the book, the neap tides—

Q. I mean higher than the average tide? A. Well, it would not be any earlier there. It would be nearer to the actual time in the book.

Q. I was not speaking of the actual time in the book, but I was trying to get from you whether this you speak of would not occur at a time when there is a greater fall in the tide? A. It would occur at the earlier. 40

Q. And if there was not such a great fall, less than the average fall, it would be liable not to occur? A. It would be liable not.

Q. Have you observed it sufficiently to be able to state that incoming flood as you have termed it is really back water? A. Well, from my observation there it is a surface eddy.

Q. It is a surface eddy really? A. A surface eddy.

- Q. And could it not be caused by a big eddy from the ebb?
 A. Well, this is sometimes backing right up from the—following up the south shore.
 Q. But that south shore has quite a bay? A. Yes.
 Q. And has quite a big eddy in it? A. There is quite an eddy.
 Q. Because the force of the flood tide comes really from the north, doesn't it, the force of the flood? A. Well, as regards to the west of the bridge, I don't know anything about it.
 10 Q. You won't disagree with me in my suggestion that this water which you speak of coming up in that way might be a back eddy of the bay? A. Well, as regards to that, no doubt that has got something to do with it, but it is only noticeable when the tide begins to slack up; that is a matter of forty-five minutes before slack water. It is not noticeably so much in that vicinity—what I am talking about is through the span.
 Q. Am I right in this that the last forty-five minutes or thirty minutes of an ebb tide has less strength on the current than the first part? A. Yes, sure.
 20 Q. So that may be the reason and quite properly be the reason for this back eddy existing at that stage of the tide and not in the early part of it, is that not so? A. Yes, no doubt that would occur there.
 Q. Now, you speak of the outer edge; I am referring now to this shoal you speak of to the east of the bridge on the south side?
 A. Yes.
 Q. You speak of the outer edge of that shoal which is what depth would you put it to be, 25 feet about? A. From 25 or 27 feet, 27 feet to 35.
 30 Q. To 35? A. Yes.
 Q. Did you say that before? You said 25 feet before I am so advised by my learned friend? A. It varies considerably around there; 25 feet would be no doubt—it would be less than 25 feet if you take the top of the pipe.
 Q. Top of which? A. From the top of the pipe.
 Q. I am talking about the outer edge of this shoal which extends easterly from this bridge on the south shore. Leave the pipe alone? A. Well, that gives you less water through the pipe being there.
 40 Q. I see. You mean the twenty-five feet you used before was only at that point where the pipe crosses? A. Where the pipes were.
 Q. You were not speaking of the depth except with respect to any place than where the pipe was? A. Where the pipe was.
 Q. That is all you know of? A. I have examined other parts, but not as regards depth of water.
 Q. Well, then, having that knowledge and in answer to my

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

learned friend you gave us to understand that shoal extended some 1,000 feet, I think you said? A. 100 to 150 each side of the main.

Q. No, extending 1,000 feet. There was shoal water, you said 325 to 350 feet, from the railway line; I presume you mean the shore, high water mark? A. You see the chart I was looking at, it had no low water mark upon it. I just went by the railway embankment.

Q. Are you speaking now of working this out on a chart or from your personal experience on the ground? A. No, it was in relation to my experience there, but I kind of placed it on the chart, too, as an illustration. 10

Q. Well, then, am I right in this, that your evidence is to the effect that shoal water; that is, I made a note myself, 27 to 30 feet at low water; the shoal water extends out from the shore or from the railway? A. From the railway embankment.

Q. 325 to 350 feet extending about 1,000 feet easterly from the bridge? A. No, I did not make that expression. What I said was that it was approximately 150 to 200 feet each side of the east and west mains.

Q. Each side of the east and west mains? A. East and west 20 of the east and west mains.

Q. How many feet does that make it? A. Well, the mains are 900 feet on the outside, that is taking 200 feet on each side.

Q. That would be a thousand feet? A. No, it is 900 feet.

Q. That extends over about 900 feet? A. That extends over about 900 feet.

Q. A depth of 27 to 30 feet at low water and that shoal, the outer edge of the shoal is in line with Pier 3 of the bridge? A. Yes, Pier 3. I just wanted to check it over in my own mind.

Q. Now, having this plan to look at which has been agreed 30 to between both parties here, could you maintain that statement. Both sides have agreed that those are the depths, you see. Here are the water mains.

The Court: What are you looking at.

Mr. Burns: 17, my lord.

Q. Which is Pier 3? This is Pier 3, my lord. A. It is the southern pier.

Q. Just mark it in red? A. I was referring to Pier No. 3; no, this wrong one is marked.

Q. No, just look at the map I show you. Never mind the 40 other. Witness, I am asking you to confine yourself to the map I put in your hand.

The Court: Counsel wishes you to put it on exhibit No. 17.

Mr. Burns: If you have any trouble about it you can ask for time. A. What I was referring to—I thought I mentioned—I got mixed up with the span, with No. 4, the one that the bascule rests on.

Q. Do you wish to discard that? A. Yes, that is right. That is the one.

Q. Pier 3, that is the same one? A. Yes, that is the one I refer to. That is the one.

Q. So that you are not changing this? A. No, I am not changing it.

Q. Why were you in difficulties about it. As a matter of fact you are here giving details of these piers calling them by numbers and everything else and when I showed you this plan didn't you recognize it at once, or what was the difficulty? A. Well, I looked at the other plan there and it did not seem to correspond with this and there is nothing here to give me the scale of this, or anything else to go by.

Q. Yes, but surely knowing that is the bridge, the relative positions of those piers and so on, would you not know that at once, with your familiarity with this bridge and the piers? A. Yes, but of course I am allowed to look at any other plans of the bridge if I want to find my bearings. I am not going back on my word.

Q. I don't mean to say that, but it is a funny thing which I am going to comment upon that these soundings—you noticed these soundings? A. Yes.

Q. That this pier which you marked, this pier which is marked No. 4 on this map brings you practically to the line you were talking about, 27 or 28 feet, doesn't it? Pier 3 is in line with the depth of 53, 52, 47, 41 feet, 45 feet. That is so, is it not? A. Well, of course, with regards to the fill and the likes of that along there, it is the depths according to the readings from the diving box.

Q. I am asking you to assume which is a fact that for the purposes of this trial, these figures, these soundings are absolutely correct. At least, they are accepted as being correct soundings by both parties now? A. Well—

Q. Draw a line from Pier 3, will you; that is the line; a straight line. Will you check it up so there will be no question about it being accurate. Now, you have drawn a line to 58, 53, 47, 52, 45, 38 and so on. Was your idea in stating that the 27 to 30 feet soundings were in line with Pier 3 to show any difficulty connected with the navigation of the bridge by reason of that? A. Well, it would mean to show that if there was shoal water there naturally enough the ship would—the captain or whoever was in charge of the ship would naturally give it a wide berth.

Mr. Burns: I would like, my lord, to have that map proven to pursue it right on this point with this witness, the map which I got from a witness of mine in connection with the fill and in these circumstances I suggest if your lordship pleases an adjournment may be had now.

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*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

The Court: Oh, quite so. We will adjourn then, Mr. Registrar.

Mr. Burns: There is a slight error. We will bring to your lordship's attention tomorrow morning.

The Court: There is something you wish to say now?

Mr. Burns: No, tomorrow morning will do. I was figuring it was close to the time. I do not want to take up some other topic.

The Court: Certainly, Mr. Burns, it is not worth while. The court will adjourn.

(COURT ADJOURNED AT 4:25 P.M. UNTIL 10:30 A.M. 10
 SEPTEMBER 28th, 1928.)

(Vancouver, B. C., September 28th, 1928, 10:30 a.m.)

(COURT RESUMED PURSUANT TO ADJOURN-
 MENT.)

J. F. BRUCE, resumes stand.

Mr. Burns: At adjournment, my lord, I was discussing with this witness a matter of the depths and the line from the pier. I made a mistake in reading that plan. The figures really indicate fathoms, but they look like feet and so I do not wish to press that point and wish to make that explanation, so that the court will not misunderstand me. I would like to refer though to the plan, so your lordship will see how easily that mistake could have occurred. My friend corrected me. 20

Q. Now, with reference to this fill, Bruce, did you see the shore on any day previous to the fill being made, being filled in?

A. There was a rowing boat but no actual diving there.

Q. Well, you would be diving? A. Well I mean to say I am referring to underneath as regards low water and the matter of as far out as I could see. I am referring to a row boat.

Q. Were you familiar with it? A. Well, I was. I worked there for several months and so on from that shore. 30

Q. What difference to the low water mark or what difference was made by the fill to the shore? A. Well, the fill projected out beyond the low water mark.

Q. How far? A. Well, approximately thirty to thirty-five feet.

Q. From low water mark, are you positive about that? A. Well, I guess it would be more.

Q. Then you were positive the fill projected? A. I am positive it was more than thirty-five feet. 40

Q. I am taking your statement it was more than thirty-five feet that the fill projected out from the low water mark? A. From the low water mark to the foot of the fill.

Q. When you say the foot of the fill, what do you mean? A. I mean the foot of the fill as it slopes. It has to have a fill. It has to come to a bottom. Well, the foot would be the extreme outside, the northern end of that fill.

Q. What distance would there be if you had a line along from the low water mark as it was horizontally to the point on the fill which would be the edge? A. Approximately thirty-five feet.

Q. You are not now talking of the bottom? A. That would be going to the foot of the fill straight up and drawing the angle
10 that way.

Q. I mean on the slope of the fill where the water would meet it? A. Well, it slopes back from the low water, but it projects out under the water. I do not quite grasp your meaning.

Q. If as a matter of fact you take a line from the previous low water mark? A. Yes.

Q. And projected it out horizontally until you met the fill what distance would those lines be, at least that line be from the edge of the fill at that horizontal point and the former low water mark? A. Approximately thirty-five feet as I said before.

20 Q. What is the slope of the fill? A. I don't know the grade of the slope at all, just what grade it is now.

Q. What size would you say the fill is? A. Well, it is approximately 20 feet high at the low water mark.

Q. 20 feet high at low water mark, that is present low water mark? A. The present low water mark.

Q. And the edge being of a sloping nature? A. And the edge being of a sloping nature.

Q. Is that south or where is it in relation to Pier 5? A. Well, that would be the back of Pier 5.

30 Q. That is to the south of Pier 5? A. To the south of Pier 5.

Q. As a matter of fact the fill is between Pier 5 and the south shore? A. There is pier 5 and then there is another support at the back of that and the fill starts to slope away from that one in the rear of the Pier 5.

Q. Well, what do you call that one in the rear, is it a pier? A. That is connected to Pier 5, but there is a matter of 12 to 14 feet there from it. You see, I think it shows it on the plan.

40 Q. Would you say that this is a good picture of the fill. I am referring to plan 22, exhibit 22? A. This is the one I am referring to. It slopes from the back of that, or slopes from the front of that.

Q. The witness is pointing to the pier to the south of Pier 5 and the edge of the fill slopes from that pier? A. From the front of that?

Q. From the front of that pier? A. Right from here.

Q. To where? A. To out here. It is not at that angle, though, it is a longer slope than that.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
I. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

Q. You would say it is not an accurate picture of it? A. No, I would not say it is accurate, not at the present time, because this foot has come out more than it originally was.

Q. Slipped out, is that it? A. Yes, they have had to do some protection work underneath this sill here.

Q. You mean the pier to the south of Pier 5. A. Yes, they had to do some protection work there because the ground was giving way underneath and they had to keep the whole thing from slipping down.

Q. Would you say there is any part of that fill to the north of Pier 5? A. Any part of this fill? 10

Q. Any part of this fill, any part of this fill at all to the north of Pier 5? A. Yes.

Q. What part? A. As shown like that in a sloping position. I am referring to under water.

Q. I understand that. We won't refer to this plan because you say to your mind that is not accurate at the present time. Now, explain verbally or describe it yourself, you say that there is a certain portion of this fill at the present time that lies to the north of Pier 5? A. Yes. 20

Q. Now, I want you to describe what portion? A. Well, the foot of that fill.

Q. When you say the foot of the fill, what do you mean, how much of it? A. The north end of the fill.

Q. Well, then, how much of that foot? A. Well, that is very hard to judge. I have not been down there to take any measurements regarding that.

Q. That part is under water? A. It is under water.

Q. That is the bottom of the slope? A. The bottom of the slope. 30

Q. Of the sloped edge of the fill? A. Everything to the north of that cylinder is under water.

Q. What I am trying to get from you is what is to the north of that cylinder according to your view? A. It is part of that fill.

Q. Well, let me put it this way, am I correct in stating that the bottom of the slope of the edge of that fill, that is the bottom of the sloped edge of the fill is north of Pier 5? A. Yes.

Q. How much of that bottom would it be which was under? A. Approximately about 15 or 20 feet. 40

Q. That is 15 or 20 feet of the sloped edge of the fill, you say, is north of Pier 5, is that right? A. To the foot; that is—well, that would be the edge, the outer edge, would naturally be there at the foot of the fill.

Q. Do you say, witness, that there are fifteen or twenty feet of the bottom of the sloped edge of that fill north of Pier 5? A. Approximately 15 or 20 feet.

Q. You know what I mean? A. Yes, I understand what you mean.

The Court: Is there not one of those plans referring to the toe?

Mr. Griffin: Yes, exhibit 18.

The Court: Did I not see a reference to that fill?

Mr. Griffin: In the estimation, your lordship, of the witness who is there who said that plan had been made by him he said the toe extends five feet further out than is shown on that plan.

10 The Court: Yes, I think the engineer used the expression, "The toe of the fill." I would like to see if that is what he means when he talks about the foot, or the edge and that sort of thing, so we will know we are discussing the same thing.

Mr. Burns: Q. Do you understand, witness, when you speak of the bottom of that sloped edge of the fill that you are referring to the toe of it? A. Yes, that is the most northerly point of that slope.

The Court: Yes.

Mr. Burns: Of course, that is the most northerly, but what 20 you were referring to is the toe of the fill.

The Witness: Naturally.

Q. Look at this plan, exhibit 18, are you in a position to say whether that is accurate or not, or whether that is a fair representation of that? A. It appears to me to come more to a point than that.

The Court: What is the date of that plan, Mr. Burns?

Mr. Burns: This plan, my lord—

The Court: If it is several years ago it might have some effect. What is the date, did you say?

30 Mr. Burns: February 12th, 1925.

The Court: Oh, yes.

Mr. Burns: Q. Well, in that case, what do you say as to the representation of the fill? A. It appears to come more to a point here out from the cylinders.

Q. Do you take it those two cylinders shown inside of the curved edge of the fill comprise Pier 5? A. Comprise Pier 5.

Q. Are they Pier 5? A. Yes.

Q. And you say that delineation of the edge of that fill is too rounded? A. It is at the present time. It appears to be too 40 rounded to what conditions are at the present time.

Q. Would you take a pencil and draw, impose upon this what you think would be a better representation of that line. With a black lead pencil, my lord, the witness has indicated it, the witness has drawn this.

The Court: Yes, thank you.

Mr. Burns: Q. Now, when you draw that line, witness, outside the line that is on the plan you do not know as a matter

RECORD

*British Columbia
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Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

of fact whether it is outside or not? A. No, I don't as regards the scale. I am just as I pictured it to the eye.

Q. Then so far as the relation of that fill to the low water mark is concerned where do you say the low water mark is shown on the outside edge of the fill, I mean where would it be?

The Court: Keep to that expression, the toe, if you do not mind, because that is what the engineers are referring to there.

The Witness: The low water mark to the toe of the fill approximately in line 35 feet as I said before.

Q. Yes, I know, but how far up the toe? A. Well, I am 10 talking about as regards—

Q. There is some part of the toe of the fill exposed at low water? A. Well, where I am getting low water is from the shore.

Q. I mean at the present time with the fill there now, there is some part of the toe of the fill exposed at low water? A. It is under water.

Q. That is all under water? A. That is the part that projects out is under water. You mean the— The whole of the fill would? 20

Q. No, the whole of the edge of the fill. A. Oh, certainly, there is quite a bit of that shows at low water.

Q. Give me some idea, at least, your idea of where that low water shows on the toe of the fill. To what extent is the toe of the fill exposed at low water. You understand that, don't you, what proportion? A. Well, there is really none exposed above water of the toe of the fill.

Q. Well, then, the outer edge of the fill is all covered at all times? A. That is the toe of it is all covered.

Q. What part is not? A. Well, the highest part of it, further back, that is, coming up from the toe, that is naturally that part would not be covered. 30

Q. It is on the same slope as the toe? A. Yes.

Q. Then you are speaking of the toe as being the bottom of that slope? A. I am talking of the bottom of the slope.

Q. I am referring to it as the outer edge of the fill and from that point of view how far down the outer edge does low water mark show. At least, what proportion of that outer edge would be exposed at low water mark?

Mr. Griffin: Would my learned friend accept the suggestion 40 that he calls it the northern slope, because that is what it is. It is the slope of the northern face.

The Court: The toe technically, Mr. Burns, is the extreme outer edge which he says is always under water. Then he says coming inshore from that as you go up the slope there is a certain amount which is exposed. I understand you to mean that.

The Witness: Yes.

The Court: And what you wish to get is at low water how far would it be from the toe that the exposure begins.

Mr. Burns: Yes, from the top.

The Witness: Approximately fifteen or twenty feet, that is what I said just now. That would be about between the two cylinders.

Q. That is between the two cylinders, between the cylinders to the rear and Pier 5? A. Yes.

Q. Does the ebb tide run over the fill with any force? A. The ebb tide runs over the fill up to within about an hour or an hour and a half before slack water.

Q. But when it is running over the fill does it run over it with any force? A. It runs over with quite a force.

Q. The ebb tide? A. Yes.

Q. What speed do you say? A. Well, anywhere from five to six knots.

Q. From five to six knots, that is, a regular proposition? A. That is with a long run out.

Q. Now, then, in the flood tide, the turn of the flood, you say that fill causes a deflection of the current northeasterly, is that right? A. Yes, quite correct.

Q. Then does it form a back water behind it or a big eddy? A. Yes, there is a big eddy that comes in around in line just in line with those cylinders, that is No. 5 Pier. There is a big eddy sets up there.

Q. Then to what extent does this fill deflect the current northeasterly, is it an acute angle? A. Well, it appears to come right from the foot of the pier, or the foot of the fill across and just misses the other cylinders on the other pier; what is that number? It goes just east of that pier.

Q. Which pier? I show you this exhibit? A. This pier here, that is the one here.

Q. You mean the cylinders being part of 4-A? A. The cylinders are a part of 4-A.

The Court: Between 5 which he is speaking about and 4-A there is a fixed span of 150 feet.

Mr. Burns: Q. Now looking at this map will you draw with this pencil the line that you would say that current would deflect to.

The Court: You are still on 22, Mr. Burns.

Mr. Burns: Yes, still on 22, my lord.

Q. That, I presume, is an approximate line? A. An approximate line, yes.

The Court: Just let me see it.

Mr. Burns: Q. It may be nearer the cylinders or it may be further away? A. No, I don't think it would be any nearer the cylinders than what I have drawn there.

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*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

Q. It may be further away? A. It may be further away.

Q. You figure that is pretty accurate? A. It may be further away. It would not be nearer the cylinders, though.

Mr. Smith: Excuse me, I think that is exhibit 18.

Mr. Burns: I have made a mistake there, my lord. It is exhibit 18.

Q. Now, is that line you have drawn the extent of this current, or would it extend any further? A. Well, the current is noticeable further than that.

Q. How far would you put that? A. (Witness indicates). 10

Q. Now, you have added to this line going the extent the distance to which this current could go? A. There it is practically lost, the surface indications lost in the ebb tide.

Q. In the flood? A. Well, it is absorbed with the flood there.

Q. We are talking about the flood tide, I presume, because it could not occur except in the flood, could it? A. No.

Q. Well, then, what distance would you say that would be from the bascule of the span? A. What distance from the—

Q. That is as far as you would take this current altogether? 20
A. That would be approximately 150 to 200 feet.

Q. You said 150 feet before? A. No, that was referring to—

Q. East of the bridge? A. That was referring to the ebb tide I mentioned.

Q. No, you said would meet a ship 150 feet east of the bridge at flood tide. I think you said that, but I just want what you are willing to say? A. We was talking—I could not meet a ship on the port bow.

Q. I am not talking about the port bow, we are talking about that current. You were being examined about the current. The note we have is that speaking of this current at flood tide you said it would meet the ship 150 feet east of the bridge? On the ebb tide it does not affect the outgoing tide, because it would not affect the outgoing tide. 30

A. That appears to me to be wrong to the evidence I gave. I referred to ship—as striking the ship and Mr. Smith there asked me the question where would—what part of the ship did this strike and I referred to it as the port bow which would be impossible on a flood tide. 40

Q. Well, the notes will show what you said, but we will take your statement now and now you can make the statement, if you like. I will ask it this way. You have an idea; you have been giving this impression of yours as to these currents; you have an idea about the distance that this current as you have drawn it would go east of the bridge before it is absorbed in the flood tide? A. Yes.

Q. Well, then, what is your idea? A. Well, the current does get absorbed.

Q. I know it does get absorbed? A. And it runs in approximately that direction, but not so much as it would before the turn of the ebb.

Q. I am not talking about the stage of the tide now. But I will draw your attention to the stage of the tide; where this current is more noticeable than any other time which I presume would be on the strength of the flood? A. Well, it is noticeable
10 on the first hour of the flood; it is most noticeable then.

Q. Well, when it is most noticeable and it is longest according to your observations how far would you put it east of the bridge before it is absorbed in the tide; in other words, how far could you see it east of the bridge? A. Approximately 150 feet.

Q. Well, that is what you said before, and you are saying it now, although you wanted to change it to 200 feet or something? A. No, sir.

Q. You say 150 feet when this current is at its strongest, such as its strength may be, but when it is noticeable the extent
20 of it going east of the bridge or being sent east of the bridge is approximately 150 feet? A. Approximately 150 feet.

Q. At what stage of the tide would that be, at what stage of the flood tide? A. Approximately about an hour after the turn of the tide.

Q. About an hour after the turn of the tide is the strongest part of the tide? A. Yes.

Q. And would last for how long? A. Well, I am not sure about how long it would last.

Q. Take an average run out? A. I have noticed it there
30 quite often.

Q. You have not observed how long it would be? A. I have not observed how long it would be.

Q. But you have noticed it of any strength or length at about an hour after the turn of the flood? A. At about an hour after the turn of the flood.

Q. And that is when the flood tide is the strongest at its strongest force? A. That is when the flood tide is strongest.

Q. Then you would say— A. That would be up to that time. That would be up to an hour. The tide would flood in that
40 direction. I have noticed it up to that time from low water— from the turn of the tide up to an hour afterwards.

Q. It would be lost entirely after an hour? A. No, just my observation is up to approximately an hour or an hour after that the tide has turned.

Q. Then you would mean from low water to— A. From low water to an hour after the turn of the tide.

Q. Do I understand when it is longest and shows that it

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CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

goes furthest that is about an hour after the flood tide? A. No, it is most noticeable at the turn of the tide.

Q. What do you mean at the turn of the tide? A. At low water from ebb, that is after the turn of the tide.

Q. That is from low slack? A. Yes.

Q. You mean at the first of the flood? A. It is noticeable then.

Q. To the extent that you speak of? A. Not out so far.

Q. No, I presume you would say that. It is not out so far until it feels the full strength of the tide? A. Until the full strength of the tide. 10

Q. On the first part just at the turn it may be indicated, but it would not be very extensive, would it? A. No, it would not be very extensive.

Q. And is gradually, as you say? A. Getting stronger up to approximately an hour after the tide had turned.

Q. You don't know whether it continues after that hour or not, because you say you have not observed? A. I have not observed after that hour.

Q. Would you say it would be lost in the flood altogether after that? A. They don't appear to be so much, such a strong current there at high water as at low, so naturally I do not think it would be so strong. 20

Q. Now, you figure then that this deflection, or the creation of this current by the fill extends what distance, altogether. We have got it out about 150 feet east of the bridge? Within what distance altogether would that be? A. I really could not say to what distance.

Q. Approximately? A. I was just taking observations 150 feet from the bridge. 30

Q. Work that out approximately? A. That would be about 200 or 225 feet approximately.

Q. Why do you say it is 200 or 225 feet? A. I am not sure. I may say I really did not take the distance of the tide or the likes of that. I was just going by where the tide was absorbed here by the incoming tide.

Q. Look at this picture and you know it is the bridge and you gave evidence yesterday about the distance in feet between the spans. Then you know the distance between Span 4-A and 5? A. Yes. 40

Q. What is that? A. 4-A and 5, 150 feet.

Q. And that is on the horizontal? A. Yes.

Q. At least, in a straight line? Your eye ought to have shown you? A. Well, I am giving you the approximate distance. I am not a scaler. I am not a draftsman. It is only just judging what the distance is there. I never done any drafting work or charts or the likes of that.

Q. All right, you have given your evidence with reference to this current as the result of observations you have made not in this particular case, but you being around there, is that right?

A. Yes, I spent quite a bit of time at that part of the bridge on account of diving operations. I go down there and wait around until the boat comes around before slack water, and I pick up the boat there and go back and when I get through with the diving they land me back and naturally enough I spend quite a bit of time there and notice different things.

10 Q. So that you picked this information up or your ideas or theories of this matter or your facts in that way, just simply because you were around there. It was not your job to make this particular—

A. No, nothing whatever to do with me.

Q. Did you make any investigation or observation about this current for a definite or specific purpose at any time? A. None whatever.

Q. Did you make any observations for the purposes of this trial in any way? A. None whatever.

20 Q. You did not go out and check it in any way? A. No.

Q. So what you are giving here in evidence is simply what you have gathered in the way of information because of being around there diving? A. Being around there as you might call it as an amateur and noticing things going on and just commenting on things I have noticed while I have been there.

Q. When you gave the distances I asked you for did you give them as a result of having arrived at that conclusion of distance at the time of your observation or just from your impression? A. Just from my impression of the distance. Just the same as I might say it is about 14 feet across to that corner there. I never measured it off.

Q. What I want to make you understand is this: Do you recollect that you did at any time size that current up on the ground while you were there and check it in your mind as to how long that was and that the evidence you gave about 150 feet is a recollection of that conclusion or are you just working it out now? A. That is the only time—that is the only thing I am pretty accurate on was approximately that 150 feet east of the bridge where the tide meets there.

40 Q. Did you figure on that before or figure on your recollection? A. No, I have studied it quite a bit on account of boats coming down there, and I was always of that impression. I gave Mr. Brakenridge the same impression before this trial came along and my idea was why a ship should sheer off on this other span was on account of striking an incoming tide or something there and Seymour Creek striking her stern would naturally put her in that direction.

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*British Columbia
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Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

Q. You are not giving these distances just from your impression. You are giving it from what conclusion you arrived at before? A. What I arrived at before.

Q. When did you settle in your mind that 150 feet you have spoken of? A. That was quite a while ago, probably over a year ago. I was speaking to Mr. Brakenridge about it.

Q. Did you settle it on the ground when looking at the current or work it out yourself? A. No, I did not work it out at all. I was just standing there from the pier and estimating what I thought was 150 feet.

Q. Now, then, you would not say that this current would come nearer the bascule than you have drawn it, would you? A. No, I would not say that it would.

Q. You say it would not? A. No, I don't think it would. It would naturally—it would not go exactly straight like that on account of—take the case—

Q. But the mean of its direction would be? A. As it would meet it would gradually go from the east to the west.

Q. And it would not be through the bascule at all? A. No, no.

Q. Now, the only observations you made were surface observations? A. Surface observations.

Q. That is all you know about this? A. That is all I know about this.

Q. And so that we will be absolutely certain about this, the strength of this current, this northeasterly direction current is on towards an hour after the flood started? A. From low water to approximately an hour after the turn.

Q. And you agree with me that the full strength or the greatest strength would be on towards an hour after the flood started? A. Yes, quite correct.

Q. That would be natural. Now, what diving have you done at the Second Narrows. I want some line on that? A. The diving I have done there I worked 1924 approximately there for seven or eight months constant diving.

Q. Where would you be diving during that time? A. At that time I was diving at a thousand feet east of the bridge—in 450 feet out from the shore, from the south shore.

Q. What depth? A. Well, on my pump it registered 93 feet.

Q. What particular job were you doing there? A. There were two pipes broken there. There was No. 1 pipe broken there and No. 4 pipe further on and that would be 450 feet east of that another pipe was broken.

Q. The first pipe broken that you were working on was 450 feet north of the south shore? A. 450 feet north of the south shore.

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Q. And the other job was on a pipe broken about 450 feet north of that again? A. No, the other pipe was broken 450 feet east of that, on No. 4 pipe, but on the same line 450 feet out from the shore.

Q. How long did that job take? A. That job took approximately, I started on the 14th of February and it was November, I think, when I finished. It was a very arduous job. At times I could only stop 8 minutes on the bottom and my average time working was 35. 74 hours the total job took.

10 Q. Never mind the details unless you want to give them in explanation? A. Why I am explaining that is why there was such a time taken in doing the work.

Q. I have no doubt that is perfectly proper. In that time—at least, was that the first diving you did in the Second Narrows? A. Yes, that was the first diving I done there.

Q. That was in 1924? A. Yes.

Q. Then where next? A. Well, I dived in False Creek.

Q. No, where next in the Second Narrows. I am only interested in the Second Narrows. A. Well, on them two breaks
20 and I have also dived, well, in fact, all depths there on all the pipes. I have walked the bottom there twenty times or more from shore to shore. There is in one tide and sometimes I take three or four tides to do it.

Q. That was after those two jobs you speak of? A. After them two jobs.

Q. And when was it? A. When?

Q. Yes, when? A. Well, from that November up to the present day. I am working there now at the present day, at the same place, that first place referred to. There is a break there
30 now.

Q. Before you come to the break you are working on now, the nature of the work you did after this first job you told me was walking the mains, is that it? A. Yes, I examined the mains for the city in 19—I am not sure about that date, but I examined the mains sometime after that. There was a break occurred in the First Narrows and I had to go down there and it was sometime afterwards before I went over the mains.

Q. Well, you went over the mains? A. Yes.

Q. Once or twice or how many times? A. I went over and
40 took an examination of them twice, once for the City and once for the Water Board.

Q. Did that consist of a trip across for each main or a trip across for all the mains? A. That consisted of a trip across for each main.

Q. And you have done that twice. Now, what other diving have you done in the Second Narrows? A. Well, I have done that; that would be twice. Well, I have examined them mains

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

twice and I have also examined the new mains; I surveyed the bottoms for boulders or obstructions and one thing and another before pulling the mains.

Q. How do you find the bottom? A. I find the bottom, well, it is a pretty fair bottom. There is nothing—no abrupt drop or anything like that like it is in the First Narrows. It is a fairly even bottom. It runs at a bit of a shelf on the south shore and then drops away to the centre, take a rise and then drops a little, and then takes a rise to the North Shore.

Q. Any irregularities which made your work more important? A. Well, there were several boulders and one thing and another in the soap stone. There is a kind of soap stone in the bottom and those boulders get imbedded in it. And the pipe gets up against it and breaks which it did. 10

Q. There is a certain amount of irregularity in the bottom? A. There is.

Q. What other diving did you do at the Second Narrows? A. Well, I examined there; after they dug the trench for to pull those pipes through, I examined and reported to Mr. Brakenridge.

Q. Never mind what you reported. This work was in and about the water mains? A. Yes. 20

Q. Which as I understand it runs from 1000 to 1600 feet, is it, from the bridge, east of the bridge, or how is it? A. My observation is 150 to 200 feet west of the water mains and 150 to 200 feet east of the water mains. Outside of that I don't know anything about the diving, about the bottom. The obstruction I was going to speak about there was where this trench was drilled out and dug out to a depth of approximately 15 feet, a lot of the bigger boulders and sandstone and the dredge could not take them up and they naturally pushed them over the bank and on one side they cover all the water mains there at a depth of five feet. 30

Q. Made quite a bit of irregularity to the flow? A. There is quite a boil there, especially about an hour before low water, very noticeable on the surface.

Q. And has that been fixed up since? A. It has never been fixed up. Both east and west of the trench there is quite a few. There are some there weighing seven or eight tons.

Q. So that creates? A. Creates that eddy there, a boil effect, especially when it is getting low, when the tide is getting low.

Q. So you would say as far as the bottom is concerned around that point it is fairly irregular, having quite an effect upon the water? A. It is fairly irregular. 40

Q. Very irregular, having quite a considerable effect upon the water? A. Yes.

Q. Now, your depths of diving varied, of course? A. Naturally.

Q. You speak of—before I ask you that you have come to

a conclusion, I understand from listening to your evidence, as far as the tide tables are concerned they are practically never accurate? A. Never accurate.

Q. Never accurate? A. I have never known them to be accurate yet, not in the Second Narrows. The only case would be a long slack and then of course you still get a current then even, so when there is a long slack there is a certain amount of current there then and you cannot work on the bottom.

Q. I am talking of the time as shown in the tide tables? A. 10 Yes.

Q. In your experience and observation you are ready to make the statement and have made the statement that the tide tables as far as the Second Narrows are concerned are never accurate? A. Never accurate as regards the diving when I have been doing the diving.

Q. Now, wait a moment. I was not talking about diving. I was starting first of all with this general statement. You are qualifying the statement by saying, "Never as regards to diving." What has the diving got to do with the tide tables? A. What I 20 mean is this, that from surface indications they might appear accurate, but from experience in the diving they never are accurate. There is quite a difference in the current from the top of those Narrows to what it is in the bottom.

Q. Yes, I am now going to discuss the matter of those currents with you. Now, your statement means this as I understand it that you are not proposing to criticise the tide tables with reference to surface indications? A. Yes, I will do that, I will go to the extent of that.

Q. I want to get the extent you will go. So that now you 30 know what I want you might tell me? A. They are not accurate as regards surface indications.

Q. To what extent? A. On the flood tide the tides are early to what they are in the book and on the ebb tides they are late to what they are in the book.

Q. Now, let us feel our way a bit. That is perfectly satisfactory to you, that statement; you accept that? A. Yes, that is the surface indications.

Q. Surface indications on the flood they are early? A. On the flood they are early.

Q. And on the ebb they are low? A. On the ebb they are 40 low, except with wind or the likes of that.

Q. Leave out wind and weather, because there is no wind and weather in this case.

Mr. Griffin: My learned friend can hardly state that. The weather does affect it.

Mr. Burns: The wind?

Mr. Griffin: If you ask the witness to exclude them you get at cross purposes.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

Mr. Burns: It is not my idea to get him to say anything but what he wants to say. He is evidently ready to say it.

Q. The reason I said, "Never mind the wind and weather," Bruce, was that I want to your evidence as to the general proposition the action of the tides in the Second Narrows as compared to the tide tables? A. Yes.

Q. Wind and weather might make the tide late or early, but that discussion is not one that would help us at all. May I put it that you say generally speaking even so far as the surface indications are concerned or the surface effects, the flood tide is early and the ebb tide is late? A. In almost every case in the Second Narrows. 10

Q. In almost every case in the Second Narrows? A. Yes.

Q. And you see we are leaving out wind and weather? A. Yes, I want to understand as long as you will excuse me and not bring that up against me afterwards.

Q. I am not going to bring anything against you afterward, except it is on a pretty sound basis. My idea of excluding wind and weather is that we are not bothered with abnormal or extraordinary conditions. What I want to discuss with you is the general normal position of the tide at the Second Narrows as against the tide tables. That is what we are discussing now. A. Yes, that is quite correct. 20

Q. To what extent would you say—we are speaking now about the surface—would you say that the flood is early and the ebb is late as a general rule? A. Well, the ebb has been to the extent of 25 minutes late, yes, 25 minutes late or more and the flood has been at least 35 minutes.

Q. Early? A. Early, that would be on the long run out and the long run in. 30

Q. For this purpose— A. That is the extreme that I should like to give it as the extreme, thirty-five minutes early for the flood and twenty-five minutes late for the low slack.

Q. Would that be unusual, or is that more or less usual? A. That is almost more or less—that is almost the average when the floods are at that stage.

Q. So it is twenty-five or thirty-five minutes when the tides are at those stages? The flood will run about thirty-five minutes early and the ebb will run about twenty-five minutes late? A. That is quite correct. 40

Q. So as a matter of fact that would be a pretty constant proposition as far as you are concerned? A. Well, it would be at that stage of the tide.

Q. And that is the surface we are talking about? A. Surface indications.

Q. So you think you have given this sufficient observation to come to the conclusion and give it as solemn evidence here that it

is a regular thing that the flood is thirty-five minutes earlier and the ebb is twenty-five minutes later on certain stages of the tide?

A. Yes.

Q. When I say certain stages of the tide that is the stage of the tide that occurs regularly? A. That would run in from low tide up to approximately twelve or thirteen feet.

Q. That is a big tide? A. That would be a big tide.

Q. This evidence you have given has reference particularly to big tides? A. Has reference to big tides.

10 Q. What length of tides would you include as acting in this way? A. What length?

Q. To what extent, an eight feet or nine feet tide? A. No, I refer to one or two foot slacks. That is the low water to approximately a twelve or thirteen feet rise.

Q. Well, then, it would be about a nine or ten or eleven foot tide, the difference? A. Well, yes.

Q. And the same thing would apply in the big drop? A. Or a zero or below zero. It would have naturally enough more effect.

20 Q. Then with some other kind of tide is there the same condition occurring, but not so great in the way of being early and late, do you see what I mean. This thirty-five minutes and twenty-five minutes flood and ebb occurs as a constant observation with reference to those tides. Now, take the average tide. Would the flood be early but a less amount of time? A. The flood would naturally be a little early.

Q. Well, you say naturally a little early? A. Well, it would be a little early.

30 Q. When you say naturally you mean your proposition is that those tides are early in the case of the flood and late in the case of the ebb and that the time that they are early or late will go up or down according to the bigness or smallness of the tide, is that a fair proposition? A. The times I am referring to is the time of the tide of slack water at high and low water.

Q. That is where you find those differences in time you are speaking of? A. Yes.

Q. And you find the big difference in time where that low slack if it is a low slack has resulted from a big drop? A. A big drop.

40 Q. And where high slack, if it is a slack, where it is a high slack has resulted from a big flood? A. A big flood.

Q. And you found those big differences in time. Supposing you have no such big tide, but half that tide, say, seven or eight feet of a flood, and you are on high slack. Now, I presume what you mean by 'naturally' is that the flood would be early, but so early as the thirty-five minutes you speak of in the big cases? A. Yes, it would be early, but not to the extent of the long run.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

Q. And the same thing would apply in the ebb cases? A. Yes.

Q. So that when you say naturally I take it to mean— A. It varies, though.

Q. That the proposition is that the tide tables are late or early as the case may be according to your evidence as a constant proposition? A. Yes.

Q. Varying in point of time according to the largeness or smallness of the tide? A. Yes.

Q. And I suppose not to a great amount of time, but still 10 there would be a difference in quite a small tide? A. Well, yes.

Q. I mean some difference? A. Yes, there is a difference. Of course, observations as regards to the slack water there I have been down below, you see, when it has been actual slack water on top.

Q. I am coming to that. I am only discussing this one point? A. Although the actual time as given in the time table, the water has been still flooding above.

Q. That is—

Mr. Griffin: Let him finish.

20

Mr. Burns: I was going to help you.

The Witness: When the water has been flooding and I will go down when the tide is on the flood, you see, and in some cases in most all cases I am up again before the tide turns.

Q. At any rate, that is how you have come to your conclusion on observation in connection with your work? A. And I have been at the surface there when the tide is actually turning after me coming up from below, and could not work on account of the strong current.

Q. What we were discussing was the matter of your asser- 30 tion that the tide books were so far out? A. Yes.

Q. Have you ever thought of taking it up with the authorities? A. No.

Q. You did not bother at all? Would it not have helped you in your work if you had a more accurate table to go by? A. While we are coming to it one day the tide might be far more early one day than it is another, although it is only a matter of a foot or six inches of a drop or rise. There would be quite a difference in the tide. And there is a difference each day.

Q. In relation to wind and weather as regards to altering 40 the book or getting the different schedules put on the book, it would not help you very much. Have you ever seen them making tidal observations in the Second Narrows? A. There was a man there for about twelve months, but what he did as regards taking observations of the tides I don't know.

Q. You did not even ask him? A. No, the only thing I could see was that he took observations from drift wood floating about.

Q. But you did not discuss it with him? A. I did not discuss it with him. He used to walk down to the bridge, but that is as far as I know.

Q. What was that. A. That was the latter part of 1926.

Q. Did you tell him that these tide tables were no good? A. No, I never spoke to the man about the tide tables at all.

Q. But you knew he was right there on that job? A. Yes, he was right over on top of the 4, 5 and 6 mains over the railway embankment.

10 Q. You said at one time when fixing a hole in the cylinder—that is working for the Northern Construction? A. Yes.

Q. That the tide commenced to rise sooner— A. Yes.

Q. Than you expected and it was still ebbing on the surface? A. Yes.

Q. I suppose you mean the surface of the channel? A. I am referring to the surface where we was working, that was from No. 1 pier, I think it is.

Q. Well, the hole in the cylinder was not under water? A. The hole in the cylinder was not under water. We were working
20 from the surface.

Q. You were working on the surface? A. On the surface in a dug out there.

Q. And your observations with regard to the surface water is that it was ebbing right at the place you were working? A. It was ebbing right there.

Q. And yet the tide was rising to prevent you doing your work on the hole? A. After we had worked at it for approximately half to three-quarters of an hour we were driven out on account of the tide rising to where we could not do any more of
30 that particular work.

Q. Where was that, No. 1 cylinder? A. No. 1 cylinder or No. 1 pier, rather, I don't know exactly which cylinder it was.

Q. No. 1 pier. I just want to identify it? A. No. 1 pier.

Q. And the water was rising on the pier or on the cylinder and yet going out. A. The water was rising after about half an hour before slack water by the book; the water was actually rising and by slack water as shown on the book it would be half an hour later than that again. It was impossible to do anything more. The water had rose to the extent of approximately five
40 or six inches.

Q. Will you see if I can put that, because I don't want any misapprehension about it, Bruce. You were fixing a hole in the cylinder at No. 1 pier and went at the job in order to do it when the hole was above water? A. Yes.

Q. The only time you could do it. You worked for about three-quarters of an hour as I understand your evidence? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. F. Bruce
Cross-exam.
(Contd.)

Q. And within the next half hour you thought you could still work. During that next half hour the water rose, so that you could not work? A. The water rose to interfere with the fracture, with the work so that we could not work.

Q. The water came up in the cylinder, so you could not fix this hole? A. Yes.

Q. But that water which came up in the cylinder was actually on the surface ebbing? A. Actually ebbing on the surface.

Q. Who were working with you? A. Well, I am not sure who was working. Of course, we was on different jobs there and at times we could not work on account of when the tide was running pretty swift we did not work at all. I worked with different men, I could not say exactly. 10

Q. You don't know and you might have told me that, like that. A. I like to explain it.

Q. Never mind. If you are in difficulties I will allow you to explain, but you don't need to do that. When was that? A. That was the early part of 1924.

Q. Was it an important break; was it a bad break? A. No, it was not a bad break. I never seen the log that done it, but they told me a cedar log came down and broke it. 20

Q. Never mind that again. It is not necessary to take time up talking about some log, something like that, because it is not on the point. I will ask you this: Was that break of such importance as it would be identified or could it be identified in the records of the contractors, the Northern Construction people? A. No doubt it would be.

Q. And as to who worked upon it? A. Well, the main superintendent, that end of it, was Mr. Leighton.

Q. He would know all about it? A. He would know all about it. 30

Q. Would he know about this proposition in connection with the tide? A. Well, I don't know that he would know about that, because we had to take the stages of the tide that he would not be there.

Q. But he would know the men that worked with you? A. They can find that out in the office.

Q. How many men were working with you? A. It would depend at different times there were about three or four men at the most, but down there there would be only two men. The remainder would be at the top. 40

Q. There would be just you and another? A. Me and another, or perhaps another two men would be down there, and I would not be down there.

Q. Did the other man see this, too, or did you talk it over with him? A. Well, we all passed remarks upon it and they have been working—had actually done work upon it before I did

and they said they must get down there at least an hour and a quarter to start in on it.

Q. I am not talking about the difference in tide? A. I say they must have known about it to mention it to me. That is the way I am trying to explain it. They explained it to me before I noticed it myself.

Q. You mean this condition on the top of the water? A. This condition as they were actually working there before I went down myself.

10 Q. But you didn't go down? A. No, I am referring to going down to help them.

Q. How near is that to Seymour Creek? A. That is approximately 350 feet due east.

Q. Seymour Creek is? A. Seymour Creek.

The Court: You said east, you mean west. A. Seymour Creek, east of the bridge.

The Court: Oh, you are right, the Seymour is east of the bridge.

Mr. Burns: The point we are speaking of is west.

20 The Court: Q. The creek is east of your cylinder? A. Yes.

The Court: Q. Yes, he is right.

Mr. Burns: Q. At that time this dredging had not occurred. A. No, that dredging had not occurred then.

Q. Seymour Creek as she existed previously to the dredging? A. Yes.

Q. You say that was in March, 1924. Now, what is the date of that? A. March what?

30 Q. The date of this cylinder episode? A. I did not say the date. I said the early part of 1924.

Q. Now, you also say at different times you have also felt the undercurrent at a depth—that is the undercurrent against the conditions above. Now, I am asking you about it. Describe the experience, that is to say as I understand you you said that when you were down you felt, say, an incoming flood, or I suppose an outgoing ebb, whichever it might be, and then when you got to the surface you would find it going the other way, is that right? A. In several cases at different stages of the tide, of course, it acts different so that you can never tell what you are going up against.

40 Q. We understand that, but I want to discuss with you for a moment this that as a matter of fact you say that you have at the bottom for instance experienced a certain current going a certain way. Take it as if it were a flood tide, you felt that and coming up to the surface you felt it ebbing on the surface, is that right? A. Yes.

Q. That is right? A. That is quite correct.

Q. Is it also right to say that you have at the bottom felt

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseI. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 —
 J. F. Bruce
 Cross-exam.
 (Contd.)

an ebb tide and when you got up to the top found it still flooding, just the reverse, you see? A. Felt an ebb tide?

Q. I mean just the reverse of the other? A. Felt an ebb tide, but what is the stage of the tide.

Q. I mean under the same conditions or any time? A. Yes, well, at the flood of the tide you would naturally or you would very often get the undercurrent or the flood, the flood running on the surface. It would be flooding on the surface and ebbing underneath.

Q. That is just the reverse of the other, and you have experienced that? A. I have experienced that on several occasions. 10

Q. That is in both ways? A. In reverse; as regards low water the tide has been ebbing on the surface, but apparently flooding below.

Q. What would you say in your experience which you have experienced the most? A. I have experienced it most as regards to the low tide.

Q. But I mean— A. At what depth, you mean?

Q. No, I am not bothering about the stage now. I am talking about the instances where you found a certain tide or current below and found the reverse when you got up on the top, would the more cases you found be where it is an ebb tide underneath, or a flood tide underneath? A. When there is an ebb tide underneath. 20

Q. It is least usual— A. Not an ebb tide underneath but a flood tide underneath and I am referring to the low water, the tide running out and flooding underneath.

Q. That would be the more usual? A. That would be the most noticeable.

Q. The more often occurring? A. The more often occurring. 30

Q. Than an ebb tide running underneath and the tide still flooding above? A. Yes, excuse me. Where I am working now I have not been down there when the tide has been ebbing there at that particular spot. I have not been there at low water when it is ebbing on the bottom.

Q. I was not asking about any particular case. In your experience at the bottom the reverse occurs to the first statement. That is right? A. Yes.

Q. You said that as you come up from a depth you come to a certain point and stay there to get some of the gases— A. To get rid of the C. O. T. gas. That is the foul air you breath out. 40

Q. All right, that is the reason of it and you stop there at thirty feet? A. It will take you thirty-two minutes after being down there an hour to get to the surface.

Q. What stops do you make? A. I make a stop at 30 feet, and 20 feet and 10 feet.

Q. From the surface? A. From the surface.

Q. And you said on one occasion that you could even feel the undertow at the last stop? A. I could feel it there about thirty feet below the surface.

Q. Oh, thirty feet below the surface? A. Yes.

Q. As you got up from thirty feet below the surface you would not be likely to feel it? A. I would not—when I got to ten it would be the other case; the tide would be—

10 Q. You would have the same flow as you have on the surface?
A. Yes.

Q. At ten feet? A. Just the reverse of what it was, but at ten feet—

Q. That is to say, you often felt it at thirty feet? A. Yes.

Q. On one occasion you said? A. On several occasions.

Q. On several occasions. You even felt the undercurrent that you speak of at thirty feet. Then as you went up from thirty that disappeared and the other would appear? A. Yes, you would gradually get out of that and you would get into the flood.

20 Q. And it was a matter of comment or remark, I suppose, to you that you were feeling the undertow or undercurrent of thirty feet, because you were getting on towards the surface?
A. Yes.

Q. And when you got up to twenty feet the effect of it would practically disappear? A. At twenty feet it would hardly be noticeable.

30 Q. Of course, that is natural if that statement is correct—I am not stating it is not at the present time—if your statement is correct an undercurrent of any strength would have some appearance on the surface and when it does not it must be lost down below, is that not right? A. Naturally enough it would be lost as it went down and left the other current.

Q. So as I gather it from you there are two currents going in absolutely opposite directions? A. Yes.

Q. That is practically east and west? A. Yes.

40 Q. I presume if the ebb had finished and you came to slack water on the surface, in those circumstances tell me, Bruce, could there be much slack water where you have a strong flood coming in or an undercurrent coming in and an ebb going out; there would not be in those circumstances much slack water? A. No, there would not be really any slack water. As you went down, naturally the deeper you went the stronger it would be and as you reached the surface the weaker it would be.

Q. But what I mean is, am I right in this assumption if that occurs or when it occurs it is a case of the flood trying to get in, so that it is not going to stand for much slack water, because it is going ahead? A. That is right.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Bruce
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Bruce
 Cross-exam.
 (Contd.)

Q. And when the effect of the tide is felt on the surface it becomes the flood tide completely, is that it? A. Yes.

Mr. Burns: That is all.

Mr. Smith: All right, thank you.

The Court: It just occurred to me, Mr. Smith, that with regard to these witnesses very possibly your case in view of the position taken by your learned friends, that having regard to the particulars you would not be calling as many of the ship's witnesses as might otherwise have been necessary.

Mr. Smith: No. 10

The Court: I make that suggestion, not a suggestion, but I draw your attention to it, because having regard to the time the case is likely to occupy and time well employed because this is a very important matter which will necessitate in the public interest a very patient and painstaking investigation—if you have any of the ship's witnesses or the ship is desirous of getting away, it would be well to have them—

Mr. Smith: Yes, in fact, my learned senior intended to address you on that point.

The Court: Then I am very glad indeed. 20

Mr. Griffin: What we were planning to do if possible was to ask your lordship to indicate whether you would sit tomorrow and if necessary on Monday, and subject to what your lordship may say in that regard, we planned in any event to finish by Monday noon and we are proposing to consider the list of witnesses and eliminate as many as possible. We will likely not call more than one witness from the vessel.

The Court: Of the ship's witnesses.

Mr. Griffin: Yes, the captain.

The Court: You see it is not my intention to sit tomorrow 30
 I may say I had to forego any Saturday afternoons for three weeks and for more than ten days in Victoria I have not left my chambers until seven o'clock. We have a number of important judgments and I had to make a very special effort to try and finish my work. For that reason I intend to give myself once in three weeks, a little holiday tomorrow. I feel perhaps the necessity of a little exercise, and so it is not my intention to sit tomorrow. I shall sit on Monday. I am perfectly free and I shall be glad to sit a little earlier or a little later.

Mr. Griffin: We will make an effort then to eliminate some 40
 of our witnesses.

The Court: Yes, there will be no trouble about your ship's witnesses getting away, if you have any of them that you wish to call. When does your ship sail?

Mr. Griffin: She is not in yet. She has engine trouble.

The Court: You can at least count on all of Monday. Do not understand I am trying to expedite you or Mr. Burns, because

I think our time has been most profitably employed, and the information we have already gained is of great interest to this port.
(Witness aside.)

RECORD
*British Columbia
Admiralty Dist.*

JOHN FRANCIS PAYNE, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

Defendant's
Case
J. F. Payne
Direct.

DIRECT EXAMINATION BY MR. SMITH:

- Q. You are Captain Payne. You are now the captain of the tug "Farquhar?" A. Yes.
- 10 Q. And on March 10th, 1927, you were captain of the "B.C. Boy?" A. Yes.
- The Court: Is he a master mariner?
Mr. Smith: Yes.
- Q. You are a tug boat captain? A. Yes.
- Q. What experience have you had tug boating on this coast?
A. Five years.
- Q. Now, on the 10th of March, 1927, you were proceeding easterly through the Second Narrows towing a boom of logs? A. Yes.
- 20 Q. And that boom, I believe, contained 16 sections? A. Yes.
- Q. Being made up of two sections, two eight-section booms lashed side by side? A. Yes.
- Q. And about the hour of 6 p.m. you were approaching the Second Narrows Bridge? A. I was.
- The Court: Did I understand you to say about six booms roughly speaking?
Mr. Smith: It was sixteen sections of logs, my lord.
- The Court: One boom?
Mr. Smith: Two eight-section booms lashed side by side.
- 30 The Court: Yes, I have it now, thank you.
- Mr. Smith: Q. Your intention was to arrive at the Second Narrows Bridge when? A. Well, as near as I could to slack water or what we call slack water.
- Q. Now, do you remember when slack water was that day?
A. Well, I never arrived at the bridge, of course, because of the ship being underneath it, but I was figuring on it being slack water soon after six o'clock.
- Q. But you went to get there before slack water? A. Yes, I wanted to get there before slack water, if I could.
- 40 Q. Why? A. Well, the tide changes so quickly that really there is no slack water underneath the bridge at all, except for a very few minutes.
- Q. Now, as you approached the bridge from the west do you remember seeing the "Eurana"? A. I approached the bridge from the east—I was going east.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Payne
 Direct.
 (Contd.)

Q. But you were to the west of the bridge? A. Yes, I was to the west of the bridge.

Q. You were going east? A. Yes, I seen the "Eurana" when she came around Berry Point.

Q. What time would that be? A. That must have been just about six o'clock.

Q. You remember the bridge being opened? A. Yes.

Q. And did you see the "Eurana" approach the bridge? A. Yes, sir, I was watching her all the time.

Q. Was the navigation, was the manner of her approach to the bridge such as usually employed by ships passing through the bridge? A. Yes, I have seen a good many ships come down and she came the same way as any other as far as I know.

Q. Do you remember when she was in a position of say 1,000 feet east of the bridge? A. Yes.

Q. How was she headed then? A. When she was about 1,000 feet of the bridge, that is a little west this side of the water mains, I figured she started to take a sheer, I could see her swinging, I was watching very closely.

The Court: Q. Where exactly would he be, exactly, Mr. Smith?

Mr. Smith: Q. Where were you at that time you saw her take the sheer? A. At that time I was—well, I was about 600 feet from the big span of the bridge.

Q. That is to say you were 600 feet west of the bridge? A. Yes, I was 600 feet west of the bridge.

Q. Where was the "Eurana"?

The Court: Pardon me. He said the big span.

The Witness: The fixed span.

The Court: You see there are several fixed spans, which does he mean?

Mr. Smith: The 300-foot span.

The Court: Because on this plan exhibit 8 there are no less than four fixed spans. I wish to be precise. Now, the fixed span is the large 300-foot one?

Mr. Smith: Yes, the one between Pier 1 and Pier 2.

The Court: Yes, that would be the large fixed span.

Mr. Smith: Yes.

The Court: There is only one span of 300 feet, so he was about 600 feet west of the large fixed span, is that it, Mr. Smith?

Mr. Smith: Yes, my lord.

Q. It was your intention to go through the large fixed span, was it not? A. It was.

Q. At that time where was the "Eurana?" A. The "Eurana" was about 1,000 feet away from the draw, as far as I could judge.

Q. And you saw her you said suddenly sheer to starboard? A. Yes.

Q. What happened then? A. As soon as she took this sheer, I was watching and wondering whether she would make the draw and I seen that she was sheering more and more all the time and then I saw the port anchor let go.

Q. Did you see the starboard anchor let go? A. No, I could not actually see the anchor at the time.

Q. Why not? A. Because she had her port bow to me.

Q. She was at that time sheering and had her port bow to you? A. Yes, she did.

10 Q. Did you hear the rattle of the starboard anchor let go?
A. Yes, I could see the splash of the anchor when it hit the water.

Q. What happened after that? A. Well, by that time she kept swinging slowly. Well, I did not, I seen her go under the bridge, but at that time I was busy letting go my boom.

Q. When she actually struck the bridge what was the position of your tug? A. Well, I was about, as near as I could judge, I must have been about less than 600 feet from the bridge.

20 Q. Then at that moment when the "Eurana" struck the
bridge what was the condition of the tide? A. Well, the tide
was absolutely, was practically slack where I was and I could see
the tide on the south shore beginning to run in, it was flooding at
that time.

Q. On the south shore? A. On the south shore, and it was practically slack on the north shore.

Q. By the way, just what did you do after the "Eurana" blocked up the span which you intended to go through? A. Well, I happened to have a gas boat with me and I let go my boom and the only thing I could do was to shove it in on the flats in comparative safety.

30 Q. About that time did you feel any effect of any flood tide?
A. Yes, the flood tide was just coming up. Well, it was on the
turn.

CROSS-EXAMINATION BY MR. BURNS:

Q. When you say that the flood tide was on the turn, you are speaking about your position 600 feet west of the bridge?
A. Yes.

Q. Where were you with reference to the north and south shores, in mid channel? A. Well, I was lined up square to the middle of the 300-foot span. I had it right square in line.

40 Q. When did you say that you saw or felt the flood making
the turn? A. Well, just about—well, the flood was making
just about the same time as the "Eurana" hit, starting to make
where I was, although it was flooding strong on the south shore as
it always does.

Q. What do you mean always does? A. The flood tide

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Payne
Direct.
(Contd.)

J. F. Payne
Cross-exam.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 —
 J. F. Payne
 Cross-exam.
 (Contd.)

changes on the south shore sometimes anywhere 45 minutes before it would change on the north shore.

Q. Right in that particular place? A. No, right under the bridge, or any place around the bridge.

Q. Any place. Oh, the flood tide changes about forty-five minutes? A. I would not state any regular time because you never can rely upon it. There is no such thing as relying upon the tide.

Q. About forty-five minutes. I am using your own statement? A. Yes, about forty-five minutes. 10

Q. That the flood tide changes earlier on the south shore than on the north, is that right? A. Yes, it is no more than that.

Q. No more than that? A. No.

Q. And it may be a little less? A. It may be a-way less.

Q. How far? A. It may only change fifteen minutes.

Q. Why didn't you tell me that instead of saying forty-five?

A. On the big tides, on the south shore it changes away earlier than on the small tides.

Q. But why was it you did not give me the full information when answering me rather than giving me the maximum against me and in favour of the case you have been called for? A. Well, I gave you considering the tide when the "Eurana" struck was a fairly big tide. 20

Q. So you give 45 minutes as indicating the difference in time between the north and south shore of the flood tide on that occasion? A. Yes.

Q. So that you are holding to that forty-five? A. Yes, approximately forty-five minutes, it may have been five minutes less.

Q. But that is as far as you have heard. I don't know what tide that was. It was about eight feet seven. A. Well, it was very low that day, and the lower the tide is the more velocity you will have on the first of the flood. Eight feet is not a big tide, but it is an average tide in the Second Narrows. 30

Q. It is better than the average? A. I little bit.

Q. And you give that about forty-five minutes? A. Well, yes, I would give that. It was very low that day. It went down to I think one foot.

Q. Two feet six? A. Well, that is a terribly low tide and the low tides will do that on the south shore.

Q. But there is always the same difference in time. A. Yes, I have seen it that the flood does not make on the south shore on the small tide of a foot or two feet of a flood; I have seen the tide does not do that. It starts to flood and floods right to the bridge straight. 40

Q. When you say make on the south shore what do you mean, the movement of the tide along the south shore, is that what you mean? A. Yes, it is flooding through the 150-foot span on

the south shore. It is flooding there while it is still ebbing some on the north shore; that is the 150-foot span.

Q. Yes, I know, what you mean, before coming to the bascule? A. Yes. That is, I won't say it always does that, but it does do that.

Q. And that you give us from your observations on the surface? A. Yes, you have to observe the tide pretty close.

Q. You have been up and down there quite a lot? A. I certainly have in the last two years.

10 Q. Am I stating it then properly when I say that the flood tide on the surface is all that is coming in at the first of the flood? A. Yes.

Q. When it is still ebbing strongly? A. On the north shore.

Q. On the north shore? A. Yes, you would be standing still with a boom and another boat can go by with a boom at the 150-foot span, while we cannot get through and be through long before we do although she will stick at the water mains.

The Court: What? A. She will stick or stop when she strikes the ebb tide at the water mains.

20 Mr. Burns: Q. That is to say the south shore flood will come along and meet the ebbing tide going down at the water mains? A. Yes, it will meet the ebb just this side of the water mains and then it slowly works over to the north shore. As the ebb gets less the flood tide works slowly across the front of the bridge, and by the time we get through with a double boom we have to use the 300-foot span and that tide is sometimes running straight across the front of the bridge.

Q. How far east would that be? A. East of the bridge how far do you feel that cross current?

30 Q. What you are speaking of? A. Pretty near until you get to the mouth of Seymour Creek, and then strikes Seymour Creek. It affects our boom as it is on the top of the water. It will shoot us down to the south shore again.

The Court: Turn this way. Speak a little more plainly, and not speak so fast.

The Witness: We will feel the northeasterly set until we are pretty near the mouth of Seymour Creek and owing to Seymour Creek the water from Seymour Creek sets in southeasterly direction and that will throw us down on the south shore again.

40 Mr. Burns: Q. When you see this flood tide making on the south shore you figure that is the first of the flood? A. When I see that flood tide making on the south shore I know by the time I get to the bridge the tide will be flowing across the bridge, setting across the front. If I don't see the tide making on the south shore I know I will have a fairly good passage through the bridge.

Q. Leave your boat for a minute. When you see the tide making on the south shore that you take to be the first of the flood? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Payne
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Payne
 Cross-exam.
 (Contd.)

Q. When did you see before or after the accident the flood making on the south shore? A. Oh, before.

Q. How long before? A. I could not exactly give the time because I was not watching the time.

Q. Now, let me take you up this way, because I wish you to be very careful about this, that is pretty serious. A. Yes.

Q. You were making for the bridge? A. I was practically standing still.

Q. Well, your idea was to make the bridge to get what slack water there might be, if you could? A. Yes. 10

Q. And you figured on slack water occurring soon after six? A. Yes.

Q. That is your statement? A. 6:30.

Q. 6:35 to be exact, according to the tide tables? A. Yes.

Q. So as a matter of fact you were a bit ahead of time. You had time on your hands? A. Well, I always have lots of time for the Second Narrows. Usually I give myself an hour to go and come on.

Q. Enough for you to do it properly? You had on this occasion sufficient time on your hands? A. Of course, I cannot 20 tell you because I did not go through the bridge.

Q. But you felt that way that you had time enough because you stood there watching the "Eurana"? A. Yes, I was watching the "Eurana," in fact, at that time I thought I was going to be there about right. Of course, I could not tell until I was under the bridge, whether I was right or not.

The Court: Do you mind, Mr. Burns, speaking to him from there. It is just that he is so anxious properly to answer your questions, but his voice is deflected in your direction.

Mr. Burns: Q. Then you were just practically idling up to 30 take the bridge on what you figured the proper time? A. Yes.

Q. And when was it then that you saw the flood tide making on the south shore? A. Well, it is pretty hard to give you that correct time.

Q. I mean approximately? A. Well, it was, let me see now. I should say I seen that flood tide making on that south shore around six o'clock. That would be—oh, it was a little before six, I think.

Q. Approximately six o'clock you saw her start to make? A. Yes, she was making then. I don't know how far up to the 40 bridge it was.

Q. I know, I was going to ask where you were then? A. I was bucking the ebb tide on the north shore, not on the north shore, but I had the middle of the 300-foot span lined up.

Q. And you were going ahead? A. I was moving ahead very slowly.

Q. How far were you from the south shore? A. From the south shore, I don't know.

Q. Approximately? A. Well, I can tell you with a chart, but I would not say. I don't know how far it is, because I never bothered.

Q. Were you quite a distance from there? A. I tell you I had—

Q. Put it that way and I can work it out. You were lined up with the— A. There are two beams in the middle of the 300-foot span and going up there to take a boom through the bridge I keep those two beams right in line with this where I
10 was, a thousand feet or so west of the bridge, with those two beams in line.

Q. You have given me that figure, 1,000 feet from the bridge. You have given a figure before of 600 feet from the bridge? A. That was before the "Eurana" struck. I am talking about something else now.

Q. You have given 1,000 feet and 600 feet from the bridge. Now, why can't you tell what distance you were from the south shore? A. Do you want me to give you a guess?

Q. Are these others guesses? A. No, this is what I can see
20 ahead of me.

Q. Cannot you judge the distance from the south shore? A. I will say 2,000 feet.

Q. Will you say at the least two thousand feet? A. Yes, it must have been at least two thousand feet. I don't know.

Q. Of course, this is not accurate. If I want an accurate statement I will ask you for it. A. I can give it to you correctly with a chart.

Q. But that will do for my purpose and where did you see the flood making? A. Well, the flood tide makes in that big bay
30 there. It acts something like a back eddy, no back eddy could go through the bridge; it comes along the south shore about 200 feet wide at the first and slowly works over until it takes in the whole bridge and shoves the ebb tide over on to the north shore.

Q. Now, get back to my question. Are you a captain? A. I am.

Q. What experience—what certificates have you got? A. I have a tug boat master's.

Q. How long have you been a captain? A. Two years in the harbour.

Q. Would you mind paying attention to my question. If
40 you want to get this in, your counsel is the one to get it in. I asked you where you saw the flood making on the south shore, that is a simple question and why were you telling me all about the way it goes through the bridge? A. I thought I told you where I seen it?

Q. No, you just wanted to tell me— A. I saw the flood making along the south shore.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. F. Payne
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Payne
 Cross-exam.
 (Contd.)

- Q. Whereabouts on the south shore? A. It was making all along in that way and up to the bridge.
- Q. And up to the bridge? A. Yes.
- Q. That is, you saw the flood start to make? A. Yes.
- Q. That is your expression? A. Yes.
- Q. And that was the first of the flood tide? A. It was.
- Q. Then I suppose you saw later it go on and go through the bridge? A. I don't exactly say it did do it that day, because I was not there to see it, because after the "Eurana" struck I was busy.
- Q. After the "Eurana" hit it may have gone through the bridge in the regular way? A. Yes, it might. 10
- Q. But the point you observed was it was making on the south shore up to the bridge? A. Yes.
- Q. But not at that time going through the bridge? A. It was going through the bridge at the south shore no doubt of that. I could not swear to that. It was not going through the draw.
- Q. No, that is all right, I understand that, but let me get set right in this for you have been telling me that in these circumstances you noticed the start of the make or the flood on the south shore? A. Yes. 20
- Q. And that was along that south shore, along the bay there some place? A. Yes.
- Q. Now, that was the start of it. By that time it hadn't got to the bridge? A. As I told you it gets to the bridge as much as forty-five minutes before—
- Q. That is not what I am asking, but your observation that day. Surely you can understand me? A. Yes, that day at six o'clock; that was half an hour before—yes, it was up to the bridge then.
- Q. At six o'clock? A. It was flooding on the south shore through the bridge. 30
- Q. Now, you have got it and you work it out because you remember working it out by the time, is that it? A. Well, yes, I know the time.
- Q. But you told me a minute ago that you did not see it going through the bridge at that time. A. No, I could not see the other side, I don't know how far the other side of the bridge.
- Q. You don't have to see the other side of the bridge to see the current going through? A. No, I can see it hit this side, to the west side of the bridge. 40
- Q. You said you saw the flood tide making on the south shore up to the bridge, but you didn't see it going through the bridge. That is what you said? A. Yes.
- Q. Now, you say it was going through the bridge? A. I can see it. If the tide is striking on the west side of the bridge it surely must be going through I suppose I can assume.
- Q. You don't know whether it was going through at that

time. We are talking of the start of the flood tide? A. Yes, we are talking of the starting of the flood tide.

Q. Yes, talking of the start of the flood tide and the flood time comes up from the west? A. Yes.

Q. And gradually goes on and on until it comes up this bay and then goes on until it goes through the bridge and goes on, is that not so? A. Yes.

Q. Let us see if we cannot get down to the first principles of this thing, and you saw in the bay on the south shore the start of the flood tide. That is, the flood tide had got up to you on the south side? A. Yes.

Q. When you say the start of the flood tide, you mean the start of the flood tide, I presume, and you saw it start to come in that bay? A. I seen the drift wood.

Q. It was later than that, was it, you saw it come up to the bridge? A. Oh, I don't remember what time it started.

Q. It was later on in point of time? A. Oh, yes, it was later on in point of time.

Q. And the utmost you saw then of that flood then as far as the bridge was concerned was that it came up to that point? A. It came up to the bridge.

Q. And did you figure; you are working out that it went through? A. Well—

Q. But whatever it was it was the first or make of the flood, was it not? A. It was, yes.

Q. And the start of the flood in the day was about six o'clock and it worked up and went through the bridge, is that right? A. Yes, it went through the bridge.

Q. So that before that make there was no flood tide, was there? A. Well, not on the surface that I could see.

Q. Well, where did you figure anywhere else that the flood tide would be, where you were? A. Well,—

Q. You are not going to tell us, are you, that the flood tide out in the outer harbour, apart altogether from the Second Narrows, makes underneath first? A. I don't know.

Q. But you would know that to be absurd? A. Well, I am not saying that. All I am talking about is the surface current.

Q. And with your knowledge and experience that surface current indicates the commencement of the tide? A. Yes.

Q. When you saw—pay attention to me; don't smile about it—when you saw the make of that flood tide in the day that was the first of the flood tide, was it not? A. Well—

Q. Are you going to change it? A. No, that was the first of the flood tide.

Q. And that was around about six o'clock? A. Yes, I think that.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. F. Payne
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. F. Payne
 Cross-exam.
 (Contd.)

Q. And was on the south shore in spite of the fact that on the north shore it was ebbing strong? A. Yes.

Q. Is that so? A. Yes.

Q. Of course it was ebbing strong and it was ebbing strong for a considerable time afterwards, was it not? A. Well, I think when the ship hit it was slack then.

Q. Where were you then? A. I was about 600 feet from the bridge.

Q. You were not at the bridge? A. No, I was not at the bridge. 10

Q. How do you get that it was slack then when the ship hit? A. I was going ahead quite fast when she hit. I knew that I did not have any ebb tide, it must have been slack right then.

Q. That is how you sized it up? A. Yes, I might have had a little ebb tide, but I was moving ahead fairly fast.

Mr. Burns: That is all.

(Witness aside).

W. Tamburino
 Direct.

WILLIAM TAMBURINO, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH: 20

Q. Mr. Tamburino, you live in Vancouver? A. Yes, sir.

Q. Now, speak as loud as you can, because I do not hear you?

A. Yes, sir.

Q. What is your occupation? A. My occupation was running one-man boats.

Q. You are both captain and engineer of a one-man boat?

A. Yes.

Q. On the 10th of March, 1927, you were on a little boat called the "Harris No. 2." A. Yes, that is right.

Q. And you were lying alongside the tug boat called the "B. C. Boy?" A. Yes. 30

Q. That is the tug boat of which the former witness was captain? A. Yes.

Q. You were approaching the Second Narrows Bridge about 6 p.m.? A. Somewheres about 6 p.m.

Q. And did you see the "Eurana?" coming down on the eastward of the bridge? A. I seen the "Eurana" approaching off Berry Point, around a few minutes before 6.

Q. Where would you be on your tug then? A. Over in the neighbourhood of anywheres from 700 to 1,000 feet west of the bridge in line with the centre of the 300-foot span. 40

Q. Did you see the "Eurana" approach the bridge? A. Yes, I seen the "Eurana" approach the bridge right from Berry Point. I watched it very close.

Q. Did she approach the bridge in the ordinary usual way?

A. As far as I could see he approached it as all other ships that I have seen pass through.

Q. When she was in position of about 1,000 feet east of the bridge how was she heading? A. When he was about 1,000 feet east of the bridge he seemed to be heading for the centre of the span, but immediately he started to sheer off to starboard.

Q. What happened then? A. Well, as far as I could see he kept on sheering to starboard more and more all the time, and then after a minute or so I saw him drop his port anchor. I could
10 not see his starboard anchor because it was on the offside of the ship and I saw him crash.

Q. Did you see him crash into the bridge? A. I did a few minutes after he dropped his anchors. I saw him crash into the bridge.

Q. Where were you and your tug then, how far west of the bridge were you? A. Oh, 500 to 650 feet or so.

Q. West of the bridge? A. West of the bridge.

Q. And at that time what was the state of the tide underneath the bridge? A. Well, I cannot state the stage of the tide
20 underneath the bridge, but I could state the stage of the tide in the position I was in.

Q. What was it doing there? A. The tide apparently looked to be slack, because the "B. C. Boy" was doing a little better than holding his own with his boom. If the tide had been ebbing he could not put his boom against any such tide.

CROSS EXAMINATION BY MR. BURNS:

Q. I suppose you could not gather any definite impression as regards the speed of the "Eurana?" A. No, I could not. From
30 the position I was in the ship was coming ahead in to me and I could not tell.

Q. I imagine that. And this last witness what is the name?
A. Captain Payne.

Q. He would be in the same position as you? A. He was in the same position, yes.

(Witness aside).

MRS. JENNIE TAYLOR, a witness called on behalf of the
Defendant, being first duly sworn, testified as follows:

W. Tamburino
Cross-exam.

Mrs. J. Taylor
Direct.

DIRECT EXAMINATION BY MR. SMITH:

Q. I know you can speak loudly, Mrs. Taylor, so please do
40 so because I am a long way from you. You live in the City of Vancouver, Mrs. Taylor? A. I do.

Q. And you live in a house which overlooks the Second Narrows Bridge? A. I do.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
W. Tamburino
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 Mrs. J. Taylor
 Direct.
 (Contd.)

Q. And from the windows of your house you can look right down on top of the bridge? A. I can.

Q. And you see the area of water between the bridge and the city water mains? A. I do.

Q. Your house being on the south shore? A. It is.

Q. To the eastward of the bridge? A. It is slightly.

Q. It is almost in fact at the end of the bridge, I suppose?

A. Yes, slightly to the east.

Q. Do you remember the 10th of March, 1927? A. I do.

Q. And the collision of the steamer "Eurana" with the 10
 bridge? A. I do.

Q. Did you hear the steamer whistle for the bridge? A. I did.

Q. And did that cause you to look out of your door? A. No, I did not look out when she whistled.

Q. When did you look out? A. A few minutes afterward about the time I thought I should see her.

Q. Did you see her? A. I did.

Q. Where was she then? A. Almost over the most easterly
 water mains. 20

Q. How was she heading? A. Heading directly for the open draw.

Q. Did you see her approach the open draw? A. I saw her come down heading apparently for the open draw. When she was almost very slightly west of the most westerly water mains she commenced to sheer.

Q. Yes? A. Slowly at first. Then to me it appeared to be quite quickly, afterwards continuing to sheer towards the north shore.

Q. Did you see her drop her anchors? A. I did. 30

Q. Could you form an idea how far she was from the bridge when she dropped her anchors? A. I think without actual measurements which of course I have no means of taking about 400 feet; 450 feet maybe, but I should say 400 feet.

Q. And by that time was heading presumably—had swung to starboard considerably? A. Starboard is the right side, is it not?

Q. Yes, starboard, yes, to the right, to the north? A. Yes, yes.

Q. Did you see the ship collide with the bridge? A. I did. 40

Q. Do you remember noticing the surface water at the time?
 A. I did.

Q. Is it a usual thing for you to take note of the tides as they ebb and flood under the bridge? A. It is.

Q. Have you and your family—do you frequently go on the water there and navigate boats? A. We do with small boats.

Q. What was the state of the surface then at the time of the

collision? A. I particularly noticed that it appeared to be slack, but a few minutes after the boat collided we looked up the tide table and it should not have been slack, although it appeared to be slack.

Q. Did this surprise you to find that it was slack, although according to the tide tables it should have been still ebbing? A. No.

Q. Why not? A. Because we have found from observation that often it is slack water or apparently slack water at a different time to what the tide table shows.

10 Q. Were you living in this position before the bridge was built? A. We were.

Q. Have you formed any opinion as to whether the building of the bridge has affected the tides in any way? A. I have.

Q. What is your opinion? A. The currents and the tides on the south shore are very much stronger than they were before the bridge was built. That is, to the eye. What they are by actual measurement I cannot say.

Q. Have you noticed the result or any difference in the current due to the flow from Seymour Creek? A. Most decidedly.

20 Q. What is that difference? A. The current now from Seymour Creek comes very much more over toward the south shore than it used to do, more especially this last year. This last early spring I noticed when the rains were heavy how very much further it is coming than it has done before.

Q. How do you account for that? A. Well, I think partly because the Seymour Creek is much deeper now in the channel, on the bed than it used to be, also since the dredging of the mouth of the creek there is an arm which extends out; it is quite visible at low water and that I should think catches the flood water from 30 the Seymour Creek and deflects it in a southerly direction towards the south shore.

Q. Have you ever seen the surface currents running in opposite directions at the same time? A. I have.

Q. When does that occur? A. I have seen the current running up one side and down the other at the beginning of the flood and the end of the ebb.

Q. And that happens at one time? A. I have seen that happen several times.

CROSS-EXAMINATION BY MR. DONAGHY:

40 Q. You keep a tide table at the house? A. Yes.

Q. What is your husband's occupation? A. My husband is a builder.

Q. And are you on the water a great deal? A. I am not now. I used to be. My husband and my son are on the water a great deal. We have two boats.

Q. Did you get a tide table each year? A. Yes.

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Defendant's
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Mrs. J. Taylor
Direct.

(Contd.)

Mrs. J. Taylor
Cross-exam.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseMrs. J. Taylor
Cross-exam.
(Contd.)

Q. For what purpose? A. So as to know the tides about going out in the boat.

Q. You have a boat? A. We have two boats, a row boat and a sail boat.

Q. Where do you keep the sail boat? A. We keep the sail boat up—I think the boat house is almost at the foot of Gilmour Avenue, to the east of Gilmour Avenue slightly.

Q. Where is that with reference to the Second Narrows. Is it in that vicinity? A. Yes, to the east, more easterly than the water mains. 10

The Court: What street is that, Mr. Donaghy?

Mr. Donaghy: Gilmour Avenue.

The Witness: That is where the boat house is.

The Court: Does you plan show that, Mr. Donaghy?

The Witness: My lord, Gilmour Avenue is the avenue beyond Ingleton Avenue. If the plan shows Ingleton it is the one east of Ingleton.

Mr. Smith: Yes, Ingleton is marked, my lord.

The Court: Yes, Ingleton is marked, thank you. Have you got a plan there which has anything between Boundary Road and Ingleton? 20

Mr. Smith: No, it is all blank there.

The Court: Perhaps this lady can just mark here where she thinks it would be on exhibit 8 with a lead pencil. Mark it with a "T" where the house would be.

The Witness: Our own house or the boat house?

The Court: Your own house first. Now, take your time and show it with a red "T." Have you got another plan there which shows the same streets?

Mr. Smith: Exhibit 19 I think is the best one. 30

The Witness: This is fallen away in a bend down here. Now, the boat house where we keep our boats—Ingleton is somewhere about there.

The Court: Mark that "T-2."

The Witness: I do not know whether that is the accurate position, but it is in the neighborhood there.

Mr. Griffin: This plan shows Gilmour Street, my lord. May I make a note upon it; where I have just put the cross?

Mr. Donaghy: Q. Now, when did you begin to reside in this house? A. In this particular house we have lived for four years. 40

Q. And prior to that where did you live? A. Slightly to the west of that house, slightly to the southwest.

Q. How far away from it? A. Half a block.

Q. How many years did you live there? A. Three.

Q. You have been in that neighborhood seven years? A. Yes, been right in that particular neighborhood seven years.

- Q. Have you been accustomed to rowing along the shore where the Second Narrows is located? A. Yes.
- Q. The south shore? A. Yes, sir.
- Q. During all those years? A. Yes, for eight years we have gone up and down; one more year.
- Q. And about how much rowing did you do past this place where the bridge is? A. We have done a very great deal in that direction, because we used to fish off the mouth of the Seymour, had a great deal of fishing off there, not very much the last two
10 years. The fishing is very poor now.
- Q. How long have you had a boat house at its present location? A. About eight years.
- Q. About eight years? A. Yes.
- Q. To get from this boat house to the mouth of the Seymour to fish I suppose you took out the row boat? A. Certainly.
- Q. That did not bring you at all across the location of the Second Narrows Bridge making that trip. You were crossing from the south shore where the boat house is to the mouth of the Seymour to fish? A. Yes.
- 20 Q. That is, you were crossing the inlet a considerable distance east of the Second Narrows Bridge? A. Yes.
- Q. Now, you gave that to me as the reason why you were rowing in the vicinity of the Second Narrows Bridge. Now, that does not seem to lead to that conclusion, you see. A. No, but we have very frequently; in fishing you do not usually stay in one place. You go down. You drift around. You fish all over from the south shore to the north shore and up and down east and west. The fish unfortunately won't stay in one place.
- Q. But you thought the mouth of the Seymour was a good
30 place to catch them just the same? A. Undoubtedly.
- Q. And did you think that down at the south end of the Second Narrows Bridge was any place to catch fish? Did you try there? A. You do catch fish there.
- Q. Did you try there? A. We have fished there.
- Q. Very much? A. Not very much.
- Q. In fact I am told that is rather a poor place to fish, but you think yourself—do you think so? A. I used to think so, but I have changed my mind. I have seen quite a few fish there, caught there the last few weeks.
- 40 Q. But I am talking about these previous years? A. Yes, it was not considered good.
- Q. Then why should you resort there to catch fish if it was not considered good? A. Because if you are out to fish and you do not catch the fish one place, the Narrows are not very wide and you naturally go all over.
- Q. Apparently you are rather an expert in regard to what these currents have been doing around there? A. Not at all.

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Defendant's
Case
Mrs. J. Taylor
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseMrs. J. Taylor
Cross-exam.
(Contd.)

Q. Don't you think so? A. No, not at all. I claim no expert knowledge.

Q. I suppose your occupation since you went to live in that vicinity has been looking after your home? A. It certainly has.

Q. Doing the house work and cooking and going over your house? A. Yes.

Q. And you have no particular nautical experience? A. No, I have not.

Q. Except rowing in this boat fishing, is that it? A. That is all. I have no particular experience beyond the fact that all 10
my life I have lived by the sea.

Q. Quite so. What do you know about the currents of the Seymour, where they enter the sea? A. I know nothing about the currents to give absolutely expert knowledge. I say what I see. What appears to the eye. I make no claim to give expert knowledge.

Q. From what point do you make observations of this current of the Seymour in the Narrows? A. From my porch and from my windows.

Q. From your windows? A. Yes. 20

Q. And you think that at the present time the Seymour penetrates much more southerly into the inlet than it formerly did? A. I do.

Q. You have given some scientific reasons for that. First of all, you say the channel of the Seymour has been deepened. Is that true? A. Well, how can all that gravel be taken out of the Seymour that has been taken out without deepening the channel?

Q. I am not arguing with you, but you say it is true that the channel of the Seymour has been deepened? A. Well, it stands to reason if you remove— 30

Q. I am not standing to reason. I am only standing to facts. A. Well, it stands to fact that if you make the channel deeper—

Q. It must be deeper? A. If you take stuff out of the bed it must be deeper.

Q. No question. A. Unless it slipped back again.

Q. I won't argue; I do not like to argue with you. Your position is the bed of the Seymour has been deepened, consequently the current is greater now and penetrates further southerly? A. That is my inference.

Q. You also gave another scientific reason why the current 40
of the Seymour penetrated more southerly into the sea. What is your other reason? A. I said that now since the dredging has been done there is an arm of sand extending out to the west of the most westerly water main and I think that deflects the water out as it comes out from the Seymour. It deflects it more to a southerly direction across the Inlet, that is my opinion.

Q. Yes, I see. You mean the gravel bank, don't you? Is

that the arm you are talking about. You said an arm of water?
 A. Well, I mean an arm; it is not an arm of water; it is a shallow bank, of dirt, what that dirt is composed of I could not say. It is just dirt as it was dredged out of the water.

Q. When do you say that this bank of dirt made it appear-
 ance? A. It came with the dredging.

Q. When did the dredging come? A. I am not prepared to
 say.

Q. How many years ago? A. I am not prepared to say.
 10 Q. That is not very enlightening? A. No. I am not sure.
 It is a matter of record. It can be looked up. I am not going to
 say.

Q. Very good. So this bank of mud or dirt deflects the cur-
 rent of the Seymour so as to cause it to direct more southerly than
 it formerly did? A. To all appearances it does.

Q. And it also has the appearance of making it deflect fur-
 ther out into the arm of Burrard Inlet, is that a fact? A. It
 goes in a more southerly direction than it used to.

Q. And as the result of that the Seymour waters to the eye
 20 penetrate consequently further south into the arm of the sea than
 they did before? A. Yes.

Q. You observed that too? A. Yes.

Q. And you think that is caused by this bar as well; the
 extra penetration is also caused by the bar? A. Yes, I do.

Q. How far from the north shore do the Seymour waters
 penetrate into the sea, from your observation? A. I will not
 answer that question, because from my observations if you cannot
 go—I am not qualified to give the approximate distance. It re-
 quires a very skilled person to estimate the distance of a large
 30 body of land or water. Therefore, I beg, my lord, that I may not
 have to answer that.

Q. That is quite all right with me. I am satisfied. How-
 ever, you have made a comparison. You say that formerly the
 waters of the Seymour did not penetrate as far into the arm of
 the sea as they do now. What is the difference? You must have
 some opinion of that? A. I do.

Q. What? A. From what I have seen they have come very
 much further over this spring than they have ever done before.

Q. What about a year ago this spring? A. Not so far as
 40 they were this spring.

Q. And you don't know how far they came into the arm of
 the sea a year ago this spring. You have no idea? A. A year
 ago this spring they did not go nearly so far as they came this
 spring.

Q. I take it you understand the tide tables, of course? A.
 I do.

Q. How do you find the tide in the Second Narrows in the

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 Case
 Mrs. J. Taylor
 Cross-exam.
 (Contd.)

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*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 Mrs. J. Taylor
 Cross-exam.
 (Contd.)

tide table? A. Well, you compute it from the First Narrows. I wish to state now I really do not do the tide table myself. My husband and son—there is not a day but what they consult the tide tables, not one day year in and year out but what we consult the tide tables. Every time we see what we think is going to be a crash or a near crash at the bridge we immediately look to see how the tide is, whether they will make it or what they will do. There is no book more used in our house than the tide table.

Q. You are rather busy there? A. We are. We certainly have a great deal to look at. 10

Q. Is it your time that is taken up with this constant watching or your husband's time? A. I principally watch—my bedroom window looks out; my kitchen window looks out. My living room window looks out. All I have to do is to raise my eyes and look out to see what is going on.

Q. However, you have time to attend to the housework just the same? A. I do.

Q. Can you tell me from the time tables if I show them to you the time of the low tide between—

A. I might be able to do it correctly, but I would not dream 20 of doing it myself. I would ask my husband or—

Q. He is always there on the change of the tide? A. He is more often at home than not at home.

Q. I suggest he does not come home for the change of the tide? A. No. I suggest to you that I said my husband is more often at home than not at home. My husband does not do very much work.

Q. Do you agree to accept the opportunity of telling from the tide book what time the tide changes today? A. Yes, I think I can do it. 30

Q. Very good, at the Second Narrows? A. May I get my glasses?

Q. Of course? A. I have not got my glasses with me, but I will see if I can do it without.

The Court: Take your time, witness. If you find you cannot get on, cannot do yourself justice without your glasses do not attempt it.

The Witness: I am afraid, my lord, I cannot distinguish the figures.

Mr. Donaghy: Never mind. 40

A. I cannot distinguish the figures.

Q. And your husband, your husband or son usually do the calculating? A. My son or husband do it. I have done it, but as a general rule they do the calculating of the tide tables.

Mr. Donaghy: Very good.

The Court: You have no more questions to ask this witness. We will adjourn, if you please, Mr. Registrar.

(COURT ADJOURNED AT 1.05 P.M. UNTIL 2.15 P.M.

(2:15 P.M. COURT RESUMED PURSUANT TO ADJOURNMENT.)

Mr. Griffin: I will call Captain Reed.

ARCHIBALD HEURTLEY REED, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. You are a master mariner? A. Yes, sir.

Q. And have been so for how many years? A. Since 1898.

10 Q. And is your experience mostly with deep sea vessels? A. Yes, sir.

Q. You have commanded vessels between here and the Orient? A. Yes, sir.

Q. And during the war you were in command of what kind of vessel? A. I had two commands in the war. One was an auxiliary—they were auxiliary cruisers, both of them. One was a disguised ship, one operating in the north part of the Atlantic and in the second command I was operating practically all over the east and west coast of Europe and the approaches to the Med-

20 iterranean.
Q. Then your last sea experience was when? A. During the war.

Q. You now are harbour master of Vancouver? A. Yes, sir.

Q. And you are also a member of the Royal Naval Reserve? A. Yes, sir.

Q. I see your name on exhibit No. 13, which is the Vancouver Harbour Commissioners' plan as showing the neighborhood surrounding the Second Narrows Bridge. Did you have personal

30 work there in connection with the soundings? A. I have checked over the soundings there but looking at them from here I cannot say that those are the ones. I do not remember them. I have checked them, yes.

Q. Now, I give you the exhibit. You can refer to that exhibit 13. Nothing turns upon the soundings. I just wish to remind you that is your name? A. That is my name.

Q. And you did this work in connection with the soundings? A. Yes.

Q. And checked them over? A. Yes.

40 Q. Those are soundings largely to the east of the bridge and on the south shore? A. Quite.

Q. In connection with that work did you personally attend to the Second Narrows and what opportunity did you have of

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Direct.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 A. H. Reed
 Direct.
 (Contd.)

learning conditions there on that and other occasions? A. Commencing during the construction of the bridge?

Q. Yes, give us some idea? A. The first occasion I had to take serious notice was during the construction of the bridge. The channel was considerably restricted by means of the crafts, scows and otherwise which were used for boring and sinking the piers for the bridge and it was necessary at that time to mark a clear channel for ships to pass through east and west without interfering with the men working below and causing damage or loss of life. The first step I took was to get four spar buoys in order to mark the channel. It was a suggestion of mine that we should have two spar buoys to port and two to starboard and the Department at Victoria furnished the buoys and we proceeded to lay them out in what is now the 300 foot span. Shall I mark this chart? 10

Q. Oh, just the description? A. The intention was to lay down two red spar buoys to mark the starboard side of the channel, one to the westward of the bridge and the other to the eastward and two black spar buoys marking the port hand of the channel and an equal distance apart and parallel. In order to lay those buoys down I got the—I think it was the lighthouse tender up from Victoria with the buoys. 20

Q. A tug? A. She is the tender that goes around fixing aids to navigation. We took our position off the position where the span will go in order to lay this buoy down and I waited for slack water. Whilst waiting for the slack water—we wanted to get slack water so as to get a straight up and down cast of the lead to make sure of the water. We had a fair strong tide. It was one of the days when there was a big turnover and a long run out followed by a quick run in. It was considerably past the time by the tide book when the tide should have turned and I was rather remarking it, because I had not found the tide book very much wrong. The time came on until twenty-five minutes past the time for the turn of the tide and I expressed by extreme surprise that there was a considerable ebb stream against us and one of the men I had with me remarked— 30

Q. Never mind what he said? A. Leave that part out. Whilst doing that I noticed—he called my attention that logs and other drift wood were passing up the Narrows to the eastward when the stream we were in was still running down to the westward. That was the first time I showed any marked—any marked interest in the matter of the tides. 40

Q. The tide was on that occasion flowing east on which side of the Narrows? A. Toward the eastward on the south side of the Narrows. It was flowing westward on the north side of the Narrows. It was the last of the ebb.

Q. How many days' experience did you have in the work

you had to do in that place? A. Well, in that particular instance we found the tides were so strong that the spar buoys would not stand; the strength of the tide towed them under, so that they were worse than useless and eventually we put up transit marks on Berry Point. But following that I was up there every day or several times a week. I did not know what more could be done to make matters safe for the men working below the surface.

Q. I want to get the total number of days you were there to show what opportunity you had to observe conditions? A. 10 The days I have been there trying to observe conditions have run into more than I can count, 200, perhaps 300.

Q. That is what I want. Now, I want to direct your attention to the fill on the south shore which you see marked on exhibit 13 with the letter—surrounded in blue? A. Yes.

Q. Are you personally acquainted with that fill? A. Yes, fairly well acquainted with it.

Q. What is the effect upon the current? A. Unquestionably it helps to deflect the current across the Narrows in a northerly direction.

20 Q. Have you observed that to be the case? A. I certainly have.

Q. At what time if any is it more pronounced. When is it felt most? A. At the commencement of the flood, but more particularly in the commencement of what we term the long run in.

Q. Could you indicate to his lordship how far out into the channel the effect of that cross-current is felt? A. No, not with any certainty. I have tried to find that out. As a matter of fact, I am trying to find it out now. There is a strong set to the north-east which can be best seen if you look at the plan as a whole. 30 You see where the tide comes in; it is deflected from there, this shoulder here towards the northeast.

Q. When you speak of this shoulder, you mean that fill? A. Yes. Whether the line is close to the bridge or further up I cannot say. My impression is that there is a point here some 200 or 300 feet from the bridge where it is strongest and further away it is getting weaker, but the influence of it is felt for a very considerable distance from the bridge.

Q. You are speaking of the distance east and west? A. Yes. 40 Q. Then I turn your attention to the distance north and south. How far out in the current northerly is that influence felt? A. I have actually seen that demonstrated. As this current is deflected to the northeast where it meets the current flowing to the westward which may be somewhere about half way across it resolves itself into a series of circular eddies which may be seen any time.

Q. Address yourself to Pier No. 2 where in relation to the

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Defendant's
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(Contd.)

alignment of that pier would these series of eddies be? A. Even to the northwest of that pier; you can stand on the piles and make your observations any time. I think they are often further than that. There is no regularity. It is not as though marked in different colours. You just have to see the drift wood drifting around and figure out where they are.

Q. And have you any thing to say as to the effect, if any, of the waters of Seymour Creek upon the conditions of navigation? A. I have heard a great deal, but I do not know a great deal about it myself, for this reason; the water of Seymour Creek varies greatly. At times there is such a trickle down a child could walk across. On other occasions I don't think there is any appreciable effect. 10

Q. On other occasions? A. On other occasions when there is a freshet there is no doubt you can get a set. Over here I have been badly set.

Q. Over here? A. To the south.

Q. Are you aware of the existence of a point of sand or gravel said to exist on or about the two more westerly submerged mains? A. No, I have not made any precise observations of that. 20

Q. What effects if any would the waters of Seymour Creek have if they happened to be in a reasonable volume; what effect have they at slack water, if any? A. At slack water undoubtedly they would penetrate further to the southward than they would when the tide was running stronger. The strongest tide would gain the mastery, in other words.

Q. Are you familiar with the shoal which is said to exist at about the point where the easterly mains exist? A. I am not familiar with it. There is a shoal there. I have observed it as far as it goes on extreme low tides, zero. You can see the boulders, but I have never made any precise soundings to see where it drops off. 30

Q. What effect, if any, on the waters passing under the bridge is created by the presence of the piers themselves? A. They set up circular eddies, but I think one neutralizes another very much.

Q. The eddy from one side of the pier to the other? A. Yes.

Q. Could you give any result of your experience in connection with the possibility of the tide flooding in one direction on the surface and in a contrary direction beneath the surface? A. No, I have no knowledge beneath the surface, but there are a very large number of conflicting tides and currents going along on the surface which give rise in my opinion to a lot of totally erroneous opinions about the time of the tide. 40

Q. You spoke of the tide table. I would like to know to what extent, if at all you found where it was possible to gauge in advance the actual period of slack water from the times given in

the tide book? A. Yes, I can explain that, I think. There are two methods of making up the tide book. There is the principle of a tide book for a coast which is made up largely from the phenomena of the sun and moon and working it out as a mathematical problem. The time of the tides in inland waters like these are largely the result of experience taken from an actual gauge which records the time of the tide and is not left to opinion. The tide table here, I understand, is made up from those records extending over many years and taking several hundred actual tides.

10 Q. What I am aiming at is this. Did your observation enable you to say whether or no the times given in the tide book for the Second Narrows are in practice found to be accurate? A. One's observation is I don't think any good at all. The only accurate record is the record shown by the gauge which gives the precise thing and puts it beyond all opinion.

Q. You have no observation with regard to that? A. No.

Q. I want you to address yourself to the navigation of a loaded cargo vessel drawing substantially twenty-five feet, navigating westward through the draw at low water slack. What in
20 your opinion should be his proper course and manoeuvres.

Mr. Donaghy: Better give his experience in navigating first.

Mr. Griffin: I have.

Q. You have had no experience in navigating the Narrows since the bridge was built? A. Not in deep water ships.

Q. You have been in small vessels? A. Continually.

Q. I want your opinion of the proper manner of passing through the bascule span with a ship of the kind I have mentioned at the stage of the tide I have mentioned? A. To commence with, at the time of the change of the tide I don't think is the
30 best time to go through. I would prefer to wait until the tide was establishing itself and was running with a more even velocity than going through with a series of eddies.

Q. The question was—

Mr. Burns: Let him answer.

A. At the time of going through at low water, at slack water, the water slack, I would bring the ship up and anticipate a strong set to the northward, By that I would be prepared with all the aids at my disposal to overcome the set to the northward and bringing the ship to the southward.

40 Mr. Griffin: Q. You would expect that set to the north to be from what? A. From the young flood coming in and driving the bow of the ship over. The bow of the ship would meet it first, going westward.

Q. But you would be prepared to meet a northerly set as you approached the opening of the draw? A. Yes, but it would be my opinion from what I know that I would not succeed. I don't think the helm of the ship is sufficient to overcome that un-

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*British Columbia
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 Defendant's
 Case
 A. H. Reed
 Direct.
 (Contd.)

less the ship were going at such a high rate of speed that it would be reckless navigation to attempt it.

Q. What do you say as to the difficulties that confront a navigator going west in approaching the draw and manoeuvring a ship to pass through it? A. Bound to the westward?

Q. Yes, going out? A. With a flood tide?

Q. No, I am speaking—the question was I want what difficulties of navigation would confront a navigator when taking a ship out, that is, west at low water slack and with the ground and conditions you see before you? A. To commence with there is a shallow spit that runs over here. 10

Q. Don't say here? A. To the southward.

Q. About the water mains? A. About the water mains. The ship could not get as far to the southward as that and to get—in order to line himself up with the draw span which is here—in other words, he is getting dangerously close to this shoal to line himself up for the draw span when he is at that distance from the bridge. That is one danger. The next danger, having passed that, there is the danger of the set to the northward.

Q. Then what would be the course which a prudent navigator would take to effect his object? A. Get as much in line as one can and trust in providence that you can carry out what you hope to do. 20

Q. That is keep as close to the southern shore as you can? A. Keep as close to the southern shore as you can and hope you can stay there.

Q. Does that involve a helm movement? A. Oh, yes, it would unquestionably, a helm movement. You could not hope to do that without a steady helm.

Mr. Griffin: Your witness. 30

A. H. Reed
 Cross-exam.

CROSS-EXAMINATION BY MR. BURNS

Q. That is to say, Captain, as I understand it that the young flood as you call it— A. Yes, the commencement of the flood.

Q. —is there as a regular thing? And that is— A. Is a regular thing.

Q. Wait. I will qualify it. In a case of say more than an average tide or—

The Court: Jut one moment. Would you please stand back a little closer to me because you keep your voice directed towards counsel. It is difficult, not that you do not speak clearly. 40

Mr. Burns: Q. With a stronger than ordinary tide? A. Yes, the commencement of the flood, especially with the strong tides begins on the south side of the Narrows.

Q. And that, as you say, develops into a set to the north? A. Yes.

Q. That is northerly? A. Northeasterly.

Q. Until such time as the tide has become strong enough to make a more east and west course? A. Yes, there is still—whilst, you must understand this, the last of the tide is flooding strongly there is always a certain amount of time for the eddies to create in the middle of the channel and as the tide becomes more established the stronger waters push those eddies back.

Q. So that at the commencement of a heavy flood or strong flood there is that situation in connection with the waters of the Second Narrows east of the bridge? A. Yes.

10 Q. Namely, that there is a strong set to the north of this young flood? A. Yes.

Q. Which would make it quite a difficult thing for a ship to keep her course for the bridge, for the opening? A. Distinctly, yes.

Q. And your own impression is that you would not succeed if you tried? A. No, I don't say that. I would have difficulty. Some ships would succeed. It is one of the things you can never be certain of. A ship that is deep loaded or steering poorer than others, there is a risk in it.

20 Q. Were you speaking generally? A. Yes.

Q. And with reference to general knowledge would you say that condition of the water is a matter of general knowledge? A. Yes.

Q. Would not the more you kept to the south make that a stronger effect upon his bow? A. Not necessarily, because to come in there to the south he would ground; he could not go any further south.

30 Q. You have not understood me, I think, Captain. I am not considering going so much south as to the fear of grounding, but as a course before you get to where this force of the young tide is to be encountered if he was over say as much south as he could be without grounding and then made it would not his ship be in a position where the strength of that young flood would have greater effect upon the bow than the opposite, than the alternative which would be where he was most to the north? A. That is not my opinion.

Q. Explain that to me. A. For this reason that if you are closer to the bank where the tide rebounds as it comes along. I am using the word rebound.

40 Q. Cushions off? A. Cushions off, naturally the effect of the cushioning is stronger, the more closer to the impact point than you are where it is dissipating itself further out in the stream.

Q. I thought that would bear out what I suggested. Supposing—well, it might do, but assuming what you say to be correct, namely, and I am now indicating on exhibit 13 that the young flood is coming in here on the south— A. Yes.

Q. And is setting northeasterly? A. Yes.

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Admiralty Dist.*Defendant's
CaseA. H. Reed
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. H. Reed
 Cross-exam.
 (Contd.)

Q. I suppose from this Knuckle here? A. Largely it starts here; all the way along here you see the eddies setting out.

Q. Then it is turning as I understand your evidence in a northeasterly direction here? A. Yes.

Q. Or some place east of the bridge. Now, if a ship were more to the north and heading for the bridge would not that ship be in a better position to meet that course being more to the north than to the south, where the force would hit her bow to a greater extent? A. Yes, she would be in a better position to overcome that, but she would be putting herself in an almost impossible position to make the draw. You see a ship must line herself up for the draw some distance away, so as if possible to go through without having to heave the helm port and starboard all the time. 10

Q. Is this correct, a ship would have to line herself up before this force would be met with? A. That is almost invariably the case.

Q. All right. Then the better course, as far as I can see, I am suggesting this, would be over here altogether that is to get as much north as she can but still make the line up. Would that do it? A. I don't think that is in practical seamanship. 20

Q. Then in your idea he should be as near that shoal as he can be? A. In order to make the draw.

Q. Without grounding? A. In order to make the draw.

Q. There is a certain amount of cushioning off from that shoal? A. The shoal you are referring to here?

Q. Up here. A. I have never examined it out as far to the eastward as that. There must be a little.

The Court: You are talking about the shoal and it has been called different things, the Knuckle and Point "A". Do you mean that? 30

Mr. Burns: It is around there, my lord.

The Witness: Is this the point you are referring to? This place?

Mr. Burns: Point "A" would be about here on the shore, some place around the mains.

The Court: The shoal is something we understand of considerable extent, but you apply your own knowledge to it and let us know exactly what you mean by the shoal, because you might not agree.

The Witness: I would refer to it as a spit rather than a shoal running out in this position. There is a spit. 40

The Court: Is that what they call the Knuckle? A. I think it is where you have your hand there, my lord.

The Court: That is "A". It is called the Knuckle here. A. Yes, that is the place.

The Court: We will continue to call it a Knuckle.

Mr. Burns: Q. Then, Captain, there is a certain amount of

cushioning as far as that Knuckle is concerned? A. That is my impression. In fact I have taken observations of it.

Q. And if a ship came in too near there apart from grounding she would feel the effect of that cushioning? A. I think so.

Q. And that would have the effect of throwing her bow off?
A. Yes.

Q. And if that happened then the force of this tide would accentuate that? A. Yes.

Q. Just in that position? A. Yes.

10 Q. Now, this set that you speak of is quite observable? A. Which set are you referring to, the set to the northeast?

Q. Yes? A. Oh, yes, it is distinctly noticeable.

Q. You can see it right on the surface and when you speak of this as being a set we understand or do I understand rightly that is the tide really flooding? A. The tide flooding. You see; striking the point here; I don't know whether that is described; it is marked "B" here, it is deflected across the Narrows in a north-easterly direction in a series of circular eddies.

20 Q. And that is a coming in tide? A. That is a coming in tide.

Q. As the flood grows that disappears? A. Yes, to a large extent.

Q. To an extent. I was going to say to a degree. The tendency is for the disappearance of that, because of the full force of the tide coming up? A. Yes.

Q. Or getting in such shape as it is coming up in the regular way and that in your judgment is the safest way to take that gate? A. I would not say that is the safest time of all.

30 Q. What is the safest time of all? A. If I had a choice of time and one was able to make a choice I would make it high water slack.

Q. Well, eliminate high water slack and confine your consideration to low water slack? That would be then the safest time in that time? A. Yes, I would sooner wait until the tide had established itself.

Q. The tide had established itself and you would not then be met with this set to the northeast to the extent that it would embarrass you? A. Yes, it would be less.

40 Q. I just want to get a more definite understanding of those buoys that you placed down? A. They were not placed down, sir. We intended to place them and the tide was so strong that they were useless. We got two placed and they were towed under. They seemed to be useless before we got them actually in work.

Q. Where was it you attempted it? Could you put it on this

— A. Yes, at that time they were sinking this pier here.

Mr. Burns: That is Pier No. 2, my lord.

The Witness: And the time when I told you I took the sound-

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. H. Reed
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. H. Reed
 Cross-exam.
 (Contd.)

ings, endeavoured to take the soundings we were in line with what is now pier No. 1.

Q. To the westward how far? A. About a cable. I hadn't any means of taking any sextant angle to get the exact height, but I lined myself up by getting a cable to the westward. The intention was to be off a cable to the westward and to the eastward, so as to mark the channel through the construction.

Q. And you found the tide there was such that they would not suit your purpose? A. No, the strength of the tide towed the buoy under. 10

Q. Flattened it down? A. Took it out of sight.

Q. And you didn't attempt any other buoys? A. No, when we found those buoys would not stand we did not go on with the scheme.

Q. Now, it was at that time you observed the tide flooding in the east and ebbing in the west? A. That was the first time. That was what first called my attention to the flood on the south side and the ebb on the north side.

Q. Would you describe that for me? A. Yes, we were in the position indicated in line with the westward of Pier No. 1 and there the tide was ebbing quite strongly. Now, the exact amount I cannot tell you. I can only estimate it. 20

Q. Can you judge about what stage of the ebb tide? A. Oh, that was the last of the ebb.

Q. But how long would it continue? Can you judge that? A. It continued in this case about twenty-five minutes after the time of the change of the tide according to the tide table and it was that which called my attention to it, because I never had found the tide tables out that much.

Q. But at the same time it was flooding on the south side? A. It had started flooding; at what time I don't know, but several minutes before apparently, because we were having to steam ahead to keep up with the set to the westward here, meaning there was a considerable stream against us; logs unaided were drifting by merrily. 30

Q. How big a tide was that? A. That was a big tide that day. I think about a 12 foot 6 rise.

Q. Have you made any observations as to whether that same condition occurs at a later date? A. Oh, yes, I was so interested in that I made quite a large number of observations and the condition exists more or less all the time, but the difficulty in making any precise data is this, that as we all know no two consecutive tides are the same either in time or run in or height, so that it is very very difficult to make any direct statements about the strength and so on. 40

Q. But I take it your impression is that as a general proposition the lesser degree as the tide is less? A. Yes, sir.

Q. Did you observe when that was the case which you spoke of as to whether that ebb went right on? A. It goes down to the westward.

Q. Did you observe as far as the south side was concerned to what extent the flood was appearing east of the bridge? A. On that account I could not, because all those craft were in the way, but I have made observations since and I have found out that logs and even a boat under way will go along drifting, well away, a long way past the bridge while the stream is still running down
10 this way.

Q. That is to say, I understand your evidence to be that at certain stages, say, on average or better than average tides? A. Yes, a little bit worse than average.

Q. And then on that it happens east of the bridge there would be two lines of tide? A. Yes.

Q. One ebbing and the other flooding? A. Yes, more or less clearly defined according to the strength of the tide.

Q. With circular eddies in between? A. Yes, the circular eddies might be met with anywhere across; sometimes probably
20 half way across will show the water slack and then suddenly come into a swirl.

Q. But if it were to any extent I am suggesting that it would be practically in between those two streams? A. As a rule, although along the south shore here there is scarcely any spot that is not simply one mass of swirling eddies according to the strength of the tide. This south shore is particularly bad for eddies with a flood tide.

Q. When you say eddies you mean— A. Circular movements.

Q. Not currents? A. No, circular movements. It is the
30 current going around in a circular direction instead of the through direction.

Q. Well, have you made observations showing you how far this flood is going by while still ebbing? A. Not to the point where it actually ceases to exist. It was a little while ago, about a year ago I took several days observations here. On one occasion we drifted, I should think, very near as far as abreast of the Black Can Buoy—that is not shown on this plan—while we were seeing drift going by on the other side, but not having two obser-
40 vers in two different boats we only had to use all the observations from one boat.

Q. How far up is the Black Can Buoy? A. If you have an admiralty chart I can show you exactly.

Q. Approximately? A. Approximately it is two-thirds of a mile from the bridge.

Q. It is shown in the chart? A. Shown in the chart or any of these plans. That top one in your hand. That is not a

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
A. H. Reed
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. H. Reed
 Cross-exam.
 (Contd.)

navigating chart, but it will serve the purpose. Here you are, sir, that is the position of the buoy about there.

Q. You mean— A. The Black Can Buoy marking the shoal bank there.

Q. That is the buoy that has been already in evidence here?
 A. Well, I have not been in.

Q. Nearly opposite Berry Point? A. Yes.

Q. There are not two buoys there? A. No, no.

Q. And on this occasion say that you drifted by almost up to this Black Can Buoy? A. Very nearly. I forget the exact bearing. 10

Q. That Black Can Buoy is across the stream? A. Yes, there is a slight set to the northeast where we were, but it was still there.

Q. And was it still ebbing below that, to westward of that?
 A. Where it was abreast of us, but further back I cannot tell. We only had one observer. To get the statement you want it would be necessary to have two observers working together in different boats.

Q. Then your evidence cannot help us on that point? A. 20
 No.

Q. I thought when you got up to the Black Can Buoy you were still having— A. A set to the northeast. Was still observable then. Whether the ebb had ceased then as far back as the bridge I cannot say.

Q. What would you say then, that that is the general condition, Commander? A. Yes, sir.

Q. That on tides better than average to worse the tide action in the Second Narrows at the points we are discussing shows as a regular thing an ebb on the north shore and a flood on the south? 30

A. At the commencement of the flood, yes, sir.

Q. Until the flood has really established itself? A. What has really happened, sir, as you realize there is a large body of water coming down from the North Arm, Port Moody and it meets another body of water coming from the ocean. Well, when those two bodies meet they cross one another in the form of eddies. Any thing in the form of an obstruction will deflect one into the other and set up the eddies.

Q. That is the explanation of it? A. Yes.

Q. I am really applying myself to the facts of the conditions. 40
 And although those streams are in evidence upon the surface? A. Quite.

Q. Do you know anything to the westward of the bridge in connection with the tidal movements? A. Yes, sir, in fact all over the harbour it is my job to find out as much as I can about them.

Q. I should not have asked you, Commander. I am sorry.

I take it for granted then. How is your idea of the flood tide coming up the harbour? What is its course? A. On those plans I can show you better because that is so restricted. If you have an admiralty chart, that is better.

Q. It may not be advisable to mark it, exhibit 7. A. I think I can explain to his lordship without actually marking it. The flood tide runs striking in here.

Q. When you say in here? A. Coming in to the eastward past Prospect Point through the First Narrows across, straight
10 across here to this point just at the corner where the Second Narrows—we will call that the south side of the Second Narrows.

Q. A straight line from the First Narrows? A. It practically runs in a straight line into this bight here.

Q. That is following that line and possibly it would be more accurate to say it would strike the easterly shoulder of that bight? A. Pretty nearly. If you lay a ruler down you will see the way it will go. Then after the tide passes Prospect Point or Burnaby shoal one portion eddies around here and you have a set running in filling in Coal Harbour. Obviously that coming in off the main
20 stream you will have a circular movement around Burnaby shoal, that can be seen, my lord. If you moor an ordinary rowing boat up to Burnaby shoal you will find you will take two or three complete turns around the shoal with your painter through the movement of the tide coming in. Then it proceeds along here. At that time it is practically slack water in these waters on this side.

Q. That is the north side? A. Yes, the north side is well sheltered and the young flood does not seem to affect those properties at all.

Q. As a matter of fact its direction is a little south of east?
30 A. Yes, well, then, by magnetic compass it is not far off east, a little bit south of east.

Q. A little bit south of the direct channel? A. Yes.

Q. Is it not natural or what do you say as to it meeting this; what would you call that? A. That is where the Terminal wharf is built now, the Terminal properties. It does. It flows past.

Q. Does it not hit them? A. It flows past. Yes, it hits them. They do not seem to be as affected as this property further on.

Mr. Griffin: That is the Columbia Elevator. A. The Co-
40 lumbia Elevator is not so very much affected. It is, of course, affected but you do not get as great strength off the Columbia Elevator and Terminal Wharf as you do right down in this corner here. Perhaps it is that the pipe is narrow and you notice it more.

Q. Of course in the first place at the start, the actual start, the absolute start, the flood is not of great strength; I mean it does not come along like a wall? A. Oh, no, no.

Q. It gathers strength? A. It gathers strength.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
A. H. Reed
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. H. Reed
Cross-exam.
(Contd.)

Q. During the first period? A. Yes.

Q. And I suppose would be strongest in its appearance in the way you have explained about; how long after the start of the flood, half an hour or three-quarters? A. I would say three-quarters of an hour for this reason again, as the young flood comes in especially after a long run out when it is following a very low water, the pipe is narrow through these tide flats being dry. As these become covered the water is able to flow over those; the pipe is being wider and you don't notice the tide so strongly, but the first hour on a new flood would I think attain the greatest velocity. 10

Q. And of that it would be towards the end of that hour?

A. Yes.

Q. The first would be a gradual start? A. Yes.

Q. And when you speak of being surprised at seeing an apparent error of the tide table it was on account of this condition you speak about? A. Yes.

Q. And according to the tide tables would you infer or gather that the flood tide did not arrive until later, but it showed that way because of this peculiarity? A. From the position where I was in the boat I was under the impression that the tide had not turned and the tide book was that much in error. Further to the southward the tide had turned. So that we would have, if somebody else had been there contradict the opinions both telling the truth as they saw it. 20

Q. One point, Captain, I would like to ask about. You are certain, or are you certain that that set you speak of is the incoming tide and not more or less a back eddy under the Knuckle or the spit? A. It is obviously the incoming tide. I have been so careful to prove or disprove my original ideas that I have been there so many times looking out for that, that you can see the logs and other bits of wood moving up there to the eastward while you are still having to steam slowly ahead to keep pace with the ebb to the northerly. It is such a well understood position I am afraid there is no possibility of denying it. I have been out so many times to check it. 30

Q. I don't want you to deny it, but to be so sure, there is no question it is so well understood that every person ought to know it. A. I thought so. It is an usual condition perhaps, but you will check it and find it so every time you make an observation.

Q. Refer to the larger plan. How about the proposition of the flood coming in here and being set at a northeasterly direction by the Knuckle or that part of the land around and under the Knuckle? A. Some of it is, I should think. You see the tide is not running in a straight line. A great portion of it strikes this "B". 40

Mr. Griffin: That is the fill.

The Witness: That is the fill. That amount of water which

is to the northward obviously meets that fill, cannons off the wall here. It is not as if the tide was restricted to a narrow line.

Mr. Burns: Q. That is why I asked you that question. And as a matter of fact some of the tides would hit the shoulder of the land before you come to the westward of the fill? A. Some would, yes.

Q. As you explained on the other map, the shoulder of that bight? A. Yes.

10 A. Q. The easterly shoulder of that bight you have referred to? A. Yes.

Q. In other words, am I right in saying that you have said this that the incoming tide comes in a southeasterly direction against the south shore generally speaking and some of it hits the shoulder of this bight, some of it hits the point you speak of the fill, and some of it hits the Knuckle and the shore between the Knuckle and the Bridge and all of it giving the tide off to the northeast. A. That is partly correct in a qualified way. The tide you see, sets in this bay; it is not named as a bay, just to the eastward of the bridge—the westward of the bridge. That is where
20 the main body of water flows in there. Some of it undoubtedly does strike up as far as this; some of it will undoubtedly strike in as far as that, but the water that is in there goes out there, I suppose.

Q. Come back to exhibit 13 which is the larger and for that reason I am using it. I think I can use it for this purpose. Any of the water of this tide which hits the shoulder of the bight or this fill and so on would be deflected more northerly than northeast, would it not; that is more northerly than the part of the tide that is deflected further east by this Knuckle and so on, is that not so?

30 A. It would appear so, but I made no such definite—I have no knowledge of that.

Q. It would appear so? A. It would appear so. My experience is that the water seems to strike off from the bank strongest from a point a little to the eastward of this.

Mr. Griffin: Q. The fill? A. Yes.

Mr. Burns: Follow me. I don't want to stop you.

The Witness: And then continues in a lesser degree as you proceed to the eastward.

40 Q. Follow me then and see if I have your idea and if I have not your idea follow me to see if what I am stating is correct in your opinion. That any of the flood which strikes on the fill, let us say, or that point where the fill is the deflection by reason of the contour of it would be more northerly than eastward, than further down east, would it not? A. Yes, I think it would.

Q. Yes, any of that water that struck there. When I am saying, "There," I mean the westward part of that west shoulder of the fill.

The Court: It is hard for me to hear you. You have your hand over the side of your face.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. H. Reed
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. H. Reed
 Cross-exam.
 (Contd.)

Mr. Burns: I was getting so interested in this problem, my lord.

Q. Any of the water, Commander, of the young flood which we are discussing that hits the shoulder of this fill and is deflected thereby would be deflected in a more northerly direction than the water which goes through and is deflected by the Knuckle or the intermediate part of the shore? A. Yes, but that is slightly overcome in this way, that as that water is deflected to the northward it is being pushed straight along.

Q. I am coming to that. I am trying to enunciate this proposition and see if I am right. Then that deflection therefore that deflection might be great or less as immediately affected by the incoming flood tide?? A. Yes. 10

Q. And the tendency therefore, of course, is to straighten it out and hitting against, having the general bearing of the tide in mind, against the south shore, and the Knuckle as we have discussed? A. I cannot say that I have seen that.

Q. Would that not be the tendency? A. Whether it is the tendency or not I cannot say. I can only say in practice that all the way along here you will see and can see those eddies running off from the shore in a northeasterly direction. I don't mean by that strictly northeast; in a northeasterly direction. 20

Q. By that you have the inference that the tide bearing down on the south shore— A. Yes.

Q. Is deflected in some direction northeasterly? A. Yes.

Q. More easterly than north, say? A. Yes.

Q. At the Knuckle and intermediate parts? A. Yes.

Q. And at the fill the deflection, if any, must naturally be more northerly than east? A. Quite so, yes.

Q. And if it were continued, when meeting another force that is the incoming flood it would continue right across the channel? A. Well, the ebb is still running this way. The ebb would turn it into a series of eddies and that is what actually takes place. 30

Q. So far as its directional force is concerned it would be more northerly than east? A. Yes.

A. H. Reed
 Re-direct

RE-EXAMINATION BY MR. GRIFFIN:

Q. You were asked about some observations you took and you said they were when they were erecting piers 2 and 1. Could you give the year if possible and the month when that took place?

A. Not without referring back to my books. I have no doubt it was in my diary at the time. 40

Q. Could you give even the year? A. I cannot with any certainty, no.

Mr. Griffin: That is all, thank you.
 (Witness aside)

Mr. Smith: I will call Captain Guns.

THOMAS SALTER GUNS, a witness called on behalf of the defence, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. You live in Vancouver, witness? A. Yes, sir.

Q. And you are a pilot? A. Yes, sir.

Q. What has been your experience as a seaman? A. At 15 I went to sea in sail. After that I did a little coasting on the English coast and in '88, the Fall of '88, I came to British Columbia and in service with the C. P. N. Company and the C. P. R. My first command in the C. P. N. Company in 1896 was command of the West Coast Packet "Maud" about 100 tons. After 1916 I resigned to take a position under the Vancouver Pilotage Board. I have been a pilot since, nearly 13 years.

Q. The steamer "Maud" you referred to, is that the same one referred to by Captain Jones? A. Yes, that is the same vessel.

Q. Can you state the number of times you passed through the Second Narrows before the bridge was built, approximately? A. Before the bridge was built; I can tell you exactly. I passed 20 through 54 times before construction was started.

Q. And after construction, how many times have you passed through? A. During construction I passed through 21 times.

Q. And after construction—

The Court: Q. During construction? A. 21 times, sir.

Q. Passed the bridge 54 times before construction? A. Passed the Narrows.

Q. That is what I mean to say, passed the Narrows? A. With all classes of vessels, many large tankers, fully loaded.

Mr. Smith: Q. After construction of the bridge how many 30 times?

The Court: During construction, 21 times? A. 21 times, your lordship, and since the bridge was put into operation, the bascule, 62 times, up to the 24th of April. Since that time, ten times.

Mr. Smith: Q. That is, altogether? A. 147 trips, either up or down.

Q. Now, what is the proper stage of the tide at which to pass through the bascule span with a loaded ship? A. At slack water.

Q. What is the position of the bascule span with reference to the fairway up and down the Narrows? A. It is not quite 40 right angles. The bridge has a direction to the northeast and southwest, of something like five degrees from a right angle with the channel.

The Court: Q. Did he say that he preferred it low slack water or high?

Mr. Smith: He simply said at slack water, my lord.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

T. S. Guns
Direct.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 T. S. Guns
 Direct.
 (Contd.)

Q. The bridge is not right across the Narrows, but runs at an angle? A. Slight angles.

Q. Where is the bascule of the bridge with reference to the fairway of the Second Narrows? A. It is entirely away. It lead a man directly in to the south shore.

Q. Is it to the north or south of the fairway that was used by vessels navigating the Narrows before the bridge was built? A. On the south side.

Q. Where was the fairway before the bridge was built? A. In the centre of the channel. 10

Q. And the bascule is to the south of the centre of the channel? A. Is to the south of the centre of the channel.

Q. Is there deep water all around the span? A. The bascule—there is sufficient water for all ships that use it at present, right in the span, but less than a ship's length east of the span there is not sufficient water for a thirty-foot ship, if she should get on the northerly side of that fairway—the southerly side, I mean to say.

Q. Now, Captain, would you mark on this chart; draw lines showing the continuation eastward of the bascule span. 20

The Court: Q. What is that, a new plan?

Mr. Smith: No, Exhibit No. 17, my lord.

Q. Use a red pencil? A. I have a green pencil, which I think would be better.

Q. No, I think the red would be better? A. All right.
 (Witness marks chart.)

Q. You have drawn two lines from the piers of the bascule span at right angles to the bridge? A. Yes.

Q. Following along a line at right angles to the bridge, passing through the south pier, how far away is it that a vessel proceeding along that line would get into shallow water to the eastward? A. A vessel drawing between 27 and 30 feet as a fully loaded tanker would do, at low water would do, at low water she would touch within that channel within half a length. 30

Q. Develop that a little more. Put that into feet. How far away from the bridge would she touch? A. About 300 feet.

Q. Then about 300 feet from the bridge along that line, passing through the south pier, there is a depth of how much? A. 18 feet.

Q. What? A. No, I beg pardon, about 24 feet; 18 feet is 40 600 feet further on.

Q. 24 feet at 300 feet? A. Yes.

Q. And at 600 feet, 18 feet? A. 18 feet, on that line.

Q. That line being a line passing through the south pier? A. The south pier.

The Court: That is, extending those parallel lines in red and your point, Mr. Smith, is that in the extension of those parallel lines with the bascule span, at a distance to the east of how much?

Mr. Smith: In the first place, at a distance of 300 feet.

The Court: Wait a moment, at a distance of 300 feet in the extended area.

The Witness: There is only 24 feet of water. Then at 600 feet, 18 feet of water.

The Court: Q. First, at 300, you say how much water? A. 24 feet, 4 fathoms. At 600 feet.—

Q. Wait, now. Yes, 600, how much? A. 18 feet.

Q. Now, that is at the average low water, did you say? A. 10 Yes, that is the soundings given on those charts.

Mr. Smith: Q. What is the effect of that shoal being there.

The Court: Wait a moment, before you go on. Yes, you said, Mr. Smith, "What is the effect—"

Mr. Smith: I said, "What is the effect of that shoal being there, from the point of view of vessels navigating through the bridge? A. That it makes it very dangerous with a deep-loaded ship, at low water.

Q. Now, you just explain where the difficulties arise, Captain? A. Well, I speak now, of a deep-loaded ship. I refer to 20 a tanker going eastward, to begin with, and in the first place I know from experience, as I approach the bridge there is practically always a set to the north, as I am getting close to the draw. Consequently, I approach that bridge practically at right angles, heading for the south pier, No. 3 pier. I find I have difficulty in making that course, for the simple reason that the men who are steering the ship seem to think I am going to hit it. They all want to edge away from it and I have to keep on telling them, "Keep that pier ahead."

Q. You are dealing with a ship going east? A. Yes, prob- 30 ably loaded. As I get near that pier I very seldom have to starboard to clear it: the deflection there is so great that you will be carried in to the span without my using much, if any, helm. If I do require to use the helm as I get near it, I give her some helm. That helm is to my advantage. I am putting the ship through the draw at an angle so as to get away from the shoal on the other side and also keep my stern up against that current, but I am taking a big risk. I am heading for the pier in the first place and putting her through at an angle, reducing the width of the draw and if I don't do that what has happened, I have found, with experience, 40 is if I try to line up with the draw in the first place, as I get near to it I will set over so much, we will probably have to give a port helm, to avoid hitting pier 2, with the result that as I go through the draw I am running my head into shallow water, the bow of the ship into shallow water on the south side of the channel. I try to counteract that. I must not try too much with starboard helm or I might hit No. 3 pier. If I manage to get through, having tried this, that is, we enter it straight and port it, to clear the No. 2

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pier, I am now in a position, practically straight for the bridge—
 at right angles to the bridge; I cannot proceed any further than
 the length of my ship where I now am, without getting my bow
 away from the shore. To do that I must starboard my helm, with
 the result I am going to throw the stern of my ship into shallow
 water, probably wipe off a propeller right on the line of pier 3.
 I am speaking of a deep-draft ship.

The Court: Q. What length? A. From 300 to 400 feet,
 practically prohibiting the use of that channel to such a ship at low
 water. 10

Mr. Smith: Q. You take the same ship and go west, with
 the same stage of the tide? A. There are two ways of approach-
 ing the bridge. I have tried both. Some pilots keep down, as I
 have done, to the centre of the channel until, oh, anywhere from
 1500 to 2000 feet from the bridge. Then they will direct their
 course to the south, probably at an angle southwest and as they
 open the draw of the bridge sufficiently they port again and try
 and go through the bridge straight. I have tried that. I do not
 find it a successful way, for the simple reason that when I first
 make that big change from centre channel to southwest I have to 20
 give the ship considerable helm and I am going at such an angle I
 have to give considerable helm to bring her back to the line of the
 draw, which is a bad thing to be doing with any ship when ap-
 proaching such a narrow entrance. The less helm you can be giv-
 ing them at the time, the more control you have of the ship. So
 I find it better to come to a position near that shoal, about 2000
 feet from the bridge, where I can make one course past the shoal
 into the draw but to do that I must have my ship heading to the
 south of the south pier, at least on the south pier. Then I barely
 clear the shoal. In doing so I find two difficulties immediately con- 30
 fronting me. First, as I approach the shoal that shoal, as one
 gentleman remarked in this court, has a bench out to about 18 or
 21 feet. It gradually slopes. Then it drops quicker and as your
 ship—I am speaking now of a loaded ship coming down; she may
 have loaded lumber at one of the mills, as you approach that bench
 the ship does not float on the top of the water; she displaces her
 own bulk and part to each side and part underneath her. As she
 approaches the bench she is squeezing part of the water up against
 the bench until it sets the ship away.

Q. You let your voice drop at the end of the sentence? A. 40
 Excuse me. As she gets closer to the bridge, she is getting into
 shallower water underneath all the time. Her own displacement
 cannot escape away from her so freely underneath her. It must
 go to the sides. Consequently that water on the port side, she piles
 it up against the beach, not necessarily visible, but it is there. It
 has an effect which cushions the ship away. Now, I have had an
 accurate demonstration of that in the case of the "Norwich City,"

the 24th of April, 1928, coming westward on almost a zero tide, a tide of six inches at low water. I tried to come down in the manner I have last described. From Berry Point I steer a course between the Point and the buoy about southwest. When I was probably 2,000 feet, or a little more, from the bridge I changed my course until the ship headed for the south pier. At that time the masonry of Pier No. 2 was open on the north side. That is how I can define my position. If I can see the masonry on the north side of that pier, which is pointing at me, I must be to the north side of the line. I know I am not too near the shore. I put the ship's head—, I don't look at the compass—it was not necessary—to be able to clear it, but she was heading on pier 3, or possibly a little south. The Third Officer was at the wheel and I steadied the ship and she steadied all right. I may say I have taken that same ship through the bridge before nearly loaded.

Mr. Burns: Q. Pardon me, when you say, witness, Pier 3, do you mean the south pier? A. I mean the south pier.

Mr. Burns: Then we had better check that up, because on these piers it is just the reverse. It is the north pier that is pier 3.

Mr. Griffin: No, my learned friend is wrong.

The Court: No, that is right; the south pier of the bascule is 3.

The Witness: The Third Officer, quite a capable young man, was at the wheel and I stood alongside of him and an open bridge with an indicator of the amount of helm.

Mr. Smith: I cannot hear you. A. I stood alongside of the officer. There was an indicator, giving the amount of helm. The man stood immediately at my left hand. The ship was pointing steadily, as I have described. I noticed her begin to slide sideways. Her head did not pay off, but I could see it was going to the right. I said to the man—I used my hand, as I mostly do in narrow waters —“Starboard, starboard, keep her up.” Eventually I noticed the indicator was hard starboard and still the vessel is sliding away. I am passing that shoal now, 1,200 feet or less. I remarked to the Captain, “Look at that—”

The Court: Never mind.

The Witness: At the hard starboard I thought she would still make the bridge. I am going full speed at that time. First of all, I slowed for the bridge until the bridge lifted. When I see the bridge lifted I put her at full speed. We started away four or five knots. I would hardly be going seven yet. I fully expected to see that ship come as she got to the bridge where she would be further away from cushioning. It did not appear to come. It still kept sliding sideways. At 600 feet from the bridge I ordered the port anchor let go, a very risky thing to do with the speed I had on the ship. It might have hurt somebody or done damage, but it was the only thing to do. At this time we were heading for pier 2. It

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 (Contd.)

took no notice of that anchor. It still kept sliding and we saw then it was a question whether we were going to hit pier 2 or not. The Captain and I both used the same words, "Full speed astern." She just cleared pier 2. We dropped the starboard anchor, to try and check it and she went through the bridge with both anchors out. On the port anchor, before they could hold it, there were 75 fathoms of chain out. There was a condition there—

Mr. Smith: Q. Explain what she did, where did she go?

A. She went to the north side of the pier 2 and right under the bridge; that is, at this stage of the tide the bridge was high enough above the superstructure only to catch the masts and the funnel. 10

Q. So it carried away the masts and the funnels. A. Yes.

Q. Therefore, the accident you have described, is identical with that that happened to the "Eurana"? A. Very similar.

Q. And in the same span? A. In the same span.

Q. Well, what stage of the tide was it when the "Norwich City" went through. A. It was supposed to be low water, by the book. There had been a great deal of rain for a few days previous and I made it particularly late. It was really after low water, by the book, because my experience was, on the ebb tides—I am speaking of the surface currents, what I can see, it always appeared to be running out after low water by the book, and in accordance with the practice of seamen and my own experience, I thought it was better to be a little late and possibly meet the incoming tide than to be early and not have such good control of my vessel. Today I am absolutely convinced that is a mistake. 20

Q. What is your opinion of it; today? A. My opinion today is that a man first of all should not be there with a loaded ship at low water, and if the ship is not so deep and he would try it, he had better be there a little early. 30

Q. Better go through with a little of the ebb tide behind him? A. For the simple reason you are not going through with the ebb tide that you think you are. There is a tide working up from underneath, which is probably making it slack when it still shows ebb on the surface.

The Court: Q. What was the name of this ship, and the date, you are giving us your experience with? A. The "Norwich City", on the 24th of April, 1928.

Mr. Smith: Q. Is there any way of telling beforehand when it will be actually slack water at the Second Narrows? A. No, sir. 40

Q. What have you to say about the tide tables in that respect?

A. The tide tables are only a guide. One must use the tide tables and make the best of it, that is all. Myself, I think at low water, with large vessels—I am only interested in large vessels and deep—they are influenced much more by the contour of the shore than the actual tide, than with the conditions of tide we have there,

particularly with that undercurrent working up at low water, it makes it worse.

Q. How can you ascertain, if at all, the period of slack water at the Second Narrows; that is, the actual period of time during which one can expect to have actual slack water? A. On the high tide it might be quite appreciable. I cannot say because I never sailed my ship through to say I have gone through when it appeared actual slack water, but on the low tides, especially on the big runs out, I am satisfied there is no slack. When it slacks up one way it is already working up the other.

Q. When it slacks up on the surface? A. It is already working underneath. I am speaking of the south shore.

Q. You have not yet dealt with the currents. What currents may be expected to be found around the bridge at low water slack? A. The direction of the current when it appears low water slack—that is, the surface current has almost stopped running, there is something there, some current pushing the vessel off. It may be visible; there may be dirt showing on top, but at the same time may not be visible. Sometimes it happens that the harbour is so clear that you—

Q. All right. You say that there is some current pushing your vessel off, what? A. Off the south shore, always in the direction of the north shore.

The Court: Q. Off the Knuckle or between the Knuckle and the bridge? A. I don't know which is called the Knuckle, your lordship.

Q. The Knuckle is the second group of water mains. You see it marked there. Now, look. A. You say the second group of water mains. I understand.

Q. You are looking at Exhibit 8 and you see the Knuckle marked there? A. Yes, that is what I call the centre of the shoal.

Q. So many have called it the Knuckle, and if you keep to that we will know what you are referring to? A. Yes, your lordship.

Q. You say there is always some current there? A. I am speaking now of being closer in the draw, past the Knuckle.

Mr. Smith: Q. To make it clear to me at all events, witness, deal with the exact position of the bridge as if a vessel were going through the bascule span at low water slack. What currents may be experienced there?

The Court: Which way?

Mr. Smith: Westward.

The Witness: Going west, if it appears low water, if the current on the surface is slack, particularly on a big tide, she is going to feel a big move out from the south shore northwards.

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 Direct.
 (Contd.)

How much that current runs one side of the pier or the other, I don't know, but I do know it is all I can do to keep my ships off the north pier.

Q. What causes that current? A. The flood below; the flood making up in the lower harbour below the bridge sweeps into the bay on the south side and comes up, flows to the south end of the bridge and while the current is still ebbing strong there is an eddy there, but as the ebb current weakens that flood supersedes the eddy and works up under the bridge.

Q. And it is deflected from what? A. I beg pardon? 10

Q. How is it deflected? A. It is deflected off shore to the northward and eastward.

Q. Now, can you say anything about the current coming from Seymour Creek? A. I have observed a strong current there and know that it affects the steering of the ship as you are approaching the bridge. It will cause a ship to wobble, more or less, as you go through that current, but whether it has any particular action upon the position of the ship—I don't think so. But it does affect the steering very materially when you want the steering very steady. 20

Q. Has the building of the bridge affected the current you have been describing? A. I should say it has, for the simple reason that during construction I took the same ships fully loaded up through and the channel was narrower in construction days, owing to lighters and other things, but I had no difficulty in the centre of the channel, no great difficulty. I had to be careful at low water, but no great difficulty. With the same ships today I have great difficulty in keeping them clear of pier 2.

Q. And you account for that difficulty in what way? A. I beg pardon. 30

Q. How do you account for the difficulty you have today? A. Owing to the fairway being made over on the beach instead of in the middle of the channel, where it should be.

Q. Do those currents, in your opinion, run stronger now than they did before the bridge was built? A. I think some of the currents off the south shore are stronger in places, through being deflected by construction.

Q. Have you had any experience of surface currents running in opposite directions? A. Only what I have noticed in that bridge, the current appears to be running down on the last of an ebb tide with a deep ship, which is affected by other currents than what I see, feels something else. 40

Q. Is it ever possible to estimate beforehand the strength of the currents? A. At the Second Narrows?

Q. Yes, I am dealing with the Second Narrows only. A. To estimate the current at slack water?

Q. Yes? A. On high slack, yes, I should say yes, one may expect a comparative slack, but at low slack now, you don't know what you are going to get. If there has been a strong westerly wind in the Gulf it backs the water up in the harbour and affects the time of the tide in the book, which the Hydrographic office is not responsible for at all.

Q. What were the currents like in the Narrows before the fill-in was made on the south shore—of the bridge, at the south end of the bridge? A. You say the currents in the Narrows; do you
10 mean in the bridge draw?

Q. Yes? A. I cannot say what difference I have noticed, because I have always felt that difficulty there. It may be intensified today, but it is still bad or perhaps worse, but how much worse I am not prepared to say. It has been always there, but any filling was only intensifying a danger that was already there.

Q. Now, in your opinion, was the bridge an obstruction to navigation? A. I do consider so as it is built today.

Q. You do consider so. Then, in your opinion, is it a menace to navigation, do you consider? A. I do.

Q. Did you hear the evidence given by Captain Wingate on
20 Wednesday? A. I did.

Q. In your opinion, was the navigation carried out by Captain Wingate on the "Eurana" proper navigation? A. As far as I can make out. I don't know what else he could have done.

Mr. Smith: Thank you.

CROSS EXAMINATION BY MR. DONAGHY:

Q. Captain, will you give the dimensions and draught of the "Norwich City" on the trip you spoke of? A. The draught of the "Norwich City" on the 24th of April was 22 feet four inches
30 forward and 24 feet some inches—I am not quite sure whether it is 2 or 4 —aft. The pencil mark is rather obliterated.

Q. And the beam? A. The beam of the "Norwich City" would be in the neighbourhood of 55 or 60 feet.

Q. And the length? A. Not less than 400 feet.

Q. And the propellers? A. The propeller of the "Norwich City"—

Q. One or two? A. A single-propeller ship.

Q. One propeller? A. One propeller.

Q. And the horse-power of the engines? A. I don't know.
40 She is the ordinary tramp, the ordinary nine in a tramp ship; what they call nine knots, they very seldom have it.

Q. Have you a note of the time that you opened up the bridge on that trip out? A. What do you mean by opening it?

Q. The hour and the minute when you opened up the bridge?
A. What do you mean by opening up the bridge?

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 T. S. Guns
 Cross-exam.
 (Contd.)

Q. That is a well-known navigation term? A. When I opened the draw?

Q. Yes? A. She was almost in line with the draw.

Q. The hour and minute? A. Yes, that would be about 3:46 p.m.; 15:46.

Q. Were you then about 1,500 feet east of the bridge? A. No, sir. I did not open it up at that distance.

Q. How far east were you then? A. Oh, not a thousand feet when I had it fairly open.

Q. And your speed at that time was what? A. It was increasing. It may have been anywhere between six and seven knots. 10

Q. Now, tell us what you did in regard to speed? As you approached from that point forward to the bridge? A. I kept her at the full speed, in the hopes that she would answer her helm.

Q. Full speed ahead? A. Yes.

Q. From that point on? A. Until I saw it was inevitable that she would hit Pier 2, and I don't know whether it was myself or the captain, but we were both of the same mind, "Go full speed astern." 20

Q. How far east of the bridge did you put the boat at full speed ahead? A. At full speed ahead, something like 2,000 feet or a little more, half a mile.

Q. Now, I think you said that it was supposed to be low water when you were approaching the bridge, or a little after low? A. Yes.

Q. That is what you thought at that time? A. Yes.

Q. Is it true now that your expert opinion is that a navigator going out should arrive at the bridge prior to the time indicated in the time table as low water, if he is going out at low water? A. I can only—I can only qualify that answer; if it was extreme low water, and a loaded ship, he should not be there at all. 30

Q. Why; is it dangerous? A. Because it is dangerous, owing to the contour of the ground and the nature of the bottom and the shallowness for an ordinary tramp steamer fully loaded.

Q. It is dangerous. All right. Then give the other conditions now? A. When the tide would not be so low. That we call half tides—

Q. How many feet of a rise? A. It may be anything from four or five feet upwards, according to the draught of your ship. You must take the two together. If your ship was only half loaded, and drawing perhaps 15 to 20 feet, you could take less water. 40

Q. Supposing it were a ship like the "Eurana" at the time she met her accident. You know that ship? A. Yes.

Q. And she was drawing 27 feet.

Mr. Griffin: No, no; 25.

Mr. Donaghy: Q. Take it 25. Kindly give us the condition? A. I don't know the stage of the tide that day.

Q. Don't worry about that. You see, I am just giving you the boat, you make the tide yourself? A. The "Eurana" drawing 25 feet at extreme low water, with my experience with the "Norwich City," which is since the "Eurana," I would not be there at all. I would not take her through for anything.

Q. You would think it was dangerous? A. I would think it was dangerous. On a high tide, I would.

10 Q. Now, a boat like the "Eurana" drawing 25 feet of water and going out, tell when you think she should be taken out and under what conditions of tide, in order to be reasonably safe? A. From what I know today, it should not go out at low water, if the tide is below three feet or four feet.

Q. That is not what I am asking you. It is the very reverse. Did you hear what I said? A. Will you please repeat the question?

20 Q. I will, with pleasure. Take the "Eurana" drawing 25 feet and going out, what condition of tide would it be reasonably safe to take her out on? A. It would be reasonably safe to take her out on a high tide or a low tide that showed six feet at low water. That is from my experience—

Q. How long—?

Mr. Griffin: Let him finish.

The Witness: That is from my late experience with the "Norwich City." Perhaps I would have said different a year or two ago. I mean to say, I had that difficulty with the "Norwich City" myself.

30 Mr. Donaghy: Q. Now, are you through? A. I am through, sir.

Q. How long have you had the knowledge that the time tables are erroneous in regard to when the tide turns? A. At the Second Narrows?

Q. Yes? A. Ever since I have been running through the bridge.

Q. That is how many years? A. Since the bridge has been opened.

Q. You are quite satisfied you have had that knowledge all those years? A. Yes, I am.

40 Q. In fact, you could not help but have it. Neither could any other capable pilot doing the same work as you help but have that knowledge? A. No.

Q. Quite so. In addition to the "Norwich City," what other craft have you been in the habit of taking through the bascule? A. There is a list of every ship I have taken through the Second Narrows, the largest tankers carrying 11,000 tons of oil, to smaller craft.

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Case

T. S. Guns
Cross-exam.
(Contd.)

Q. I just want to get a general idea, you see. Some larger than the "Norwich City"? A. Some larger than the "Norwich City."

Q. And carrying or having deeper draught? A. Having deeper draught anyhow.

Q. Outbound? A. I don't know whether I have had anything outbound. It has been only lumber ships or—

Q. Was it mostly oil tankers within the last few years? A. It has been mostly oil tankers going through. I have taken my share.

Q. And the others would be tramp steamers carrying loads from the port? A. Yes, sir.

Q. And coming in light? A. Yes, sir.

Mr. Griffin: Before my learned friend goes on, will my learned friend put that book in?

Mr. Donaghy: No. If I wanted to put it in, I would put it in. My learned friend may wish to put it in. I think it only encumbers the record.

The Court: Why put it in?

Mr. Griffin: He asked—

The Court: He did not ask for the list. The witness said, "I have the list here," and offered it to learned counsel.

Mr. Griffin: Learned counsel took it. Are they not bound, then?

The Court: That is not quite the position. He has asked him nothing upon it. The witness simply handed it to him. Of course he has not used it yet. The minute he uses it, it is in. The witness said, "There is a list of all the vessels," and that covers 127 ships.

The Witness: 147 ships.

The Court: You offered that to counsel and he makes no use of it.

Mr. Donaghy: I have no objection to my learned friend putting it in in reply, but I am not doing it, because it only encumbers the record.

The Court: I am only ruling on this point, that it is not in on cross-examination.

Mr. Donaghy: Q. During all those years you have been navigating this bridge, how many accidents have you had in connection with the bridge? A. I have never had an accident at all. I have had two experiences, though.

Q. I am not asking you for that. You are a very willing witness. You heard what I asked you? A. How many accidents?

Q. And you said you had none at all, except for the one you told us of? A. That is all.

Q. That is all I have asked you. Do you base the statement that you made a while ago, namely, the statement that the bridge is a menace to navigation, upon the knowledge gained by your ex-

perience as you have related it here in court today? A. And my other experience. That was my other experience.

Q. We will deal with it. You base it partly upon your experience in navigating the bridge? A. Yes.

Q. And what is the other experience that would have any bearing on the subject. A. Many near-accidents. I have only just shaved it.

Q. That is your experience in navigating the bridge? A. Yes.

10 Q. Now, I am asking if you base it upon any other experience than navigating the bridge, this opinion that you gave; I would not suppose that you did, but if you did, it is all right to say it. A. No, I would not.

Q. Are you prepared to say that the fill at the south end of the bridge has had any appreciable affect at all upon diverting the current towards the northeast? A. I am not prepared to say anything about that fill, because it has always been so bad I have always had my ships in such a position, expecting that set, that whether that fill was there or not, I would be prepared for it.

20 The fill would only intensify what is already bad.

Q. Are you prepared to say it does? A. I am prepared to say it does.

Q. Do you know how deep the fill stands at its north end in the water at low tide? A. I know nothing about it, but I am satisfied that the least fill at all would do damage.

Q. Assuming that it stood two feet in the water at low tide, would it affect the flood? A. It would. It would be two feet too much.

30 Q. You don't mean to say, as a navigator, that would affect the current so you could appreciate it, and that is what I am speaking of, as you know? A. Had it been slack, always slack, previous to the fill, it would be easy to answer. Because there was always this bad set there, it is impossible to answer the question how much worse it has made it.

Q. To your own knowledge, you cannot say that it has made it any worse, that you have observed, particularly at low tide? A. I would not say that. It is bad and it is so bad I cannot answer that.

40 Q. You mean it is so bad without the fill? A. It is so bad without the fill.

Q. Now, having in mind that at low tide the current, the tide is running out on the north shore longer than it is running out on the south shore, do you say that under those conditions Seymour Creek has any effect upon the navigation of a vessel going out through the bridge? A. Seymour Creek has this effect upon all vessels going through.

Q. At that stage of the tide? A. At any stage of the tide.

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Cross-exam.
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Cross-exam.
(Contd.)

Q. I am not dealing with any stage, but with one stage at a time. You will listen to the stage. At low tide, which, according to the witness, continues to run out on the north shore, after it has turned and is flooding on the south shore, now, with the tides in that condition, running out on the north shore, and running in on the south shore, do you say at that particular time Seymour Creek had any effect upon the navigation of a vessel that is going out through the bridge? A. I do.

Q. What? A. Because the current from Seymour Creek is deflected more or less across the channel and it affects the steering of the ship. The ship starts wiggling before she gets to the bridge. We always had that before there was a bridge. We had to consider Seymour Creek. 10

Q. You mean to say Seymour Creek reached the channel you were navigating in before the bridge was built? A. I do.

Q. How much more north of the present channel was that one, and how much closer to Seymour Creek now? A. The main channel is no more closer to Seymour Creek now than it was then.

Q. I did not ask you that. I asked you about navigating the channel, which you understood very clearly? A. Which channel? 20

Q. The channel which you line up with to get through the bascule span? A. A vessel going through the bascule span is further away.

Q. Now? A. Yes.

Q. Since the bridge was built? A. Since the bridge was built.

Q. Then your experience of the effect of Seymour Creek before the bridge was built and when you ran in the channel closer to her are not what is guiding your opinion now? A. It is practically the same. The stream from Seymour Creek, running across the channel, causes a ship to swerve one way or another, first on her bow and then on her stern. 30

Q. What you mean to say is, the effect of the Seymour is to penetrate across the arm of the sea sufficiently south to hit a ship that is heading for the bridge? A. Yes.

Q. That is what you mean to say? A. Yes.

Q. Then you see where that leads. You have two conflicting forces, a tide north-easterly off the south shore and a current coming southerly from the north shore, is that the condition you want us to understand you navigate in at the present day? A. Yes, but they are two very different conditions. The current from the south shore is solid salt water, a huge quantity of it; we don't know how much. The current from Seymour Creek is a little superficial fresh water on the top of the channel, which just causes a ship to wobble a little, but may not affect the body of the ship at all. 40

Q. It is really a matter you are not much concerned with?
A. No.

Q. Well, let us forget it. A. No, we must have it in consideration. If there is a lot of rain, I am going to consider Seymour Creek affecting my steering very much.

Q. Then we had better not forget it? A. We had better not forget it.

Q. Then it is a matter of some concern after all? A. In some circumstances.

10 Q. You would have to withdraw the remark you made a little while ago, tighten up a little on it. It is muddy water, is it not, when Seymour Creek is flooding that you observe coming into the sea? A. More or less; but the whole North Arm is so muddy you cannot distinguish it much.

Q. You cannot distinguish it? A. No.

Q. I thought perhaps you could. The lady who was here this morning can tell it by muddy colour? A. Perhaps at a height on the land where she lives. Looking from an airplane, you might see the colour much more definitely than if only a few feet above

20 it.

Q. However, you say it has a superficial surface effect? A. Yes.

Q. That, perhaps, describes it, a superficial surface effect, and would be taken up considerably by the ebbing tide, I take it. Would that not be correct? A. In the middle of the ebb, yes, when the ships are not using the bridge it would, but at slack water it would not.

30 Q. Well, that would depend; there is slack water on the south shore. I have got you definitely there, you know. It is slack water on the south shore which you are speaking of and the ship is navigating in. And another witness tells us that is an ebb tide on the north shore? A. Yes.

Q. So that is not slack water. That is the point I am making. You see the point. Slack water on the ship that is navigating the bascule. It is in conjunction with an ebb tide on the north shore, according to the evidence we have here, and that would have the effect of counteracting considerably the superficial current of the Seymour, would it not? A. Yes.

40 Q. No question about it, and at any rate the current of the Seymour is really not noticeable during the summer time? A. No, not in dry weather.

Q. It is only in freshet times? A. Yes.

Mr. Griffin: Will your lordship take one more witness tonight?

The Court: If you have a short witness.

Mr. Griffin: He is a captain of one of the oil tankers.

The Court: Q. Well, pardon me, witness. Just one ques-

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. S. Guns
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 T. S. Guns
 Cross-exam.
 (Contd.)

tion. I want to see if I have you correctly. You spoke of taking a vessel out drawing 25 feet, and it would be reasonably safe to take her out at high tide, or on a tide that showed how many feet at low water? A. Not less than six.

The Court: I have got that; thank you.

Mr. Smith: Q. When did you form the conclusion it was not safe to take a loaded ship out with the tide at low water slack?

A. After my experience with the "Norwich City."

Q. That was subsequent to the "Eurana" collision? A. Yes.

Mr. Donaghy: That is something new.

10

Mr. Smith: No, you brought it out.

Mr. Donaghy: May I examine upon that, if not strictly within my rights.

The Court: Yes.

Mr. Donaghy: Q. Was your experience with the "Norwich City", outside of what actually happened, you see, such as to indicate that different conditions existed on that trip of the "Norwich City" than what you had ever found in the previous years you have navigated this bridge? A. For a very peculiar reason. It was the first time I had ever come to the bridge at such a low tide. My experience—

The Court: Now, just speak a little plainer.

Mr. Donaghy: Q. You had better repeat that answer? A. For a peculiar reason, that it was my first experience going out with a loaded ship at such a low tide.

Q. Have you any doubt whatever that if you had previously come out with a ship loaded like that was, at the same state of the low tide, that you would have found the same difficulty. Have you any doubt you would have found it? A. No doubt at all. I would not have come with the "Norwich City" if I had had that experience previously.

Q. Have you any doubt that any capable pilot who had previously come out with a loaded ship like the "Norwich City," or even more loaded, at a similar state of the tide, would have found out the danger, if he had been a capable navigator? A. I cannot tell what another man would find out.

Q. If he had been a capable navigator, I said? A. Would he have found that same experience?

Q. If he had been a capable navigator, like you were?

A. Yes.

40

Mr. Donaghy: All right.

(Witness aside)

JAMES BROWN, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. Captain, you live in Vancouver? A. I do.

J. Brown
 Direct.

Q. And you are a master mariner? A. I am.

Q. And briefly what sea experience have you had? A. I went to sea first in 1913 and with the exception of the period of the war I followed the sea ever since.

Q. And you are now in command of the steamer what? A. The "Ontario Light." Pardon me, I am on my vacation at the present time. I just left that command.

Q. You are now on vacation? A. Yes.

Q. What trade were you on in the "Ontario Light"? A. I was trading up to Ioco.

Q. That is through the Second Narrows? A. Through the Second Narrows.

Q. Under the bridge? A. Yes.

Q. Did you pass east with loaded vessels? A. Pass east, yes.

Q. Loaded? A. Sure.

Q. What does the "Ontario Light" carry? A. Oil, crude oil.

Q. To Ioco? A. Yes.

Q. You would pass loaded— A. And I have also passed loaded too when I was in the "Mina Brae;" that was my previous command.

Q. You have passed west with a loaded vessel? A. Yes, I have passed both east and west.

Q. How many times have you passed through the Second Narrows since the bridge was built? A. Since the bridge was built—let me see—at least twenty times.

Q. Of those times how many times were on loaded vessels? A. Well, every time, you would say—half of that, you would say.

Q. Half of that would be with loaded ships? A. Yes.

Q. What would they be drawing? A. The "Mina Brae" would be drawing about twenty-five feet and the "Ontario Light" her deepest draft would be about twenty-eight feet.

Q. You were on the "Mina Brae," were you, before you joined the "Ontario Light?" A. Yes.

Q. What position is the bascule span of the bridge with reference to the fairway through the Narrows? A. Well, I don't consider it is in the fairway at all. The proper fairway for deep loaded ships has been closed up. I traded through the Narrows before the bridge was built. I always had control of my vessel and on the 22nd of April, 1925, there was a 300 foot span of navigable channel and I had to go through that bascule span.

Q. You will have to speak a little more slowly so we may understand you? A. Well, on the 22nd of April, 1925, I came into Vancouver with the "Mina Brae" and I found that the middle span had a 300 foot bridge across it.

Q. You found the ordinary fairway up the channel was closed? A. Was closed.

RECORD

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Defendant's
Case

J. Brown
Direct.

(Contd.)

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British Columbia
Admiralty Dist.Defendant's
CaseJ. Brown
Direct.
(Contd.)

Q. By the bridge? A. Yes.

Q. And there was a fixed span built over the fairway? A. Yes, exactly, and I had to go through the bascule span to the south of it.

Q. And you say that the bascule span is not in the fairway? A. It certainly is not in the fairway for deep sea ships.

Q. Is it in a proper position or improper? A. An absolutely improper position.

Mr. Burns: I think this witness evidently is going to take some time. He said he was on vacation. I understood he wanted to get back to his ship. 10

Mr. Smith: I can be through with this witness, my lord, in seven minutes from now.

Mr. Donaghy: We cannot.

The Court: Do you think you can finish in twenty-five? It all depends, you know. We will get on and see how long you take.

Mr. Smith: Q. What conditions do you find at the bridge at slack water, at low water slack with reference to the tides and the currents that may run there? A. Before the bridge was there there certainly was a condition of slack water, but my experience is there is no such thing as slack water since that bascule bridge has been there. 20

Q. Speak slowly? A. I cannot say I have ever found slack water at that place.

Q. Well, say you were coming down with a loaded ship going west? A. Going west?

Q. At low water slack, what current would you experience? A. Low water slack?

Q. Yes? A. Well, coming down at low water slack I would come to Berry Point; I have found that from the span at Berry Point, I have always found a northeasterly current at low water slack. That is the result of the flood tide coming in on the south shore. That is the conclusion I have come to. 30

Q. As you approach the bridge what do you find? A. It is an even more forcible set right across the bridge span there.

Q. That would be in what direction? A. At the bridge span there, at low water; you find a very strong force setting across the narrows there.

Q. What compass directions? A. It would be northeasterly. 40

Q. What effect has the shoal upon the south shore just to the east of the bridge? A. That is very bad. That is the reason I do not consider that a navigable channel. No seaman would attempt to take a ship close to a shoal spot like that who has had any experience with handling a deep-sea ship.

Q. Is it necessary to take a ship close to that shoal in order to get through the bascule span? A. Yes, you have got to. There is no option.

Q. Now, you have had considerable experience taking ships through the draw? A. I should think I have.

Q. Have you had any accidents or near accidents? A. Well, I have had quite a few thrills and I have a few what I call serious accidents.

Q. Would you describe them? A. Yes, on the 9th of January, 1926, I was in the "Mina Brae." I was coming in. It was high water slack at 10 p.m. and approaching the bridge I signalled for the bridge to open. The bridge opened; it was misty weather
10 or hazy.

Mr. Griffin: I cannot hear a word.

The Court: You speak very indistinctly, witness, and then you speak in addition to that very quickly and between the two it is difficult to understand.

The Witness: I will speak slower, my lord.

The Court: There is difficulty in following you.

The Witness: Well, I approached the bridge on January— have you got that date?

Mr. Smith: Never mind. A. I gave the signal for the
20 bridge to open and the bridge opened almost immediately and the ship was going half speed and as I got near the bridge we noticed, well, within about half a mile a red light was against us. Then we had a ship coming on the other side, so I ran the ship ashore to the southward to avoid a collision with this ship. At the same time there was a gas boat taking a tow through the centre span. That was my first accident there.

Q. Now, what was the next accident you had? A. On the 25th of February, 1926, I came in—

Q. Is that the same ship? A. The "Mina Brae." I came
30 into Vancouver Harbour at 11:30 p.m. at night and I proceeded towards the bridge and gave the signal for the bridge to open, but there was a delay in opening the bridge of about twelve minutes. As a result, I had to stop my engine and the ship lost steerage way. I was headed towards the south shore. I was headed towards the south shore into the bay there. When the bridge commenced to open I gave her slow ahead and I headed her up the bridge and got her in position and then I found that she kept going towards the north span of the bridge, the bascule span, so I put the helm hard aport to get her centred for the draw, but it had no effect
40 upon her, so I just kept gradually going towards the north buttress, so I saw then the position I was in, getting so close to the bridge; it was impossible to get through the draw, so I let go my anchors, rang full speed astern on my engines and the ship canted all right. She canted square for the draw and then an eddy caught her with quite a force and the anchors dragged. I immediately rang the engines full speed ahead again and my helm was still hard aport. I could see that the stern of the ship was not going to foul

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CaseJ. Brown
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 J. Brown
 Direct.
 (Contd.)

the north buttress, so I thought I had better make the helm hard starboard and her stern missed the north buttress of the bascule span and her stern passed under the draw and we came up against the south buttress of the bascule span and the main mast fractured and I also received indents to the shell plates.

Q. Well, now, Captain, I will repeat that. I will interpret that for you and see if I have it right. This was the second accident you had with the "Mina Brae?" A. Yes.

Q. You said that the delay in opening the bridge caused your ship to lose her steerage way? A. Yes. 10

Q. Then you said there was a failure to open for some time after you had given the signal? A. Yes.

Q. And it was low water slack and what were you drawing at the time? A. Twenty-five feet.

Q. The ship lost steerage way? A. Yes.

Q. And you were thrown against the south pier? A. Yes.

Q. Did you hit the north pier first? A. No, I cleared the north pier.

Q. You had been trying to clear the north pier and your stern swung around and you struck the south pier? A. Yes. 20

Q. And you did damage to the plates of the ship? A. Yes.

Q. Had you any other accidents or near accidents. Before leaving that second accident, by the way, what caused it? A. Well, the undercurrent. There was quite a flow of water and the ship would not answer her helm. It is a fine steering ship, and I was not going to take my vessel through full ahead. I knew from my knowledge of the ship if she did not answer half ahead—

Q. You are going too quickly. Try to keep yourself in hand. The trouble was caused by the undercurrent? A. Yes.

Q. This undercurrent was carrying from where? A. From 30 the south shore.

Q. From the south shore? A. Yes.

Q. Was it striking against anything? A. No. Well it must have been on the ship. It was carrying the ship along with it.

Q. It was carrying the ship in a northerly direction? A: Yes, she passed you know the centre of the draw and kept eastward gradually pointing to the north buttress.

Q. Was that current you referred to the first of the flood tide? A. Yes. 40

Q. That is what it was? A. Yes.

Mr. Burns: You had better ask him what the stage of the tide was.

The Witness: Low water slack.

Mr. Smith: Q. What other accidents have you had? A. I have had many narrow escapes. On the 27th of February I witnessed an accident to the bridge.

Q. Well, you have not had any other major accidents to your ship? A. No.

Q. You have had many near accidents? A. Exactly.

Q. Do you know the fill in at the south end of the bridge? A. Yes.

Q. What effect has that fill in on the tide? A. It deflects it across the bridge in a northeasterly direction.

Q. Take the flood tide, what effect has it upon the flood tide?

A. The flood tide coming up strikes that fill and shoots it across the bridge, the bridge opening.

Q. When you were proceeding east on a loaded ship what experience have you had of the manner of steering your ship? A. I have often found after I get the ship through the bridge I have to put my engines full ahead, and I have had to put my helm hard aport to keep her from sheering over to the north shore and I have seen it as far as Berry Point.

Q. What causes it? A. An undercurrent northeast.

Q. Being deflected from the fill in? A. Exactly, yes.

Q. Have you experience of the same set going westerly? A. Yes, I have experienced the same set, yes.

Q. In your opinion is the bridge an obstruction to navigation? A. Yes, I have always been of that opinion.

Q. Is it a menace to navigation? A. Absolutely a menace.

The Court: Would you like to adjourn?

Mr. Burns: I would like to take this witness over these accidents. I think it will take some time.

The Court: I think perhaps, then, we had better adjourn. It will take too long. Adjourn then until Monday, a quarter after ten.

30 (COURT ADJOURNED AT 4:40 P.M. UNTIL 10:15 A.M. OCTOBER 1, 1928.)

October 1, 1928.
10:30 a.m.

(COURT RESUMED pursuant to adjournment).

MERVYN S. BRYAN, Sworn as Stenographer.

JAMES BROWN, Resumes the Stand.

CROSS-EXAMINATION BY MR. BURNS: (Cont'd.)

Q. Now, Captain, you were on the "Mina Brae," Captain of the "Mina Brae?" A. I was, yes.

40 Q. For some time? How long? A. From April, 1924, until June, 1926, and from October, 1926, until November, 1927.

Q. And then you changed and you are now with the "Ontariolite?" A. Yes.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. Brown
Direct.
(Contd.)

J. Brown
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 J. Brown
 Cross-exam.
 (Contd.)

Q. How big a ship is the "Mina Brae?" A. 360 feet in length.

Q. Beam? A. 47½.

Q. How big a ship is the "Ontariolite"? A. 460 feet. I have photos if you wish to see them.

The Court: What is the name?

Mr. Burns: "Ontariolite". "Lite" follows "Ontario." It is a peculiar combination.

The Court: Yes, a strange compound word. I was not sure that I had it. 10

Mr. Burns: Q. How long is it? A. 460 feet.

The Court: The other is 360 feet, the "Mina Brae". A. exactly, yes.

Q. Yes, the beam is what? A. 63 feet.

Mr. Burns: 63 feet.

The Court: Yes.

Mr. Burns: Q. Now, have you—did you go up through the Narrows before the bridge was there, on the "Mina Brae?" A. While the bridge was being built I went.

Q. But not before? A. No, I went through on another 20 ship.

Q. I am talking about the "Mina Brae" now? A. Yes.

Q. Did you go through the Second Narrows on any other ship before the bridge was there? A. Yes.

Q. What ship? A. The S. S. "Albertalite."

Q. That is "Lite" added to "Alberta", the name of the Province? A. Exactly.

Q. How many times? A. Ten.

Q. What was that? A. Ten.

Q. Previous to the bridge there? A. Yes. 30

Q. That is ten trips? A. Ten trips; that would be five trips.

Q. Any other ships? A. Not before the bridge was there.

Q. What is the size of the "Albertalite"? A. I can only give it approximately now.

Q. Well, approximately? A. She would be 400 feet in length, and I suppose 63 foot beam, slightly smaller than the "Ontariolite."

Q. Are they the only ships that you have taken up there? A. No, I have taken the "Imperial" up there. 40

Q. When was that? A. After the bridge was built.

Q. The only one before was the "Ontariolite"? A. Yes, I was not the master, I was Chief Officer.

Q. I was going to ask you that. You were Chief Officer? A. Yes.

Q. You have not taken a ship up there as Master previous to the bridge being built? A. No.

- Q. You were Master when the ship went up, that you went up on, during the construction, or were you Chief Officer? A. I was master of the "Mina Brae."
- Q. Of the "Mina Brae"? A. Exactly.
- Q. So you only went up once during construction? A. Once during construction.
- Q. Yes? A. No, I went up many times during construction.
- Q. On the "Mina Brae"? A. On the "Mina Brae."
- 10 Q. Now, on the 9th of January, 1926, you spoke of having this difficulty at the bridge? A. Yes.
- Q. With the "Mina Brae"? A. No.
- Q. What is that? A. Yes, with the "Mina Brae."
- Q. The 9th of January, 1926? A. Yes.
- Q. Were you in charge of the "Mina Brae"? A. Yes.
- Q. There was not a pilot aboard, you were handling the ship yourself? A. With the pilot's assistance.
- Q. There was a pilot aboard? A. Yes.
- Q. And you signalled for the bridge, did you? A. Exactly,
- 20 yes.
- Q. Before you signalled for the bridge—how did you signal? A. Gave the usual three blasts.
- Q. Before you gave those three blasts, had you heard any other signalling or blasts? A. No.
- Q. How far were you from the bridge when you gave the signal? A. We would be about half a mile.
- Q. And then you kept on? A. Yes.
- The Court: Q. Coming out to the west, I suppose? A. No, going from the west to the east.
- 30 Mr. Burns: Q. Going from the harbour through the Second Narrows? A. Yes.
- Q. How was the visibility? A. Above the bridge only one mile. When we came through the Narrows it was quite foggy.
- Q. You mean the First Narrows? A. Yes, the First Narrows it was quite foggy there, and when the fog cleared away we could see six miles astern, but above the bridge we could only see one mile.
- Q. You were about a mile from the bridge, and you gave the signal and you could see one mile east of the bridge from there?
- 40 A. Yes, no more.
- Q. That is about two miles? A. Yes.
- Q. This would be about 1:10 p.m.? A. Yes.
- Q. High water slack? A. Yes.
- Q. Did you get any signal from the bridge in answer to your signal? A. Yes, we saw a red light.
- Q. What does that mean? A. That means that your signal has been received.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 J. Brown
 Cross-exam.
 (Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. Brown
 Cross-exam.
 (Contd.)

- Q. That your signal has been received? A. Yes.
- Q. Then you saw the bascule open? A. Yes, almost immediately.
- Q. Were you not surprised at how quick that leaf went up?
- A. Yes, it was most unusual.
- Q. It went up most unusually quick, so far as the relation to your signal was concerned? A. Yes.
- Q. Very quick? A. Yes.
- Q. Then did you get any further signal from the bridge?
- A. No, no further signal. 10
- Q. You could see the red light, the accepting light in the first place? A. Yes.
- The Court: He said 1:10 p.m. Does he mean p.m. or a.m.?
- Mr. Burns: Day time.
- The Court: The hoister displays the red light in the day time as well?
- Mr. Burns: Yes.
- Q. They use the red and green lights during the daytime as well on the bridge? A. Yes.
- Q. You got the answering red light? A. Yes.
- Q. And kept on? A. Yes. 20
- Q. Did you get any other light? A. No.
- Q. You saw the leaf go up and the bridge opening, did you?
- A. Yes.
- Q. Why didn't you pay attention to the proposition of getting another signal from the bridge? A. I certainly did pay attention. They should have kept flickering the light off and on to inform me to keep away from the bridge, which was never done.
- Q. Did you see a green light after the red? A. No, I saw no green light.
- Q. And a green light is necessary before you can go on, isn't it, after you get the red accepting light? A. Yes. 30
- Q. He says "Your signal is received," that is what the red light means? A. Yes.
- Q. Then you wait for the green light before going through?
- A. There is no such thing as waiting, you couldn't wait there.
- Q. The green light, the second signal from the bridge, is to show you that everything is in order and to make your passage?
- A. Yes.
- Q. If you don't see the green light there is something wrong?
- A. How long are they going to take before the changing of the lights. 40
- Q. Never mind that. There is something wrong if you do not see the green light? A. Not necessarily.
- Q. The man must be asleep on the bascule, because he was not giving a light that you would expect to see? A. That is quite probable.

Q. You did not see any green light and you kept on. Now do you say that the red light was not flashed to prevent you coming on? A. Exactly.

Q. You have said that? A. Yes.

Q. Beyond any question? A. Yes.

Q. When you got the red light was it just steady? A. Steady, yes.

Q. And kept steady? A. Kept steady.

Q. No flickering or flashing? A. No flashing, going out
10 and on.

Q. I suppose the leaf was up when you were how far away from the bridge? A. I should say about six tenths of a mile, six cables.

Q. You gave a signal about ten cables or a mile away? A. Yes.

Q. And the leaf was up when you were about six tenths of a mile away, or would you be seven tenths? A. No, I said six tenths.

Q. Or five tenths? A. No, I said six cables.

20 Q. I am putting this to you, Captain, on the statement from me that evidence will be given with reference to it that a series of flashes on the red signal lamp were given, continuing two minutes against your boat which you did not acknowledge and still came on and after a short pause again continued flashing the red signal lamp and the boat still continued to approach. You say that did not occur? A. Positively.

Q. There is no question about it? A. There is no question. It is impossible for a man from that stand to see that light as to whether it is flashing or not.

30 Q. What is that? A. I don't see how a man on the span could see the light, from where we were.

Q. What do you mean? A. He could not see the way the light was flashing to us. It is impossible for a man to see whether it is flashing or not up on top of that bascule.

Q. He would not know whether the light was flashing or not? A. He has no guarantee that we are seeing the light.

Q. That has no bearing on it, Captain? A. He might have been pressing a button, but he does not know whether that light is showing to me, or not.

40 Q. Therefore you think that he is mistaken? A. Exactly.

Q. At any rate, so far as you are concerned, it was not flashing. All you got was a steady red signal? A. Yes.

Q. Then you got up and you found out what the trouble was. The bridge had opened for a ship coming west on a bit of a flood tide. The tide was with the ship coming west? A. Yes, I had the tide coming with me.

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CaseJ. Brown
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 J. Brown
 Cross-exam.
 (Contd.)

Q. High water slack, just running out a bit? A. No, it was not. The flood was with me, the last of the flood.

Q. There again, if it is stated it was running out, that is a mistake so far as you are concerned? A. Certainly, from where I was, yes.

Q. At any rate, there was a ship coming out, the "Harold Shang". You know the ship? A. Yes.

Q. The bridge opened for her, and you were being flashed away. That is the evidence that is going to be given? A. Yes.

Q. That is all wrong so far as you are concerned? A. Yes. 10

Q. And then when you saw this boat coming through you beached your boat. That is the only thing you could do, I suppose, then? A. Yes.

Q. What distance was the "Harold Shang" from the bridge when you first saw her? A. She could not have been any more than a mile above the bridge.

Q. When you first saw her? A. Yes, that is the furthest distance it could have been.

Q. You must have been a mile below the bridge? A. Less than a mile. 20

Q. How much less? A. When I heard her whistle I would be about four tenths of a mile away.

Q. Four tenths of a mile? A. Yes.

Q. And you could see her a mile above the bridge? A. No, I said I heard her whistle. I heard her whistle first and I took action then. When I did see her masts she would be a mile away.

Q. Now on the 25th of February, 1926, you gave another instance of difficulties with the bridge on the "Mina Brae"? A. Yes.

Q. Were you in charge? A. The same ship, yes. 30

The Court: Yes, this is—

Mr. Burns: 1926, the 25th of February, 1926.

Q. That was about 11:30 p.m. at night? A. Exactly.

Q. You were going east, that is, you were going up the narrows? A. Yes.

The Court: What ship is this?

Mr. Burns: The "Mina Brae", the same ship, my lord.

Q. When did you signal, that time, for the bridge. Where were you? I am given to understand you were just past the elevator dock. Would that be about right? A. Will you repeat that question, please. 40

Q. Where was your ship when you signalled for the bridge on this occasion? A. About at the Terminal Dock.

Q. Just about abeam the Terminal Dock? A. Yes.

Q. Can you show me on this map about where you were, Exhibit 8? A. Have you an admiralty chart. I prefer an Admiralty Chart.

The Registrar: Exhibit 7 is the Admiralty Chart.

Mr. Burns: Q. Come to a point where you think you were and give it in evidence. You can give it to me approximately any way? A. Not more than a mile. That would be about there where I would be.

Q. Will you make a mark there, on Exhibit 7? A. Yes. (Indicates).

The Court: Mark it "B," a black "B."

Mr. Burns: Mark it "B," my lord?

10 The Court: Yes.

Mr. Burns: Q. Now, where is the Terminal Dock from there? A. The Terminal Dock is here somewhere?

Q. Ashore from there? A. Yes.

Q. That is about a mile from the bridge? A. Yes.

Q. You gave the signal? A. Yes.

Q. And what did you get back? A. Got the red light.

Q. And then, did you get anything else? A. No.

Q. Didn't you get the green light? A. No, I signalled again for the bridge. I signalled twice.

20 Q. Where were you when you signalled the second time? A. We should be, the second time probably we had gone half a mile further on and we signalled again.

Q. Half a mile further on you signalled again? A. Yes.

Q. Did you get any signal from the bridge? A. The red light was showing and cars were running over the bridge.

Q. Did you get any green light at all? A. No, no green light at all.

Q. No answering signal except the red light from the bridge? A. Yes.

30 Q. Was there any movement to open the span? A. No, my engines were stopped.

Q. There wasn't an attempt to open the bridge at all? A. No, no attempt.

Q. So, you could not go through. What did you do, go ashore? A. No, I did not.

The Court: Speak up, you drop your voice.

Mr. Burns: Q. What did you do? A. I kept drifting up towards the bridge.

40 Q. What happened? A. After the second signal the bridge commenced to open.

Q. And you say you were about half a mile from the bridge at that time, were you? A. Yes.

Q. And did the bridge completely open? A. Yes, continued to open.

Q. Did it become completely open? A. Yes.

Q. How near were you to the bridge when it opened completely? A. I should say about four tenths of a mile.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

—
J. Brown
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. Brown
Cross-exam.
(Contd.)

Q. On looking back at that instance, Captain, would you agree that you were pretty close to the south shore and were making that passage closer to the south than ordinarily? A. Not necessarily, no.

Q. Would you agree to that? A. No.

Q. If anything, you were pretty close to the south as compared with your ordinary— A. Not at all.

Q. Exactly the same, was it? A. Exactly the same.

Q. Then of course you would say it was absolutely a mistake—any evidence to the effect that the bridge was completely open 10 when you were a mile away? A. Exactly, that is a mistake.

Q. That could not be? A. No, that could not be.

Q. When was it you gave up the command of the "Mina Brae"? A. November, 1927.

Q. She has gone through that bridge a lot of times since then? A. Exactly.

Q. Without any difficulty at all? A. No, not without difficulty.

Q. Has there been any accident or difficulties? A. Fortunately no accidents but plenty of difficulty. 20

Mr. Griffin: I cannot hear you, Captain.

Mr. Smith: I cannot.

Mr. Griffin: You might as well be in the next room for all I can hear. A. The "Mina Brae" has gone through many times with difficulty, but fortunately there were no accidents.

Mr. Burns: Q. Now you say the result of the bridge being put across the Second Narrows has brought about a condition where there is absolutely no slack water left? A. That is my contention.

Q. That is, before the bridge there was slack water at various 30 times in the Second Narrows, but now that the bridge is there there is no such thing as slack water? A. Yes.

Q. Ever since? A. That is my contention.

Q. That is your statement. It is facts that we want from you? A. Yes, that is my experience at the draw, that there is no slack water.

Q. When you use the word "contention", is that because you have the contentions of different people, because of these difficulties and accidents? A. Not at all. It is my own experience going 40 through.

Q. You have come to the conclusion that there is no slack water there at all. It is all gone? A. Yes.

Q. And you also have stated in the box here that the bridge is right across the fairway, that there is no fairway there now? A. No fairway for deep sea vessels.

Q. That is to say, the ordinary fairway that existed before the bridge for deepsea vessels does not exist any more. It is closed up with the fixed span? A. Exactly, yes.

Q. Those two statements, you have nothing to discount about them? A. No.

Q. The fairway is gone, and all slack water is gone as a result of the bridge? A. Exactly, yes.

Q. Before there was a bridge, do you know from your experience, did they go at all stages of the tide up the Second Narrows? A. Yes, the ships I was on. We went through at any time before the bridge was there.

10 Q. I am asking the stages of the tide? A. Yes, any stage of the tide.

Q. Any stage of the tide? A. Yes, while the bridge was being built I took the "Mina Brae" through practically any stage of the tide.

Q. Leaving out the question of when the bridge was being built, before the bridge was built, deepsea vessels would go up there at any stage of the tide, that is so? A. From my experience, yes.

20 Q. I know, I am trying to test your experience a little bit. There is going to be some unpleasant evidence with reference to these statements you are making now. At all stages, deepsea vessels, from your experience, could use the Second Narrows, up and down? A. I know from the ships I went through. I don't know any other ships.

Q. You went through all stages of the tide? A. Yes.

Q. Another statement, as to this undercurrent—you say that the undercurrent exists as far as Berry Point. In the first place, when does it exist? A. I have experienced that current on the ebb tide when it is supposed to be low water slack by the table, I have experienced that current.

30 Q. As far up as Berry Point? A. I have experienced it there.

Q. From the bridge to Berry Point? A. Exactly, yes.

Q. And where would it be ebbing when you experienced this current? A. Generally it ebbs on the north side.

Q. It would be ebbing on the north side? A. That is what happened at low water.

Q. Ebbing on the north side and a current on the south side? A. Yes.

40 Q. Would that give a surface current, or an undercurrent, or a whole current? A. I should say it is a whole current underneath.

Q. What is there on top, any evidence of the current on top? A. Yes, you always find eddies around there at low water.

Q. Do I understand you right when you say it is ebbing on the north shore after low water slack, but flooding on the south shore? A. Yes, I have found that there.

Q. And the flood consists of a general set of the tide which

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. Brown
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. Brown
 Cross-exam.
 (Contd.)

includes all the parts of the water on the south side? A. Not necessarily. You cannot say with any degree of certainty.

Q. Isn't this so, if it does not show on the surface, this current going with the flood, or which is a flood, it won't be very strong unless it shows on the surface, isn't that so? A. Not necessarily.

Q. It does not need to show on the surface and yet be strong?
 A. Yes.

Q. As a definite current? A. As a definite set in a certain direction. 10

Q. You say that occurs all the way up to Berry Point? A. Yes.

Q. Then if that is so it is simply a current setting in from the south shore all along? A. It is a flood tide.

Q. Setting in from the south shore all along? A. Exactly.

Q. That is all.

Mr. Smith: May I ask one question, my lord.

The Court: Yes.

Mr. Smith: Q. Captain Brown, you were in court when Captain Wingate gave evidence? A. I was. 20

The Court: Who?

Mr. Smith: Captain Wingate, the pilot on the "Eurana."

Q. Did you hear his description of the navigation of the "Eurana"? A. Yes.

Q. In your opinion, was that navigation proper? A. Yes, quite proper.

Q. How could the present bridge be made reasonably safe for navigation? A. If they shifted the bascule span and widened it.

Mr. Burns: This is new evidence. I did not deal with this. 30

Mr. Smith: I admit that it is a question I intended to ask on my examination in chief, and I ask the court's indulgence now.

The Court: You wish to ask him what, Mr. Smith?

Mr. Smith: How the present bridge could be made reasonably safe for navigation.

The Court: Are we really concerned with that?

Mr. Smith: I will put it in another way.

The Court: Yes, that looks as if you were going into something beyond that. That is a tremendous thing. That might be done in another way. We might arrive at perfection. 40

Mr. Smith: I could ask the witness in what way does the present bridge obstruct navigation.

A. Well, from my study of the water and the effect of tidal currents, I fairly expected there would be different conditions there when that bridge was built. The result has been that the flood tide comes in and strikes against the south end of the bridge. It has increased the velocity of the current there and has also set

the tidal current across the bridge, so in that respect it has made the tide and current much stronger on the south shore where the draw span is. There is a far stronger current there than there ever was before the bridge was there.

RECORD
British Columbia
Admiralty Dist.

Q. In what other way does it impede navigation? A. In what other way does it impede navigation?

Defendant's
Case

Q. Yes, in reference to the position of the span? A. Ships have got to approach the south shore too close.

J. Brown
Cross-exam.
(Contd.)

Q. Then, you say the present span is improper in what way?
10 A. Large ships go through, going through are never under control.

Q. How could that be overcome? A. If they made a 300 foot fixed span. If they made it a draw span or bascule span there would be no difficulty. I went through many times before the bridge was there at full speed.

Q. If they make the present 300 foot span into a bascule span the bridge then will be more or less satisfactory? A. Yes, the difficulties of navigation would not be so bad.

Mr. Smith: All right, thank you.

20 (Witness aside).

Mr. Smith: May it please your lordship, Captain Guns, who was the last witness on Friday afternoon, and who preceded the present witness, wishes to make a statement if your lordship wishes to hear it.

THOMAS SALTER GUNS, recalled, testified further as follows: T. S. Guns
Direct.

The Registrar: You are still under oath.

The Witness: Yes. Your lordship, I was laboring under a mistake in my evidence on Friday afternoon. I was of the belief or impression which was further impressed on me by the way the
30 questions were put that this fill referred to was put in at a much later date than the construction of the bridge, and my evidence was more or less along that line. Now, I wish to explain that mistake. I don't wish to withdraw any words, only that when I referred to construction I was referring to what they call the fill. I thought they were referring to a later fill. I think my evidence will fall in with that, that the construction did divert that current in a north-easterly direction.

The Court: You say that you wish to correct your evidence to have it read on the understanding that when you spoke of construction you meant what? A. The fill.
40

Q. What fill now, exactly, and when made? A. Made with the bridge, as part of the bridge; the fill this gentleman asked me about.

Mr. Smith: Q. You mean the fill at the south end of the bridge? A. Yes.

The Court: Q. Look at Exhibit 8 and say what you mean, so that there will be no mistake? A. I referred to the fill here.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 T. S. Guns
 Direct.
 (Contd.)

Q. Do not say "here." You have a large number of piers with numbers on them. Just look and say what you mean and give the number of the pier? A. I refer to the fill in the neighborhood of pier 5. What I wish to clear up—I was under the impression that a fill was put in at a much later date from the questions asked me, and my evidence was on that line. I think my evidence will bear me out. It is the construction of that fill—I did not call it the fill, but I said through the construction the current was diverted.

Q. You thought that fill or construction as you called it was put in at a much later time? A. Yes. 10

Q. What do you mean by that? A. I know when the bridge was built but I never had any information when the fill was put in, and from the questions put to me I was of the impression that the filling was a much later date than when the bridge was first constructed.

Q. You thought then, after the bridge was open for navigation and it was supposed to be completed, you thought then when giving your evidence that nevertheless a further fill had been made after it had been open for navigation? A. Exactly. 20

The Court: Do either of you gentlemen want to ask any questions on that?

T. S. Guns
 Cross-exam.

CROSS-EXAMINATION BY MR. BURNS:

Q. When did you get that understanding, Captain? A. Which understanding?

Q. The understanding on which you gave your evidence? A. No particular time, only it was from the way the questions were put to me.

Q. You are quite familiar with the construction of the Second Narrows bridge and the whole layout up there? A. Yes, 30
 sir, of the water, the channel.

Q. Of the water, and as you are passing by you see the whole thing and all the conditions? A. Yes.

Q. And you were piloting boats up and down there during construction? A. Yes, in the middle of the channel.

Q. The channel is not very wide? A. During construction sir—

Q. Wait, it is not very wide, is it? A. No.

Q. You were up and down there and knew when that fill went in? A. No, sir. 40

Q. Well, now, let us look at that, you did not know when that fill went in? A. No.

Q. You were under the impression that the fill went in a great deal later than the time the bridge was constructed? A. Yes.

Q. How long, a year later? A. I don't know. It was more from the questions that were asked me.

Q. I am asking some other questions now. How long would you say? A. No time at all.

Q. Still a substantial time in your understanding elapsed between the building of the bridge and the subsequent building of the fill? A. From the question put to me—

Q. I am asking about your state of mind with the knowledge you got of the Second Narrows and so on, I am asking, 10 when I thought I got from you a statement which was simply making a little more definite that you were under the impression the bridge was constructed and subsequently in point of time the fill was constructed? A. Yes.

Q. All right, now, then, a certain amount of time elapsed according to your idea between the construction of the bridge and the fill. That is right. Would you say how long that time was? A. No, I cannot answer that because I said in my previous evidence I did not notice any difference while I am using the bridge, but I did notice a material difference when I commenced to use 20 the bridge, which was caused by the fill, but I did not know that the fill was put in then.

Q. When you noticed the material difference caused by the fill you must have known it was put in? A. I did not know. I did not know how it was constructed, whether it was built in a solid wall or what was done.

Q. How have you readjusted your mind in connection with your evidence? Who have you been discussing it with? A. My friend Captain Brown said "I could not follow your evidence about the fill." I asked Mr. Smith about it and he said "I will 30 get you a copy of the shorthand report," and I read it over and I seen where the difficulty was.

Q. You feel that what you said the other day is on an erroneous basis because you feel you gave your evidence direct towards the building of the fill, subsequently, is that it? A. More or less. You will find that it is not erroneous because it fits in with construction.

Q. When did you come to this present conclusion? A. Which conclusion?

Q. The conclusion you have got now. When did you change 40 your idea that the fill was built subsequent to the time of the building of the bridge? A. As soon as I got talking with Captain Brown and Mr. Smith.

Q. That was the first time that you changed your ideas? A. Yes, I realized that it was the fill they referred to.

Q. All the time previous to that you were under the impression the fill was built subsequently to the time of the construction of the bridge? A. I was not under any impression as to that, only the construction of the bridge.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseT. S. Guns
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 T. S. Guns
 Cross-exam.
 (Contd.)

Q. The bridge, the fill is part of the construction of the bridge? A. Yes, and I called it the construction when Mr. Smith asked me what I felt after the fill was put in. I said "What fill are you referring to?"

Q. When giving evidence before you had no idea of the fill. It was the construction of the bridge? A. Yes.

Q. Which was deflecting this current? A. Yes, which was the fill. I did not call it the fill.

Q. You were not dealing specifically in your mind with the matter of the fill at all? A. No. 10

Q. It is the construction of the bridge. And now you are explaining your evidence so that you will be certain it will be understood, that part, the construction of the fill, is that it? A. Yes.

Q. The bridge is one thing, piers, and so on. The effect of the piers on the current is quite understood. If this fill affects the current in the way you suggest, you could easily see it was the fill that did it? A. No, because I don't know what they have done. I have not gone and looked at the bridge particularly so far as the deflection is concerned. 20

Q. You don't know what has been done? A. Exactly; the first time I used the draw I experienced this terrible current.

Q. You have not tied the deflection to the fill, you see what I mean? A. No, to the construction.

Q. To the fill, simply the construction of the bridge? A. Yes.

Q. Did Brown tell you it was the fill that was doing this all the time? A. No, he told me that he could not follow my evidence.

Q. Then inferentially he did, he indicated to you it was the fill that was making this deflection, didn't he? A. No. 30

Q. You are on the fill now instead of the general construction. I want to find out how you got on the fill? A. I said when this fill was put in, that was what was bothering me—I did not know that it was at a subsequent date.

Q. You have been up there time and time again and you paid no attention to the fill? A. No.

Q. And now that Brown has explained to you that it was this fill that was doing the damage you want to see that your evidence is not misunderstood, is that it? A. Yes, am I plain to 40 your lordship?

Mr. Smith: All right, thank you.

(Witness aside).

NELS CHRISTIAN SVANE, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. You are master of the "Eurana"? A. Yes, sir.

Q. What experience have you had at sea? A. I have been going to sea about 1900, about 27 years.

Q. How long have you had a Master's certificate? A. Since 1919.

Q. How long have you been in command? A. Since February, 1922.

10 Q. You were Master of the "Eurana" on the 10th of March, 1927? A. Yes, sir.

Q. Have you ever been through the Second Narrows on the "Eurana" or any other vessel prior to the time that you went through on the 10th of March, 1927? A. Five times.

Q. Where was the "Eurana" on the 10th of March? A. At Barnet Lumber Mills.

Q. And she was lying with her head to the southeast and her starboard side to the wharf? A. Yes.

Q. The "Eurana" is a steamer that was built in 1916? A. Yes, sir, by the Union Iron Works of San Francisco.

20 Q. 450 feet long? A. 56 feet beam and 400 feet between the perpendiculars, about 420 over all.

Q. Her draft when light is what? A. About 14 feet 6 inches aft.

Q. And when fully loaded her draft is what? A. 27 feet 3 aft, with one foot drag.

Q. 27 feet 3 inches aft? A. Yes.

Q. Her engines are turbines? A. Yes.

Q. Turbine engines? A. Yes.

30 Q. Was she completely loaded on the 10th of March or partly loaded? A. Partly loaded.

Q. And her cargo consisted of what? A. 2,400,000 feet of lumber.

Q. What was her draft when she left Barnet that day? A. 25 feet aft and 23 feet 5 forward.

Q. What officers and crew did she carry on that day? A. I was master on the ship, Captain Wingate was pilot, three deck officers, one wireless operator, four engineers, one deck engineer, three oilers, three firemen, two wipers.

40 The Court: Never mind that, it is only the navigation we are concerned with.

Mr. Smith: How many of a crew all told? A. 36 with me. 37 with the pilot.

Q. Where were the various officers and crew at the time you passed Berry Point? At what stations were they all? A. The master, pilot, three officers and the quarter master on the bridge; the chief officer and boatswain were aft on the navigable head, the

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseN. S. Svane
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 N. S. Svane
 Direct.
 (Contd.)

second officer on the poop, the chief engineer and first assistant in the engineer's room.

Q. What time did you leave Barnet? A. We left Barnet we left the wharf at 5:25. Then we had to back out from the wharf and we went full speed ahead at 5:35 heading down towards the bridge.

Q. What course did you take? A. Mid-channel through the Narrows.

Q. Do you remember when you passed Berry Point? A. About 5:53.

Q. At what speed were you going at then? A. About 9 knots, 9½.

Q. Do you remember about then passing a point on the North Shore, passing a buoy on the North Shore? A. A minute or two later.

Q. That would be about when? A. 5:55.

Q. Did you happen to notice the state of the tide at that buoy? A. Slack water, so far as I could see.

Q. Did you whistle to have the bridge open? A. We whistled to have the bridge opened when we passed the buoy.

Q. Did you alter your speed about then? A. About a minute previous we altered to slow speed, slow ahead.

Q. About what time would that be? A. 5:54.

Q. Why did you alter your speed to slow ahead? A. To have the proper speed on the ship at the time that we arrived at the bridge opening.

Q. What is the proper speed? A. Four knots an hour.

Q. What is your speed, your ship's full speed? A. 10½.

Q. What does she do at half speed? A. Between 7 and 8.

Q. And slow speed? A. Four knots an hour.

Q. After ringing down slow speed, what was the next engine movement? A: Half ahead.

Q. And that was when? A. 6:03 p.m.

Q. Where was the ship then? A. A little to the eastward of the small wharf on the north side of the Narrows Channel, about 1700 or 1800 feet from the bridge.

Q. How far? A. About 1800 feet from the bridge, the bascule span.

Q. How were you heading at that time? A. Heading for the south pier or bascule span.

Q. What was her speed then? A. Four knots an hour.

Q. Was there any current. When the ship was in that position did you see any current? A. I did not notice any, sir.

Q. What did the surface look like? A. The surface was smooth.

Q. Up to that moment we are speaking about now, was there any indication you had that an accident might happen? A. No, sir.

- Q. Who was giving orders to the man at the wheel? A. The pilot, Captain Wingate.
- Q. Did you see that all the orders were obeyed? A. Yes.
- Q. Were these orders, in your opinion, correct orders? A. Yes, sir.
- Q. You say you were heading for the south pier. When did she alter that heading? A. When did she alter the head?
- Q. Yes, you told me at half speed she was heading for the south pier. When did she alter and head for something else? A. The pilot set the course for the middle of the draw.
- Q. How long was that after the time when you went— A. —half ahead?
- Q. Yes, do you remember? A. Two minutes afterwards.
- Q. About two minutes afterwards. When the ship was headed for the centre of the draw, was she then approaching the draw at right angles to the bridge or otherwise? A. She was heading a little to the southward.
- Q. A little to the south. So that she would be passing through the draw at a slight angle? A. A little to port.
- Q. Yes, so that she would be passing through the draw at a slight angle? A. At a slight angle.
- Q. What happened after heading for the centre of the draw? A. About two minutes after that again she took a sudden sheer to starboard.
- Q. What time then was that? A. 6:07, sir.
- Q. And how far was the ship from the bridge then? A. About 700 feet.
- Q. And what was done when she took the sudden sheer? A. The engines were put full astern and the port anchors were let go.
- Q. What was done with the helm? A. The helm was put hard astarboard.
- Q. Yes? A. Now, when she took the sheer first we gave her full ahead, hard astarboard, but shortly after—
- Q. Never mind, I am still talking of the sudden sheer? A. She was put full ahead, hard astarboard to try to break the sheer.
- Q. Prior to the moment you put the helm hard astarboard, before that time how was she carrying her helm? A. She was carrying a little starboard helm.
- Q. For what purpose? A. To prevent the ship from taking a sheer to the northward.
- Q. Did you anticipate such a sheer? A. Yes, I have noticed it before going through there. The first time I went through from Vancouver to Dollarton, when I was in the middle of the draw I noticed that she was being set sideways towards the north pier, and the pilot told me at that stage that the ship set to the north.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
N. S. Svane
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 N. S. Svane
 Direct.
 (Contd.)

Q. What stage of the tide was that? A. Just the beginning of the flood.

Q. Then as I understand it, prior to taking this sudden sheer, you were heading a little starboard helm? A. Yes.

Q. And that was to offset any possible set to the north that you might experience? A. Yes, the ship never got it to the south, the pilot told me.

Q. Did the ship carry this little starboard helm, while carrying this little starboard helm, was she steering a steady course prior to this sudden sheer? A. Yes, headed right for the south pier of the bascule tower. 10

Q. How was she headed just before she took the sheer? A. Heading for the middle of the draw.

Q. Did you see the helm put astarboard? A. Yes, I was standing alongside the helmsman.

Q. Are you satisfied that she went right over? A. Yes.

Q. Is your ship a good steering ship? A. Yes.

Q. When was the steering gear last inspected? A. About 20 minutes before we left Barnet.

Q. Was it inspected after the collision? A. Yes. 20

Q. In what order was it found? A. Found in good working order. Of course we could not use the telemotor gear after the collision. We connected up the hand steam gear on the poop right away in case the ship should clear the bridge and we would be able to steer her.

Q. I am still dealing with the time the ship took the sudden sheer; did the operation of putting the helm hard astarboard and full ahead have any effect? A. No.

Q. Did she continue with the sheer? A. She stopped as soon as we let go the anchor. She did not take any more starboard sheer after the anchors were let go. 30

Q. By putting the engines full ahead and the helm hard astarboard did that affect the sheer? A. She continued the sheer.

Q. What did you do next? A. Put the engines full astern and dropped both anchors.

Q. Can you tell me how long the engines were going full ahead? A. Less than a minute.

Q. And how long were they going full astern before you struck the bridge? A. About two minutes.

Q. And when you dropped the anchors, how was the vessel heading, when you dropped both anchors? A. For the middle fixed span north of the bascule span. 40

Q. How far was the ship from the bridge then when you dropped the anchors? A. About 400 feet, a ship's length.

Q. How long was it after you dropped the anchors and going full astern was it you actually struck the bridge? A. About three minutes.

Q. What do you think your speed was when you struck the bridge? A. Not over one mile an hour.

Q. After having struck the bridge did you notice if there was any current there? A. I noticed that the current looked like it had just started setting to the eastward.

Q. Did you notice that in the bascule draw? A. Eh?

Q. Was it in the bascule draw that you noticed the current?
A. No, it was right alongside the ship, under the fixed span.

Q. What, in your opinion, was the cause of the ship taking
10 this sudden sheer? A. The flood tide coming in too early and hitting the south shore just to the westward of the bascule draw and then setting off in a northerly direction across the bascule draw.

Q. Did you say that you had ever experienced this northerly current before? A. The first time I went through, from Vancouver to Dollarton.

Q. You told us then that the ship was setting over to the north? A. Setting sideways over.

Q. In your opinion is the bridge an obstruction to navigation?
20 A. Yes.

Q. In your opinion is it a menace to navigation? A. Yes.

Q. Can you tell me in what way you think it is a menace to navigation? A. It is a menace to navigation because it is on the south side of the fairway.

Q. What is? A. The bascule draw; also, with the flood tide on the south shore and being deflected and running across the bascule draw, that would affect the ship more, when the bascule draw is over to the south, than it would if it was in the middle of the fairway.

Q. Is there any other way you think it is a menace?
30 A. Well, there is a shoal on the south side, to the east of the bascule draw and ships coming from the eastward have to go very close to that shoal to line up properly for the bridge.

Q. That is owing to the position the bascule draw is now in?
A. Yes.

Q. Then if the bascule draw at the time of the accident had been in the position you think it ought to be, namely, where the fixed span now is, would this accident have been avoided? A. Most certainly, sir.

Q. If the fixed span—
40

The Court: Would you mind repeating that?

Mr. Smith: My last question?

The Court: Yes.

Mr. Smith: Q. If the bascule draw had been in the position which the 300 foot fixed span now is, and of similar width to the present 300 foot fixed span, then, could this accident have been avoided? A. Yes, most certainly.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

N. S. Svane
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

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N. S. Svane
Direct.
(Contd.)

Q. Then, my final question is this, if the fixed span instead of being at the present height, if it had been 45 feet high above high water, could your ship have passed underneath it altogether?

A. No.

Q. Would the damage that has been done to your ship have been less? A. Yes.

Q. Because in that event the damage would be what? A. We would not have damaged the smokestack, nor taken the navigation bridge off.

Q. It would have taken the masts? A. Yes.

The Court: You say if the bridge was what, 45 feet from what? 10

Mr. Smith: From high water, that is the fixed span.

The Court: Wait now.

Mr. Smith: I mentioned the height of 45 feet, because that is the height of the bridge given in the plans which are exhibits.

N. S. Svane
Cross-exam.

CROSS-EXAMINATION BY MR. BURNS:

Q. You mean if the bridge had not been there you would not have hit it? A. That is right.

Q. And if it were 45 feet or 60 feet in height and you were not as high as that you would not have hit it? 20

The Court: I did not catch that.

Mr. Burns: Pardon me, my last question was a little facetious.

The Court: You have your back to me. It is not your fault. It is very difficult to hear.

Mr. Burns: Q. If there had been a bascule span at that part of the bridge, at the exact spot where your ship landed, you could have got through the bascule span? A. Gone right through sir. 30

Q. The point with us is you tried to go through the bascule span and landed up at the fixed span? A. Yes.

Q. Your idea is if the fixed span was a bascule span you would have gone through? A. Gone right through.

Q. Are you not overlooking the fact that you would then be steering for the place where you landed. Our position here, Captain, is that you did not navigate it properly. That is our suggestion? A. Navigated as properly as anybody could, in my estimation.

Q. I understand. If you had done the same thing, and were trying to get through the bascule span where the fixed span is, you would not have gone to that place, but to some other place and been in trouble? A. No, we would have been right in the middle of the fairway. 40

Q. Possibly I should not take that line with you, but it struck me when you said that if there had been a bascule span

you would have been all right? A. Yes, we would not have been here today.

Q. But the trouble is you would be steering for that part and if there was no difficulty so far as the current was concerned, you would not land up where you were steering for. See what I mean? A. No, I did not see what you mean.

Mr. Smith: He does not understand that last question.

Mr. Burns: I do not know as he really needs to. It is more argument than anything else. If you desire I will put it again.

10 Mr. Smith: No, not as long as it is clear that he did not understand it, that is all.

Mr. Burns: Q. You have experienced this set from the south shore before? A. Yes, sir.

Q. That is to say, coming down at that particular stage of the tide, there is a general set from the south shore in the Second Narrows, is that right? A. Yes.

Q. And that particular stage—do you mean it is the commencement of the flood? A. That is the commencement of the flood, yes, sir.

20 Q. The commencement of the flood. Right at the start of how far along the commencement of the flood? A. I have been only through there five times previous to the accident so I cannot speak from experience through navigation through the bridge opening. I do not know how the current acts at different stages of the tide.

Q. You have given evidence that there is a definite set off the south shore at this particular stage of the tide? A. I told you that I experienced that the first time that I went through there. I do not know whether it is there all the time.

30 Q. I assumed that the time you went through was about the same stage of the tide as this time? A. We try to go through at dead low water. We waited at Barnet five hours after loading the lumber, to time ourselves to go through the bridge at dead low water.

Q. Is this the first time? A. No, the time of the accident.

Q. Leave that. I am trying to get your understanding of the current or the tide in the Narrows. You experienced the set before the time of this accident at the same stage of the tide or approximately the same? A. I could not tell you.

40 Q. When was that time before? A. Well, I do not—

Q. Do you know the date? A. No, sir.

Q. Do you know the time of day? A. It was in the middle of the day, but I don't remember what date or what year.

Q. How long before the accident? A. About two years previous to that.

Q. The bridge was up, was it? A. Eh?

Q. The bridge was there? A. The bridge was there.

RECORD

*British Columbia
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Defendant's
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N. S. Svane
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 N. S. Svane
 Cross-exam.
 (Contd.)

Q. You do not know the stage of the tide, approximately?
 A. It was just beginning to flood when we went through.

Q. Just beginning to flood? A. Yes, sir.

Q. How long had the flood started? A. Maybe five minutes or so, five to ten minutes.

Q. Was it flooding through the Second Narrows, running on the surface? A. Yes, we experienced a little flood after we got through the draw.

Q. Which way were you going, east or west? A. Coming from Vancouver going towards Dollarton. 10

Q. Just the beginning of the flood? A. As far as I recollect. It is quite a long time ago, over three years ago.

The Court: Going east?

Mr. Burns: Yes, just the reverse.

Q. You were going on the flood and when you got east of the bridge you experienced a set towards the north? A. Yes.

Q. Going on the flood tide? A. We tried to time on dead low water, for ships cannot go through any other time with safety, with any amount of safety.

Q. And you experienced this set to the north going with the flood tide, is that right? A. Yes, I looked at the chart and I saw the current shaping up there and that the bridge was built out partly in the water and I figured the incoming current got deflected by the shore line and that was the cause of it. 20

Q. But that is all on the surface, you can see that? A. Yes, you can only see the surface. You cannot see what is going on underneath the water.

Q. You saw this set on the surface? A. I saw a little set on the surface. I saw a little commotion in the water. I could not see the set—I saw the whole ship being set broadside towards the north pier. 30

Q. Was that in the draw? A. Yes.

Q. Right in the draw? A. Right in the draw.

Q. You are not talking of east of the bridge? A. No, talking of right in the draw.

Q. Then so far as this incident is concerned, Captain, your experience was this, that in the draw going east on the start of the flood you experienced a set? A. To the northward.

Q. While you were in the draw? A. Yes, sir, we gave the wheel hard astarboard to prevent the ship from running on the shoal water on the south side to the eastward of the bridge. 40

Q. You counteracted that and went on, is that right? A. Yes, we managed to get through.

Q. And of course you would not experience anything further after you passed the draw? A. No, after we managed to get through the draw we got straightened up and got to Dollarton all right.

Q. Your difficulty there was in the draw itself. That is what I am getting to? A. We did not get any results by giving her starboard helm when half the ship was out of the draw to the eastward. We gave a starboard to prevent the stern swinging to the north pier. The ship did not alter her course by getting hard a starboard, so that it looked like the bow got out of the current and the stern was still in, the ship was being swept northward.

Q. And when the stern got out of the current you were all right? A. Yes.

10 Q. And that would occur after you got the ship out of the draw? A. Yes, after we got clear of the bascule draw everything was fine.

Q. And this was the start of the flood? A. Yes.

Q. And you could see that current that you speak of right in the draw, could you? A. The helmsman was seeing that we did not run ashore. I could see the water moving, but which way it was moving I could not say.

Q. So that is the extent of the experience you had previous to your coming down this time? A. I have been through the
20 bridge opening five times.

Q. I know, but I am asking you this, was that not the extent of your experience with reference to this set north that you have spoken of previous to the accident. A. No, the second time I went through I experienced the same thing being set to the northward. I noticed that I was being set towards the north pier.

Q. This was twice? A. Yes.

Q. The second time was a similar incident to the first? A. It was just after slack water.

Q. Commencement of the flood? A. Commencement of the
30 flood.

Q. The same place? A. The same place.

The Court: High or low slack, that is important, you know.

Mr. Burns: I assumed that the witness meant low. That is why I said commencement of the flood.

Q. Did I assume rightly that this was low slack? A. Just after low slack.

Q. The commencement of the flood. So it was exactly the same stage of the tide as the one we have just been discussing? A. Yes.

40 Q. You experienced the same thing in the draw? A. Practically the same, being set to the northward, just missed hitting the north pier with the stern when we passed out to the westward.

Q. That again is the result of the deflection of the current while in the draw? A. It must have been, because the ship set outside to the northward.

Q. That is right, it was an experience in the draw itself, just the same as the first one was? A. Yes, sir.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
N. S. Svane
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 N. S. Svane
 Cross-exam.
 (Contd.)

Q. And when you got out of the draw you were all right again? A. Yes.

Q. So far as these two instances are concerned, as I take it, at this particular stage of the tide, the commencement of the flood, there is some effect on the ship when she is in the draw? A. Yes, sir, it is pretty hard to time slack water there, because it looks like the tide turns almost instantaneously in the draw.

Q. So we have exhausted this experience you had which gave you the information when coming down on this trip when the accident occurred. You knew the ship would be set to the north, is that right? A. Yes. 10

Q. For that reason 1700 feet from the bridge you were carrying a little starboard helm? A. Just for a minute or so we gave her a little starboard helm—I heard the pilot tell the helmsman “Watch your helm,” and the helmsman gave her a little starboard.

Q. Does this ship of yours carry starboard helm or port helm? A. No, generally a little port helm on account of the way the propeller goes around.

Q. It is a little port helm, is it? A. Yes.

Q. The ship itself carries a little port helm? A. Yes, a little port helm. 20

Q. If left alone she would carry that helm, a bit? A. Yes.

Q. Did you tell Captain Wingate that, or did he ask you? A. No, most ships carry that as long as the propellers go around—as long as the propellers are right handed. If the propellers are left handed, they would carry it the other way.

Q. You did not tell that to Captain Wingate or he did not ask you that? A. No, he ought to know that as an old master.

Q. Do you know about the axis of your ship, whether the axis is forward or aft? A. Where the ship turns? 30

Q. Yes? A. About one third the length of the ship from the bow, right about the starboard No. 2 hatch.

Q. Did you discuss that with Captain Wingate? A. No, I don't discuss things like that with an old ship master. He ought to know that.

Q. Every ship does that? A. That is the average.

Q. Have you heard of different ships having different axis? A. It would not amount to many feet.

Q. Never mind that, I am asking if you ever heard it? A. No, I never discussed that matter much. I heard lectures about it in 1905 and 1906 when I went to a navigation school in Denmark. 40

Q. Would you say that every ship has got the same axis about one third of the length of the ship back from the bow? A. Very much the same place. It is very hard to determine where the axis is. That is only an approximate place.

Q. Have you ever heard of a ship having its axis aft of amidships? A. No.

Q. Or practically amidships? A. The water makes a ship swing—

Q. Never mind the water. The question of how a ship acts, and her idiosyncracies and so on— A. A boat will act the same. I could scull a boat when I was five years old.

Q. Captain Wingate never asked about the axis of the ship nor did you say anything to him? A. No, I did not discuss that at all.

Q. Supposing you have a right handed propeller. It carries naturally a little port helm? A. Yes, very few ships have left handed propellers.

Q. Pardon me, just answer my questions. You need not give information that you are not asked. I don't care about these other ships. Then, isn't she given a little starboard to counteract this port. Isn't that the reason she would be given the starboard about 1700 feet from the bridge? A. She would carry a little port helm when the ship was on the straight course.

Q. Wouldn't she be given apart from necessity or the current, wouldn't she be given a little starboard helm in order to counteract that? A. No, if they gave her starboard helm she would go to port. Out at sea when you are steering a straight course, the ship carries a little port helm. Why should I give starboard to combat that.

Q. Just answer my question. If I am in trouble that is my matter. I do not want any information except what I ask for? A. I am trying to explain it so that you can understand it.

Q. I don't want any explanation if you will pardon me. A. All right.

Q. She carries a little port helm? A. When she is on a straight course.

Q. Now, in order to counteract that, wouldn't you give her the starboard helm? A. Why should I, if she is running on a straight course. Why should I counteract it. I cannot understand your question.

Q. Would you leave her with a little port helm? A. Yes, because she is keeping a straight course.

Q. Then, when she experienced this set to the north; we are now approaching the bridge, when she experienced this set to the north she was given a little starboard helm? A. Yes.

Q. And that carried her along straight? A. Yes, it looked like the flood setting in was affecting the ship a little bit.

Q. And then it came to a point where she sheered? A. Yes.

Q. And that was how far from the bridge? A. About a ship's length, 400 feet.

Q. 400 feet? A. Yes; no, no, I was figuring on when I let go the anchors. About two ship lengths from the bridge.

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Cross-exam.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
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 N. S. Svane
 Cross-exam.
 (Contd.)

Q. About 700 feet from the bridge? A. My mind don't work so good. I haven't had more than one night's sleep in the last week.

Q. I want to get the information straight and I do not want you to feel that I am trying to get it wrongly. We will take our time, so that you will not feel diffident about it. This sheer, according to your evidence, occurred when she was about 700 feet from the bridge? A. Yes.

Q. Or would you say 800 feet? A. I would say about two ship lengths, 700 or 800 feet. 10

Q. At that time; bringing it down to that time, and having in view that point then, get into your mind the ship's position when she was about 1500 or 1600 feet from the bridge. A. I discussed the set with Captain Wingate at Barnet, and we timed ourselves to the minute so that we would be sure that we would not have any set.

Q. I am putting the ship 1500 or 1600 feet from the bridge. Could you tell me how far you were off the south shore? A. About two ship lengths.

Q. Then when you got down to about 1000 feet how far would she be off the south shore? A. I was watching to see that the ship was running straight for the draw and standing alongside the helmsman to be prepared in case she should take a sheer to the north. 20

Q. Supposing she took this sheer to the north about 800 feet from the bridge. At 800 feet to 1000 feet she was running steady? A. Running steady.

Q. So that you would be in a position where you could fix in your mind how far you were from the south shore. There was nothing bothering you? A. When you are 1600 or 1700 feet from the draw and there is a shoal on the south side, sticking out a little farther towards the draw— 30

Q. Then take 1600 or 1700 feet from the draw, how far off would you be from the south shore? A. About two ship lengths.

Q. Coming down to 1300 and 1400 and down to 1000 feet would you still continue two ship lengths or less? A. We would be a little closer to the shore.

Q. How much closer? A. Maybe 50 feet, or say 500 or 100 feet.

Q. You would be near the south shore? A. Near the south shore. 40

Q. I am leaving the matter of the sheer for a minute. When you got down to, say, 500 feet from the bridge, how far off would you be from the south shore? A. I didn't measure it up on the chart.

Q. If you cannot tell me all right. A. No, I was looking straight at the bridge and standing beside the helmsman.

Q. Could you say how far you were from the south shore?

A. I looked at the chart off and on while navigating from Barnet and I took the marks off the shore to see that I had plenty of water under her.

Q. Could you recollect—if not, say so, how far were you off the south shore when the anchors were let go? A. I was not looking at the south shore. That is something I could not tell you.

Q. It was about 800, 700 or 800 feet approximately that you were from the bridge when you felt this sheer? A. Yes, sir.

10 Q. Was that something—I am going to ask you this, was that something, the influence of which was only felt on the bow of the vessel and not on the rest of it? A. The bow was coming out, so that the current was hitting the south shore to the west of the bascule draw and it would start hitting the bow if the flood was just setting in.

Q. Her head paid off? A. Her head paid off.

Q. And, at the time, you were running alongside the south shore? A. Well clear of it.

20 Q. I am not going to try you on the south shore, do not be afraid, but I want a detailed discussion of this matter with you. At the time you were going along the south shore, heading for the middle of the bascule span— A. Yes, sir.

Q. —your bow would be about 800 feet from the bascule span? A. Yes, about 800 feet from the bascule span.

Q. Then whatever influence this undercurrent that has been spoken of had, it influenced or affected the bow of the vessel rather than the whole of the vessel? A. Yes, the bow comes out in the current earlier than the stern.

30 Q. And that current came off the south shore? A. That is my opinion.

Q. Well, the natural tendency would be to send her bow to the north? A. Yes.

Q. Whatever that was it came off the south shore, didn't it? A. If it was the flood tide it must have hit the south shore before it went to the draw.

Q. Just a minute. Did you see any surface current at all?

A. I was too busy to see; no, I did not look over the side. I did not see any surface current.

40 Q. If you were asked the question as to whether the flood was making or not, if it was on the surface, you would not be able to say? A. No, I could only see what was going on on top of the water.

Q. That is exactly what I am asking you. Did you see what was going on on top of the water? A. I saw that there was no commotion on top of the water when she took the sheer.

Q. Did you see any evidence of the making of the flood tide? A. No, but I saw it one or two minutes later.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
N. S. Svane
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

N. S. Svane
Cross-exam.
(Contd.)

Q. We will come to that? A. A couple of minutes later.

Q. Did you, at the time, see any evidence on the surface of the flood tide making at the time that sheer was experienced? A. I saw the ship take the sheer.

Q. All right, leaving that, did you on the water see any evidence of the making of the flood tide? A. No.

Q. None whatever? A. No.

Q. Then, when you saw the water it was smooth, was it? A. Absolutely smooth.

Q. No current on it? A. No current, no. 10

Q. And so far as this sheer is concerned it was brought about by some force under the surface of the water? A. Some under-current.

Q. That was having the effect on the ship's bow, and yet you saw nothing on top of the water to indicate that it was present. Is that right? A. That is right.

Q. You say one or two minutes, or how many minutes. Do you know? A. It might have been three or four minutes, when I looked over the side, when I was about 400 feet from the bascule draw. 20

Q. Did you see the flood making then? A. Yes.

Q. Where did you see it? A. I looked over the side from the forward deck.

Q. Was this after she got in the bridge? A. Just as soon as she struck.

Q. After she struck? A. Yes, I did not look at the water. I made for the anchors right away, to try and heave the anchors, because if it was not dead low water, it was close to it, and the bridge span was resting on top of the ship.

Q. I understand that, Captain. Just answer some of my questions. I do not want any information at all, nor does his lordship want to be bothered with a lot of information that counsel feels it is not necessary to trouble him with. If you want to make an explanation afterwards you can do it. Tell me this. You never, until your boat was into the bridge, noticed whether the flood tide was making—at least you did not see the flood tide making? A. No. 30

Q. But I understand that you did look and you knew that there was no flood tide making at the time of the sheer, that is, on the surface? A. I did not see any sign. 40

Q. Did you look. Could you say whether or not the flood tide was making on the surface? A. I looked. I was standing alongside the helmsman in the wheelhouse.

Q. I don't care where you were standing. I am asking if you looked. Just answer my question. Did you look? A. Yes, I looked out through the wheelhouse window, but I could not see what was going on close to the ship. I could see what was going on five or six hundred feet from the ship.

Q. And from that distance you concluded that there was no flood tide making on the surface, is that it? A. Yes.

Q. As a matter of fact, you are not satisfied with your information on that point, are you. So far as you could see you could not tell much about it? A. I could not see much then. I was—

Q. So that the flood tide might be making on the surface so far as you are concerned? A. I don't think so.

Q. At any rate, you are not definite as to seeing the flood tide making on the surface until after your boat was engaged with the bridge? A. No.

Q. Whatever that force was, Captain, it was a force that was against the ship's progress, wasn't it? A. Not very much.

Q. Not very much? A. It was more from the side.

Q. To the north rather than the east? A. Yes, from the south towards the north in my opinion.

Q. I want you to fix now on the plan as well as you can the position of the ship when the sheer occurred. Could you have Exhibit 8, please? A. I am not familiar with that chart. I should like to have an Admiralty Chart.

Q. We will give you both? A. Yes, but I am familiar with these charts, that is the one I use.

Q. I want it on a large plan if I can? A. I am not familiar with these plans.

Q. You could easily get familiar with it.

Mr. Smith: Give him a moment or two to study it?

Mr. Burns: Yes. A. The sheer must have been about here, somewhere between these two lines.

Q. Those two lines are watermains? A. Yes.

Mr. Smith: I submit that you should call his attention to the scale.

The Court: Start at the bascule draw.

Mr. Burns: The bascule draw is the one in red. There is the scale.

Q. Now, work it out. All I want you to do is to work it out where you were in fact, and not get you placed some place where you were not? A. When she took the sheer, in my opinion we were about 400 feet off the south shore.

Q. 400 feet off the south shore? A. Headed for the middle of the draw.

Mr. Smith: Get how far east of the draw he was. Mark it to scale.

Mr. Burns: Q. About 800 feet from the bridge, and 400 feet from the— A. About 1000 feet.

Q. You think you had passed the watermain? A. I believe we had just passed it when she took the sheer.

The Court: The westerly watermain?

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*British Columbia
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CaseN. S. Svane
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 N. S. Svane
 Cross-exam.
 (Contd.)

Mr. Burns: The westerly watermain.

Q. Put a lead pencil mark there. Hold that and get 400 feet to the shore? A. The angle we were coming in on here?

Q. Mark it approximately, the best place you can?

The Court: Take your time with this and get it right. (Witness marks on Exhibit 8.)

Mr. Burns: On Exhibit 8, the witness—

The Court: That is the point where he first met the sudden sheer.

Mr. Burns: Yes, my lord.

The Court: First met the sudden sheer at the point marked—

Mr. Burns: —with a cross in black lead pencil. You had better use a red one.

The Court: Make sure that we do not repeat any letters.

Mr. Burns: What letter shall I use.

The Court: Call it "H."

Mr. Burns: The cross marked "H" in red?

The Court: Yes.

Mr. Burns: Q. That cross, witness, is fixed more like 500 feet than the 400 you mentioned? A. I might have taken some other line for the shore line.

Q. That would be the approximate position and your idea from your recollection is that it was about 400 feet from the shore line? A. Yes, judging by the angle we were going in towards the draw.

Mr. Griffin: I would like the witness to correct that.

Mr. Burns: Q. You see what I mean, take those dividers.

A. I was using it from here, from the end of the scale.

Q. It is a little outside of the 400 feet.

Q. Mr. Griffin: I would like to have it where he wants it.

A. I was not standing in a place in the ship to be able to judge the position of the shore. I was standing on the starboard side of the helmsman.

Mr. Griffin: Put it in the place you really want it.

A. That is as near as I can recollect.

The Court: He said that he was standing on the starboard side of the helmsman. He could not conveniently see more than that.

Mr. Burns: Q. And at the time you felt that sheer, what rate do you say you were going, what speed? A. Four knots.

Q. You have got down to the four knots from the 9? A. Yes.

Q. And you had got down to the 4 knots by reducing from full speed to half?

Mr. Smith: No.

Mr. Burns: Full speed to slow speed. A. Full to slow.

Q. Whereabouts were you when you brought it down to slow?

A. Just passed Berry Point, just about one minute past Berry Point.

Q. Going nine to nine and a half knots? A. Yes.

Q. And put it down to slow? A. Yes.

Q. And by that time she had got down to four knots, you say? A. Yes.

Q. Up to the time you got the sheer, were you experiencing any benefits in the ebb tide in going down? A. No, we did not notice any ebb tide going down.

10 Q. You did not notice any at all? A. Not after passing Berry Point.

Q. You had no favourable tide at all? A. No, sir.

Q. And how far is Berry Point from the bridge, do you know, about how far? A. About a mile.

Q. Look at the Admiralty Chart.

The Court: We had it, about a mile.

Mr. Burns: Yes, we will make it about a mile.

The Court: Let us get it on the record? A. I little over a mile, your honour.

20 Mr. Burns: Q. You gave the time, what was the time when your slow down was given? A. 5:54.

Q. Now, no tide showed on the buoy at all? A. No, sir.

Q. Absolutely no tide? A. Couldn't see any tide.

Q. All right.

Mr. Smith: That is all, unless his lordship wants to ask some questions. Thank you.

(Witness aside.)

Mr. Griffin: The last witness has a ship sailing at six o'clock and would like your lordship's leave to withdraw and leave the
30 court room. I do not see that he will be needed again.

The Court: Yes.

(Witness excused.)

HORACE W. G. HARRISON, a witness called on behalf of the defendant, being first duly sworn testified as follows:

H. W. G.
Harrison
Direct.

DIRECT EXAMINATION BY MR. SMITH:

Q. Captain Harrison, you live in Vancouver? A. Yes.

Q. And you are now despatcher for the Pacific (Coyle) Navigation Company Limited? A. Yes.

Q. And you have held that position since December, 1927?
40 A. Yes.

The Court: What company?

Mr. Smith: Pacific (Coyle) Navigation Company Limited.

Q. Previous to December, 1927, you were Captain of the tug "Pacific Foam"? A. Yes.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
N. S. Svane
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. W. G.
Harrison
Direct.

(Contd.)

Q. How much tugboat experience have you had in British Columbia? A. About seven years.

Q. Where were you on the 10th of March, 1927? A. Coming from Port Moody to North Vancouver with two sections of boomsticks.

Q. That was in the afternoon? A. Yes.

Q. On the tugboat "Pacific Foam"? A. Yes.

Q. You were planning to get to the Second Narrows at what time? A. Slack tide.

Q. And for that purpose you were arriving there early, or late for the time given on the tide table? A. A little early, about a quarter of an hour.

Q. Do you happen to remember when the tide was slack? A. Not the exact minute, but in the neighbourhood of 6:30 p.m.

Q. Do you remember going under the bridge? A. Yes.

Q. And do you remember when you were under the bridge seeing the "Eurana"? A. Yes.

Q. Where was she then? A. About 1000 feet more or less east of the bridge.

The Court: Which did he go through, the long or short span?

Mr. Smith: The 300 foot span, the fixed span.

The Court: What did he have?

Mr. Smith: A tow of boomsticks.

Q. That is correct, you went through the 300 foot span? A. Yes.

Q. To the north of the bascule span? A. Yes, two sections of boomsticks.

Q. When you were going through you saw the "Eurana" about 600 feet east? A. Yes, about 1000 feet. 30

Q. Had you seen the "Eurana" before that? A. Yes, all the way from Barnet.

Q. Coming along behind you? A. Yes.

Q. Did you think that you would probably arrive at the bridge at the same time? A. As she was coming down and I had the tow, I thought that she would get there the same time and I asked the engineer to put on full speed so that we would be ahead of her and clear the bridge so that we would not interfere with the "Eurana."

Q. When you were going through the bridge how was the tide? A. Under the fixed span it was ebbing and looked to be slack on the surface in the bascule span.

Q. How was it closer in towards the south shore, or did you notice it there? A. No, not particularly.

Q. Now, when you got through the span, what did you do? A. Got clear of the span and I went on the after deck to see how the "Eurana" was coming through.

- Q. Did you see the "Eurana?" A. Yes.
- Q. How was she heading then? A. Looked to be just about right to go through the bascule span.
- Q. Was she coming down on a course such as that followed by other ships coming down? A. So far as I could see she was making a good shot at it.
- Q. You were watching her? A. Yes.
- Q. What did you notice? A. When she was about, somewhere about the knuckle she took a sudden sheer to the north.
- 10 Q. How far was she from the bridge when she took that sudden sheer? A. I could not say exactly, but about two ship lengths east of the bridge.
- Q. What did she do then when she took the sudden sheer? A. The next thing I heard was the anchors going over the side.
- Q. Being let go? A. Yes.
- Q. What, in your opinion, caused her to take the sudden sheer? A. Some underflow, the flood tide meeting her bow.
- Q. Have you, in your experience met the undercurrent at the first of the flood flowing easterly? A. Yes.
- 20 Q. Was there anything anyone on the "Eurana" could have done to avoid the collision? A. I could not see anything they could do.
- Q. In your opinion, Captain, is the bridge an obstruction to navigation? A. It is.
- Q. Is it a menace to navigation? A. Yes.

CROSS-EXAMINATION BY MR. BURNS:

- Q. Could you tell her speed, Captain? A. No, she seemed to be coming quite slowly.
- 30 Q. How far were you from her? A. About 1000 feet ahead of her.
- Q. When I was under the fixed span she was about 1000 feet behind me more or less, more, I should say.
- Q. Could you estimate her speed from what you saw? A. No, other than that she was going slowly.
- Q. What do you mean by that, two, three or four knots or one knot, or what? A. Oh, I could not say as to that.
- Q. She would be under four knots? A. She did not have any bow wave to amount to anything. She was going slowly.
- 40 Q. At that time was there any ebb tide showing on the surface at all? A. On the north side of the fixed span there was an ebb tide.
- Q. Was there any flood tide showing on the surface at all? A. Under the bascule span so far as I could see it was slack.
- Q. Was there any flood tide showing on the surface at all within your vision? A. No.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 H. W. G.
 Harrison
 Direct.
 (Contd.)

H. W. G.
 Harrison
 Cross-exam.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 —
 H. W. G.
 Harrison
 Cross-exam.
 (Contd.)

Q. Not only that, I mean in the Second Narrows—You were going west, were you? A. Yes.

Q. Do you remember when you saw the first indications of a flood tide? A. Just after I got through the span.

Q. Where did you see that? A. Oh, about a couple of hundred feet in front of the span. There was some drift wood and I noticed it started to move east.

Q. Just moving east slowly? A. Yes.

Q. By that time had the "Eurana" hit?

The Court: Where was that coming.

Mr. Burns: About 200 feet west of the span? A. West of the bascule span.

Mr. Burns: The witness noticed this drift wood which gave to him the first surface indication of the flood tide.

Q. That is what I asked you? A. Yes.

Q. By this time had the "Eurana" hit the bridge? A. This was just about the time that she was letting go her anchors.

Q. Do you think you were in a position that day and that you took sufficient observations to justify you in making a specific statement to the effect that that would be the first indications of the flood tide? A. I think so.

Q. Then in that case there was; up to that point there would be no indication on the surface of any flood movement around that fill for instance, would there? A. I was not close enough to the fill to say, but I would not say for certain.

Q. It would not be natural to suppose it would be if there was no evidence of the flood apart from that. Then it would not be shown there. When you looked back at her and saw this sheer, how far off would you judge her to be from the south shore? A. I don't think I took any particular notice of that.

Q. Did you take notice how far she was from the bascule span? I think you said about two ship lengths? A. Yes.

Q. You saw nothing in the actions of the "Eurana" in connection with this sheer that would give you an idea what it was that made her sheer, did you? What I mean by that, there was nothing in evidence; there was no surface evidence, for instance, in the water that would indicate she might take a sheer for that reason? A. No.

Q. Not at all? A. No.

Q. It might have been a helm movement or any kind of movement; you could not say definitely what it was? A. No.

Q. All right.

Mr. Smith: All right, thank you.

((Witness aside.))

GERALD HOLDEN DOUGHERTY, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

- Q. You live in Vancouver? A. Yes, sir.
- Q. And the house you live in is right above the Second Narrows? A. Yes.
- Q. Just a little eastward of the bridge? A. Yes.
- Q. On the south shore? A. Yes.
- Q. What is your age? A. 18 last August.
- Q. You will have to speak a little louder. Do you remember the night of the 10th of March, 1927. Do you remember anything that happened about six o'clock in the evening?
- The Court: Just about how far would that be from where he lives?
- Mr. Smith: Q. How far from the bridge is your house?
- A. About three blocks on a angle.
- The Court: Try and speak distinctly to counsel.
- The Witness: About two blocks above the Narrows.
- Q. Just repeat that, and try and speak intelligibly.
- Mr. Smith: Q. About how far is the bridge from your house, about two blocks from the Narrows? A. Yes.
- Q. From the windows in your house, have you an unobstructed view of the bridge and the approach to the bridge? A. Yes.
- Q. About six p.m. on the 10th of March what did you hear?
- A. I was getting ready for the supper at the time and I heard three blasts of the whistle for the bridge and I went out to the verandah and I saw the boat to the east of Berry Point and I went in and went to the upper verandah with field glasses.
- Q. You have a lower verandah and an upper verandah? A. Yes.
- Q. You first went out to the lower verandah and saw the steamer at Berry Point? A. Yes.
- Q. And from there you went to the upper verandah? A. Yes.
- Q. Did you say that you looked at the steamer through field glasses? A. Yes.
- Q. Just about where was the ship then? A. Just this side of Berry Point a little.
- Q. Did you continue watching her? A. Yes.
- Q. Did you see the bridge open? A. I watched the bridge open.
- Q. Have you any idea of the speed that she came along? A. I would not say for sure. I was quite a way from it.
- Q. Did you see it approaching the bridge? A. Yes.
- Q. How did she approach the bridge? A. Well, how do you mean?
- Q. To what part of the bridge was her head pointing? A. She was getting fairly well over to the south shore.
- Q. And how was she heading? A. Heading pretty well into the span.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseG. H.
Dougherty
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseG. H.
Dougherty
Direct.

(Contd.)

Q. You mean by that the bascule span? A. Yes, the centre of the bascule span.

Q. Did she approach the bridge in the same way that other ships passing down approached it? A. Yes, exactly.

Q. You remember seeing her headed for the centre of the open span, do you? A. Yes, I do.

Q. Just after that what happened? A. Well, she seemed to be in the same position as other boats over the first watermain east of the bridge, and then she took a sudden sheer to the north.

Q. What did you see her do after that? A. Well, she seemed to be heading right for the centre. 10

Q. Did she do anything with her anchors? A. Yes, 700 feet east of the bridge the anchors went out.

Q. Did you see anything which would lead you to believe that she operated her engines in some way? A. You could hear quite a racket. I would not be able to say for sure, because I would not be able to see the wash from the back of the boat.

Q. What happened after she dropped the anchors? A. I watched her steadily until just before she hit the bridge and I threw my glasses in the direction of the tug and then I watched her going into the fixed span. 20

Q. Did you notice the tide at that time? A. It seemed from where I was standing it was slack.

Q. Are you in the habit of watching the tide in the Narrows?
A. Sometimes I am.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Are you acquainted with where the watermains cross the Narrows and touch on the south shore? A. Yes.

Q. Is there anything to indicate the place, anything that you can see along the shore? A. You can see them where they come in against the shore. 30

The Court: See what? A. The watermains.

Mr. Donaghy: Q. Is there any mound or standpipe or anything there? A. No, there is a little concrete work and something there where they shut it off which shows where it is situated.

The Court: It is noticeable? A. Yes.

Mr. Donaghy: Q. Have you observed whether there are more places than one where these water mains come across the Narrows? A. Yes, there is Esmond Avenue, I would not say for sure, but I think there is two points you can see coming in there. Then at Ingleton Avenue quite a few pipes come across. 40

Q. Which are the most noticeable? A. The ones furthest away from the bridge or at Ingleton Avenue.

Q. At any rate, you seem to have a clear knowledge of the pipes. You have seen them frequently? A. Yes.

Q. And you know where they are? A. Yes.

G. H.
Dougherty
Cross-exam.

Q. Which of these pipes were you referring to when you told my friend here that when the ship was about at the water pipes she took the sheer? A. I would say the ones at Esmond Avenue which would be a little over 1000 feet east of the bridge.

(Witness aside.)

Mr. Griffin: Will your lordship hear another witness before lunch?

The Court: The next one will take some time?

Mr. Griffin: Yes.

10 The Court: No. We will adjourn.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
G. H.
Dougherty
Cross-exam.
(Contd.)

(1:53 P.M. COURT ADJOURNED UNTIL 2:15 P.M.)

2:21 P.M.

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

ROBERT WILLIAM McNEILL, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

R. W. McNeill
Direct.

DIRECT EXAMINATION BY MR. SMITH:

Q. You live in the City of Vancouver? A. I do.

Q. And what experience have you had on the British Columbia coast? A. 26 years.

20 Q. And what experience have you had as a pilot? A. Five years as a pilot.

Q. And how many times have you been through the Second Narrows before the bridge was built? A. As a pilot or master of a vessel?

Q. As master of vessels? A. Oh, hundreds of times.

Q. How many times have you been through, as a pilot, since the bridge was built? A. About 150 times, in the neighborhood of that.

30 Q. What, in your opinion, is the proper stage of the tide to pass through the bascule span with a loaded ship? A. As near slack water as possible.

Q. Is the bascule span in its proper position? A. Not in my opinion.

Q. Then in your opinion in what way is it not in the proper position? A. Because it is not in the fairway.

The Court: A loaded ship, slack water.

Mr. Smith: With a loaded ship slack water. A. Slack water.

The Court: Yes.

40 Mr. Smith: Q. In what way is the bascule span wrongly placed, do you say? A. It is not in the centre of the fairway, that is the tidal current—the main body of the tidal current does

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 ———
 R. W. McNeill
 Direct.
 (Contd.)

not pass through the bascule span. It passes through the main span, the fixed one.

Q. To the north of the bascule? A. To the north of it.

Q. And in what other way is the bascule span wrongly placed? A. You have to alter your course from the fair current in the near vicinity of it. A ship proceeding from west to east has to alter her course within a ship's length or so of the bascule span, and this gets your ship varying in the steering. Going from east, from east to west through the bascule span you have to pass through it at an angle, the bridge not being at right angles, and the angle is increased by reason of the shoals. There is also currents and tides. It is impossible to tell exactly when there is slack water by reason—well, there is first the rise and fall of the tide then there is the freshets in the Fraser River, they have a big effect and the rain in the upper harbour, that affects Seymour Creek and all these things tend to make varying currents at the bridge, and they would not have had the same effect had the bascule been further over. 10

Q. Further over to the North? A. Yes.

Q. Mid-channel? A. Mid-Channel. 20

Q. Is there deep water all around the span where it now is? A. No, there is shoaler water to the south end. The deeper water is not in the centre, the deeper water is under the fixed span of the bridge.

Q. You spoke about a shoal to the east of the bridge on the south shore. How far does this shoal jut out? A. About two to 250 feet from the bridge.

Q. And what is the depth of the water at the outer edge? A. About 24 feet.

Q. And where is the outer edge with reference to the bascule span? A. In line with the centre of the bascule span. The distance east of the bridge is about 300 feet, I should say. 30

Q. How does this shoal affect navigation of the bridge, approaching from the eastward at low water slack? A. It makes it impossible to line up the draw to get through the bascule span without getting your ship veering and when you get a ship veering, it is very hard to steady up. The chances are that an accident will take place. In fact there is always that danger.

Q. Has the shoal any other effect? A. It might have the effect of deflecting the current more or less; forming an eddy with an ebb tide. The tide backs up and hits that and it will have a tendency to shoot more out to the centre of the channel. In fact it would stop the outgoing current and it means that back eddies would form. It would increase these eddies until she went back through the Narrows. 40

Q. How can you ascertain when it is slack water at the Narrows? A. It is impossible to ascertain. It might be slack on

the surface and yet be an undercurrent there that you cannot see.

Q. Are the tide tables accurate or otherwise for the Second Narrows? A. High water and low water may be accurate, but in the currents they are not. I have seen them half an hour out.

Q. The period they give for slack water—A. They are not always correct.

Q. Apart from the tide table, how can you find out beforehand the length of the period of slack water. A. It is due to the rise and fall.

10 Q. Say low water slack, what period of slack is there at low water slack? A. If there is a long run out and a long run in. The period is very short, practically none.

Q. Is there any way of telling beforehand how long that period will be? A. No.

Q. Is there anyway of telling before hand how long that period will be? A. No.

Q. You spoke about the current there. What current may be met with say half an hour either side of low water slack according to the tide table? A. At which?

20 Q. Low water slack? A. According to the surface the current may be running west to east on the surface, and there may be an undercurrent running from the east; at least the undercurrent would be running from west to east and that current—

Q. How would the surface current be running? A. It might be running slightly to the west, but would not amount to much.

30 Q. But there would be an undercurrent running from west to east? A. Yes, and it would not be directly west to east, but more or less across the bridge, because the shoal is above and the fill of the bridge has a tendency to deflect it to the northeast across the opening of the bascule span. It does not run direct through the bascule span.

Q. So that as I understand you, the indications of the surface water do not tell you by any means how the undercurrent may be flowing? A. No.

40 Q. Has Seymour Creek any effect on the current? A. Yes, at slack water it will have a tendency to come almost across the Narrows. The slacker the water, the further over this fresh water body comes. That is when it is in flood. A ship going west to east is struck on the port bow by it. You have to take that into consideration and meet that with your starboard helm.

Q. Did you ever experience surface currents running in opposite directions at the same time? A. Surface currents?

Q. Yes? A. The centre surface current will be well indicated. There will be back eddies on both sides, currents running both at the same time.

Q. Is it ever possible to estimate the strength of the currents? A. No.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

R. W. McNeill
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

R. W. McNeill
Direct.
(Contd.)

Q. What effect has the fill at the south end of the bridge on the currents? A. That fill they put in there; previous to the fill when the bridge was being constructed I found the current to run along the contour of the shore and since the fill has been put in it has been diverted strongly to the northeast across the opening of the bridge.

Q. Have you yourself had experience with that set?

The Court: Q. Let me have that again, let me have that again? A. It diverts.

Mr. Smith: Q. Start at the beginning, how was it before the fill was put in? A. Before the fill was put in the current followed the contour of the beach, and since the fill has been put in it has diverted it to an angle across the bascule span; across the bridge. It strikes that and deflects. 10

Q. Going from east to west, what is the proper speed at which you approach the bridge to go through it? A. Around four knots, just enough to give the ship steerage way, that is, until you approach near the bridge and then you get through as fast as possible.

Q. At what time would you endeavour to make the draw with reference to slack water in order to get through? A. Personally, I take it a little before the tide is favourable, just a little after it, a fair tide. 20

Q. You prefer going through with an ebb tide in your favour? A. Yes, in my favour.

Q. Would you prefer going through in the last half hour of the ebb? A. Yes, I would, yes, because in my experience the nearer you get to the apparent time of slack water this undercurrent obtains and I want to avoid that. I have not had only the experience of people with accidents, but in my own experience I have had cases where I had to come through the bridge with the helm hard a starboard to offset this undercurrent that was not apparent on the surface. 30

Q. That is going from east to west? A. Yes.

Q. That is at low water slack? A. Yes.

Q. You have had to come through the bridge with the helm hard a starboard? A. Yes.

Q. In order to counteract the effect of the undercurrent? A. Yes, something forces the ship over the centre of the span and to offset that I had to go full speed with the helm hard a starboard to get through. 40

Q. Have you had any accident at the bridge? A. No.

Q. Have you had any near accident? A. I call it a near accident when you come through hard a starboard. I had one case where I had to drop the anchors within 30 feet of the north pier. I was going from east to west and fortunately nothing happened. I got her stopped in time.

Q. Before the bridge was built, at what stage of the tide did ships pass through the Narrows? A. At most all stages with the exception of extreme high and low water, say June tides.

The Court: Q. What was that again? A. At the extreme spring tides when there is a rise of 14 feet and when the strong current is running the ships would wait until within two or three hours.

Q. Was that the case before the bridge was there? A. Yes.

Q. That is what I want to find out. You say before the
10 bridge at the extreme tides— A. Extreme rise and fall.

Q. Even then ships would not go through the Narrows? A. I don't think they would risk it. A heavily laden ship would not.

The Court: Just clear that up.

Mr. Smith: Q. What do you mean by that. Do you mean when the tide was running full strength? A. Yes.

Q. But even on the long run out at the slack water would they pass through? A. Oh, yes, certainly.

Q. So that before the bridge was built, vessels as a rule passed through at all stages of the tide? A. Yes.

20 Q. Except when they had the full strength of the long run in for or against them? A. Yes.

Q. On spring tides? A. Yes.

Q. What is the position now after the bridge has been built?
A. You get a thrill pretty near every time you go through. You cannot tell what it is going to do. I have studied that tide and current and I think I have it down pretty well, and at times I am doublecrossed and the boat will take a sheer when I least expect it. I cannot guarantee a ship going through there safely.

30 Q. To what period of time is the navigation cut down now that the bridge is built? A. About two hours in 24.

Q. High water slack and low water slack? A. Yes.

Q. The bridge can only be navigated at slack water? A. Yes.

Q. Either high or low? A. Yes.

Q. Did you hear the Captain of the "Eurana" give evidence? A. Yes.

Q. In your opinion was the navigation of the "Eurana" proper navigation? A. I should say so.

40 Q. In your opinion is the bridge an obstruction to navigation? A. Certainly is.

Q. And is it a menace to navigation? A. It is.

Q. All right.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Captain, I think you said that the time of the turn of the current and the change in the tide is from 20 to 30 minutes different from the tables, is that what you mean? A. At times, yes. Sometimes it coincides with the tide table.

RECORD
British Columbia
Admiralty Dist.

Defendant's
Case

R. W. McNeill
Direct.
(Contd.)

R. W. McNeill
Cross-exam.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

R. W. McNeill
Cross-exam.
(Contd.)

Q. How long have you known that? A. Well, now, I have known that since; well, the last five years.

Q. The last five years? A. Yes, that it is variable.

Q. What is that? A. I have known the last five years that you cannot be sure that the book time is the correct time to have slack water there.

Q. And on a long run out, what have been the facts as you found them, in regard to the accuracy of the tide tables as to slack water at the end of the long run out? A. At the end of the long run out I always think the time is later than the time given in the tide books. 10

Q. You think the tide runs out— A. Longer than the tide books indicate.

Q. That is your experience? A. Yes.

Q. And you are satisfied that it is correct, I suppose? A. Yes.

Q. Backed by five years observations in navigation? A. Yes, now just a minute, when I say that, I am not saying the tides may be rising, and this undercurrent may be coming back, but the surface current is going out later than the book indicates. 20

Q. Are you now speaking with reference to the current through the bascule? A. Yes.

Q. I see. You have known that for some years? A. I have.

Q. And any reasonably skilful pilot who has been navigating for some years back and who has passed frequently through the same channel should know it the same as you? A. Oh, certainly.

Q. I suppose you take advantage if it and apply it to the navigation of your ship and the time you fix to arrive at the span? A. I do. 30

Q. And any reasonably skilful pilot would have a duty to do the same thing? A. Yes, naturally.

Q. Otherwise he would not be skilful? A. Yes.

Q. Now, you say that the fill at the south shore of the bridge deflects the current and causes an under-flow northerly from the south shore. At least, you say that is your opinion? A. Yes, it is my opinion.

Q. Do you say that it is your opinion that that condition exists at the end of a long run out? A. Yes, at the end of a long run out when there is a back eddy or incoming tide there may be a run up to the end of the long run continuing that somewhere in the channel and the back eddies that I spoke of may be coming in and that may be the first of the tide coming up and being deflected by that fill across the Narrows. 40

Q. To put it in plain language it is your opinion at the beginning of the new flood on the tail of a long run out you find this condition of the fill deflecting the under-current northerly? A.

There is something there that deflects that current northerly. I know the current is there and I presume it is the fill that makes it.

Q. You think it is the fill? A. Yes, because previous to that I found the current running with the contour of the shore.

Q. And not deflecting northerly? A. Yes, not to that extent.

Q. How did you find that out, the condition prior to the building of the bridge? A. I was towing booms and one thing and another through there for 16 years previously, booms, barges
10 and everything.

Q. Boats and all sorts of things? A. Yes, sir.

Q. Then you must have found yourself navigating the channel under the bascule before there was a bascule there? A. Yes.

Q. How do you explain doing that now seeing that there is only one channel to navigate safely, the centre span of 300 feet. How do you reconcile that state of affairs? A. You put the bascule there and it is supported by piers and the piers are in the road.

Q. What I understood you to say to his lordship here was
20 that the channel before construction is the channel under the 300 foot span; that is what you say, when the bridge is there? A. Yes.

Q. And your evidence as to the channel is that you sometimes took, before there was a bridge, you say that you sometimes took the channel under the bascule lift, why? I want to know? A. There was nothing to prevent us taking any part of the channel.

Q. That is your answer? A. Yes, there was no fill there. You had a straight current to go on.

Q. Is that your answer, that there was no fill? A. Yes.
30

Q. That is your answer, there was no fill. Now, do you know approximately, say, how many feet of a fill there is in the water at the south end of the bridge at the end of the long run out? A. No, I do not.

Q. It will be interesting to learn that later? A. Yes.

Q. It would have some effect on your opinion if you knew it perhaps? A. I don't know. I am telling you that I experienced this current and what it is caused by I don't know.

Q. You need not repeat that. We heard you the first time.
40 Now, you referred to Seymour Creek? A. Yes.

Q. Is it true that current is principally superficial surface current? A. Yes, and I have so explained it.

Q. And it has only become apparent at the season of the year when there is a heavy rain or a heavy thaw in the mountains? A. Yes, and then only at slack water has that any effect on the channel.

Q. So for a great portion of the year one would scarcely

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseR. W. McNeill
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

R. W. McNeill
Cross-exam.
(Contd.)

know from the navigating point of view that there was any water coming out of Seymour Creek? A. No.

Q. Now, what size of ships have you been in the habit of taking through the bascule span in the past few years? A. Oh, ships varying from 360 to the one Captain Brown mentioned this morning, 460 feet long, the "Ontariolite," that he is now in command of, and all varying lengths between those two.

Q. And the draft, varying from what figures? A. Light ships 12 feet to ships of 29 feet draft.

Q. And beam? A. 60 to 50 and 45.

10

Q. Yes, I see. How long after the bascule was placed in its position did you take your first ship through. Approximately, the first month or two? A. Yes, within the first month or two.

The Court: Q. What did you say? A. Within the first month or two of the bascule being brought in, I took ships through before the bascule was placed and while the bascule was open there and under construction. I took ships through that.

Mr. Donaghy: Q. While the piers were there? A. Yes.

Q. That is just the same thing as taking it through now with the bascule up? A. Yes, the same thing.

20

Q. And ever since that you have been taking ships through there regularly? A. Yes.

Q. You have never had an accident except this time that you speak of when you had to drop the anchors? A. That was the near accident I had. That was when I learned of the current to the north when the ship was deflected.

Q. Give us the time of that, the year and month and name of the ship? A. The name of the ship was the "El Grillo."

Q. A big ship? A. Yes, a ship of about eight to 10,000 tons.

30

Q. Give us the dimensions? A. 424 or 425 feet long, about 55 feet beam and loaded with oil, about 28 feet.

Q. And the tide? A. The tide, low water slack, or at least towards low water slack.

Q. A long or short run out? A. A long run out. The added precaution—at that time there was a tug boat with us and we were proceeding from this side, from west to east.

Q. You were going east? A. Yes, I lined up the draw, and I gave her a little, knowing from experience that the current followed the contour of the beach, I practically lined up the beach to go through the draw, and also the shoal on the other side and when I got through, I had the ship slow, the tug was drawing her and she suddenly took a heavy sheer to the north. Her helm could not stop her. I went full astern and dropped the starboard anchor and held her and sheered her over. The tug I whistled to stopped immediately and backed up until I got back, the anchor pulled me back to the centre of the draw and I pulled the anchor up and

40

shot her full speed ahead, hard astarboard. There was something there.

Q. You were going to tell us the year and the month? A. I could not tell exactly the year and month, but I know it was while the bridge was still under construction and I could probably get the year and month.

Q. You were just learning this course then I take it? A. Yes, I was learning that that current existed.

Q. And ever since then you have known it? A. I have
10 taken precautions to avoid such a thing the best I could.

The Court: Q. Did you say that was shortly after the bascule was put in operation? A. No, the bascule I don't think was in operation at the time.

Mr. Donaghy: Q. I think you said the bridge was under construction? A. The fixed span was put in because I had the same ship through the wide span and never had any trouble, but this was the second trip or third trip with the same ship going through.

Q. How far east of the bascule draw did the current catch
20 the ship. How far west of the bascule draw did the current first catch the ship? A. That current that I speak of?

Q. Yes? A. I could not have been more than two or three hundred feet west.

Q. I see.

The Court: Q. What is that again? A. Between two and three hundred feet, half a ship's length, when she was close to the bridge she took a sudden sheer.

Mr. Donaghy: Q. I think the statement is that she was two or three hundred feet west of the bridge when the current caught
30 the ship. Is that accurate? A. Yes.

Q. Very good. What, as near as you can judge, was the actual state of the tide, the current? A. The surface current was a little against us. The tide was still ebbing a little.

Q. Through the bascule? A. Yes, the current was. There was a slight apparent current in the bascule at that time.

Q. Now is it true that previously to the construction of the bridge that undercurrent to the northerly which seized your ship two or three hundred feet west of the bascule did not exist? A. I could not say.

Q. I thought you made the statement that prior to the fill
40 at the end of it the current followed the contour of the shore line and there was not this northerly current. Did you make that statement? A. Yes. I never experienced this northerly cross-set until the construction of the fill there.

Q. Now, perhaps you can suggest then how a—by the way have you seen the chart with the fill on it? A. Yes, I have. We have it in the pilots' office.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseR. W. McNeill
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 R. W. McNeill
 Cross-exam.
 (Contd.)

- Q. Have you gone down on to the fill and looked at it too?
 A. No.
 Q. You have not. You know that it is underneath the south end of the bridge? A. I know that.
 Q. Now, do you suggest then that this undercurrent which caught your ship and took it in a northerly direction and seized it two or three hundred feet west of the bridge was caused by a fill apparently two or three hundred feet up-stream according to the undercurrent you have told us about? A. It may have been. Water will bank and throw out. It might be deflected by that fill. 10
 Q. I just want to get your theory? A. Yes, I would really think so.
 Q. Do you think it was the current going east that was deflected by this fill and caught your ship? A. Yes.
 Q. And you think it may have banked up on the fill and caught you? A. Banked and swung out.
 Q. It would have to come back west of the fill to catch you, having in view your position, wouldn't it. That is plain, you are two or three hundred feet west of it and it caught you there? A. Well, if it banked, it probably banked back two or three hundred feet and come back. The current would come out but would be deflected by the body of water inside. 20
 Q. It would have to get where the ship was? A. Yes.
 Q. You say that was at the end of a long run out? A. Yes, I would not specify that it was a long run out, but I know that it was low water slack.
 Q. You say in taking a large ship of deep draft out going west you go now near the end of a long run out? A. Yes.
 Q. And do you get there earlier or later than the tide tables show the slack water at? A. I get there earlier. 30
 Q. How much? A. Probably half an hour.
 Q. You think that is necessary for safety? A. I do.
 Q. Thank you.
 (Witness aside).
 Mr. Smith: I will call Captain Lewis.

A. E. Lewis
 Direct.

ALFRED ELMER LEWIS, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

- Q. What total experience have you had as a seaman on this coast? A. 24 years. 40
 The Court: Residence.
 Mr. Smith: Oh, I beg your pardon.
 Q. You live in the City of Vancouver? A. Yes, since 1909.
 Q. How many years' experience have you had on this coast?
 A. 24 years.

Q. What experience have you had as a pilot? A. Two years.

Q. How many times have you been through the Second Narrows before the bridge was built? A. Several hundred.

Q. You were master of the tug "Lorne" for a long period, weren't you? A. For five years.

Q. Did you draw through the "Narrows" with the "Lorne?" A. Yes.

Q. How many times have you been through since the bridge was built? A. 13 times.

Q. What is the proper stage of the tide at which to pass through the bascule span? A. Slack water.

Q. In your opinion the bascule span is in the proper position? A. No, sir.

Q. Why not? A. It does not allow a big ship to have full advantage of the channel. It is too close to the starboard shore.

Q. To which shore? A. To the south shore. It would be much better if it was out in the middle of the channel where the 300 foot span is.

Q. Would you speak a little louder, Captain? A. It would be much better if it was where the 300 foot span is.

Q. Is the bridge itself at right angles to the Narrows or at an angle? A. It is at an angle.

Q. Is that another disadvantage or otherwise? A. It is a disadvantage.

Q. Is there deep water all around the span? A. Off the south bank?

Q. Yes, the bascule span. I mean with reference to the shore east of the bridge? A. No, it is shallow on the east side.

Q. There is a shoal there, is there? A. Yes.

Q. How far out is the outer edge of the shoal with reference to the bascule span.

Mr. Donaghy: I think that we agreed upon a plan, and it seems to me that we are bound by that, and it is of no use having a witness who has not taken soundings taking up the time of the court.

Mr. Smith: I am quite agreeable, if my friend agrees on that.

The Court: Yes.

Q. How does this shoal affect the navigation of vessels passing east and west? A. It does not allow the vessels to line up for the draw.

Q. Has the shoal any other effect? A. I believe on the ebb tide it would have some effect.

Q. From the point of view of eddies being set up? A. Yes.

Q. Is there any way of telling beforehand when it is time for slack water at the Second Narrows? A. Not outside of the tide tables.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. E. Lewis
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. E. Lewis
Direct.
(Contd.)

Q. Have you found the tide tables accurate in that respect?

A. No.

Q. Is there any way of telling beforehand the actual period of slack water, the length of time slack water may be expected to last? A. No, none that I know of.

Q. What current may one expect to find half an hour one side or other of slack water as stated in the tide tables for slack water at the bridge? A. What do you mean?

Q. What current would you get there at slack water? A. There is quite a surface current there. It is irregular. You cannot depend on it. 10

Q. Are you speaking now of the last of the ebb? A. Yes.

Q. And do you meet with any undercurrents? A. There is some undercurrent there. You cannot tell which way it is going to set to.

Q. I am speaking now of the bascule span right at the bridge.

A. Yes.

Q. You expect to find undercurrents do you? A. Yes.

Q. Setting how? A. Right across the span.

Q. Have you ever experienced this undercurrent when it was slack water on the surface? A. Yes. 20

Q. What effect has Seymour Creek on the current? A. At slack water it has some effect in heavy rainstorms.

Q. How does it flow? A. Right across the channel.

Q. Have you ever experienced surface currents flowing opposite directions at the same time? A. Yes, I have seen them going both ways.

Q. When the tide ebbs? A. It backs up there, ebbs in the main stream and backs up on the south shore.

Q. Is it ever possible to estimate the strength of the current you may meet at the bridge? A. No, not that I know of. 30

Q. What effect has the fill at the south end of the bridge on the current? A. It throws the current across the bridge, right across the piers.

Q. How was it before the piers were put in, before the bridge was built? A. The current ran straight through, along the shore line.

Q. Were you in court when the Captain of the "Eurana" gave evidence this forenoon? A. Yes.

Q. Was the navigation he described proper navigation? A. I think so. 40

Q. At what time do you plan to make the draw when passing from east to west at slack water. Do you try to get there ahead of slack water or behind it? A. I like to be there a little ahead of time.

Q. Do you endeavour to go through just at exact slack water or when? A. I try to.

Q. When? A. At slack water.

Q. Before the bridge was built at which stages of the tide did vessels navigate the Second Narrows? A. At all stages, providing the current is not too strong and I would have to buck it.

Q. Now that the bridge is there, at which stage do they navigate? A. At slack water.

Q. And only at slack water? A. In my experience, yes.

Q. Have you yourself ever had any accident at the bridge?
A. No, sir.

10 Q. Have you ever had any near accident? A. No, I have never had any near one. I have been affected by that current setting across the span when I had to counteract for it.

Q. But you always succeeded in doing that? A. Yes, sir.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Are you engaged during the present time, and have you been for some months past as a regular pilot? A. Yes, sir.

Q. And as such you have been in the habit of taking ships through the bascule span? A. Yes.

20 The Court: I did not quite hear that. Just repeat your answer. What did you say? A. He asked me if I had been taking ships through since I have been a pilot.

The Court: I did not quite catch what you said.

Mr. Donaghy: Q. Have you been engaged for the past two years in taking ships through the bascule span as a pilot? A. Yes, sir, 21 months to be exact.

Q. Will you give us some idea of the varying sizes of the vessels you have taken through the span? A. Well, they run from 350 to 420 in length and the average is 55 feet beam.

30 Mr. Griffin: A little louder, please? A. The average is 55 feet beam and 350 to 420 in length.

Mr. Donaghy: Q. And the draft? A. The deepest I have had to take is 27 feet.

Q. Now, apparently you knew the waters along the south shore where the south end of the bridge is very well, prior to the construction of the bridge? A. Yes, sir.

Q. What were you engaged in when you acquired that knowledge? A. Tow boat towing.

Q. Towing booms? A. Towing booms and barges and steamers.

40 Q. And you say, I take it, that during that period the currents ran east and west along the south shore and followed the shore line? A. Yes.

Q. And it was not this northerly current mentioned in the suit here? A. Not that I know of. It did not show on the surface anyway.

Q. Nor did you feel it in the bottom? A. No.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. E. Lewis
Direct.

(Contd.)

A. E. Lewis
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 A. E. Lewis
 Cross-exam.
 (Contd.)

Q. Have you, within the past two years found any evidence of this northerly undercurrent west of the south end of the bridge?

A. Yes.

Q. How far west have you felt it, the farthest west of the bridge? A. I should judge about 200 feet.

Q. I suggest to you that that is some sort of a back eddy at that location. What do you say to that? A. I think there is a back eddy there close to the shore.

Q. And it is the same thing too underneath the bascule itself? A. A back eddy? 10

Q. Yes? A. No, there is no back eddy in the bascule.

Q. Then it is a different thing if it is not the same. That follows? A. Yes.

Q. In your opinion the current two or three hundred feet west of the bridge is a different thing from the current under the bascule. A. The current comes into that bight there.

Q. I did not ask you that? A. You asked—

Mr. Donaghy: Will you read that last question of mine, please? (Stenographer reads: "Q. In your opinion the current two or three hundred feet west of the bridge is a different thing from the current under the bascule?") A. No, I don't think so. 20

Q. Which, then, is the back eddy? A. Well, the tide hit that starboard shore, the south shore, and flooded right up to the draw.

Q. At which place is the back eddy worst. Is it under the bascule or a point two or three hundred feet west of the bascule, because you surely said you thought there was. At which place would you say there was? A. I would like to take that statement back, because there is no back eddy.

Q. You are at liberty to take anything back. You take that back? A. Yes. 30

Q. Now, you say there is no back eddy? A. Yes.

Q. You change your position with regard to that? A. When I come to think of it, there is no back eddy there.

Q. Now you are positive of it? A. Yes, I am.

Q. That is very fine. Now, seeing that you have arrived at a definite conclusion in regard to the current two or three hundred feet west of the bridge, what causes it? A. The deflecting across the Narrows?

Q. Yes, 200 feet west of the bridge? A. I don't know, I think that it must shoot off from that fill there. That is all that I can account for. 40

Q. At any rate it was not there before the bridge was built? A. No.

Q. You know that? A. Yes.

Q. Now, speaking of this undercurrent, I think I heard you say to my friend there as to this cross-current at the bascule span

that you cannot tell which way it will set. Do you recollect saying that? A. Yes.

Q. Do you wish to stand by that? A. Yes.

Q. What did you mean by that? A. It depends on which way you are going, coming west, coming down through the bridge.

The Court: Speak up.

A. It depends on which way you are coming. If you are coming east to west it generally hits the ship on the port bow.

Mr. Donaghy: Q. And carries you which way, north or
10 south? A. To the northward.

Q. Tell us which point of the compass going the opposite way? A. It still carries you to north'ard when going east. It hits you on the starboard bow.

Q. That is the same thing? A. Yes.

Q. Explain the position; you assumed first that you cannot tell which way it will carry you and now you are positive that it will always carry you to the north'ard, explain that? A. You never can tell which way it is going to take a sheer.

Q. What do you mean by that? A. When coming down to
20 the bridge there is a back eddy above the bridge as well as at the bridge.

Q. East, you mean? A. Yes, and sometimes it is pretty hard to keep the vessel pretty straight coming down there.

Q. I asked you to explain what you mean when you say you cannot tell which way it will sheer, having regard to which way, what do you mean, northerly or southerly, is that what you mean? A. Yes.

Q. Then I take it, witness, that the sheer will inevitably be to the north'ard? A. I am speaking from my own experience.

Q. I take it you are speaking from that experience. You
30 make the statement that it is not inevitably true that the sheer will be to the north'ard, it may be to the south'ard? A. It could be.

Q. That is your experience, you say? A. Yes.

Q. All right. And this time when you found by experience there was a sheer to the south'ard, what was the state of the tide? A. Practically slack water.

Q. Low slack or high? A. No, high slack.

Q. High slack, yes, and where was the boat with reference
40 to the bridge? A. Coming to the westward.

Q. Where was it? You are giving me the direction, which is not the location? A. Oh, the east side of the bridge.

Q. How far east? A. Coming west.

The Court: What occasion was this?

Mr. Donaghy: We have not got it yet, a time.

Q. At that time coming west and while east of the bridge and when you had the southerly sheer, give the location of the

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

A. E. Lewis
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. E. Lewis
 Cross-exam.
 (Contd.)

ship, when you had that southerly sheer? A. I should think it was about 150 to 200 feet away from the bridge.

Q. East of the bridge? A. Yes.

Q. Will you try to give a statement as to the time, the year and month when this occurred? A. It was this year.

Q. What month? A. I believe it was in July.

Q. And what ship had you? A. "Senelseco."

Q. A large vessel? A. About 360 feet long, drawing 25 feet, and 2000 net tons.

Q. Do you think you were in the back eddy when you got 10 that sheer? A. No, I don't think so.

Q. You don't think you were? A. No.

Q. You think the current was setting to the south shore, did you? A. Well, I could not say. There was no current to see on the surface.

Q. So many pilots have judged by the effect on the ship. Do you judge that way or by what you see on the surface? A. We watch the ship.

Q. You judge by the effect on the ship? A. Yes.

Q. What judgment did you form as to the direction of the 20 undercurrent? A. I figured that something struck around the starboard bow.

Q. Going southerly? A. Coming across to southerly.

Q. You are the first one who has spoken in this case of a southerly current? A. Yes?

Q. Did that happen only once? A. That is the only time that I have had a vessel take a sheer on me.

Q. Have you felt the southerly current there? A. Not always.

Q. Have you felt it on more than one occasion there? A. 30 No, that is the only time I have had that.

Q. And that was about 250 feet east of the bridge? A. Yes.

Q. 150 to 200, was it, or 250, perhaps, you don't know? A. No, I will say 200 feet.

Q. Thank you.

(Witness aside.)

THOMAS MANSON, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

T. Manson
 Direct.

DIRECT EXAMINATION BY MR. SMITH

Q. You live in Vancouver, Captain Manson? A. I do. 40

Q. What experience have you had on this coast? A. I have been master on this coast for 16 years, and pilot for six years.

Q. Speak a little louder, master for 16 years and pilot for six years? A. Yes.

Q. How many times do you think you have passed through

the Second Narrows before the bridge was built? A. Well, it would be very hard to say, but I should think a few hundred times.

Q. How many times have you passed through since it was built? A. Over 100 times.

Q. What is the proper stage of the tide at which to pass under the bridge? A. Well, with my experience I have always tried to pass through there at slack water.

Q. Is the bascule span on the bridge in the proper position? A. Well, to my mind it is not.

10 Q. Why not? A. Well, it is not in the channel.

Q. Just develop that a little, will you? A. Well, by the span not being in the channel, when a ship is passing through, you are trying to force the ship against the shore line which the ship won't do, that is, when there is not sufficient water there, and that forces the ship into deeper water and makes it dangerous going through the span.

Q. The span is too near the south shore? A. Correct, it is too near the south shore.

Q. Is the bridge at right angles to the fairway? A. No.

20 Q. Has that an effect upon the navigation of the ship? A. A very bad effect.

Q. That is because of what, exactly? A. Well, you have practically got to change the course of the ship before you get clear of the draw, to clear the shallow water going in an easterly direction, to clear the shallow water east of the draw. Before the ship's stern is clear of the draw you have to change your course to clear that shallow water.

Q. That is when you are going from west to east? A. Correct.

30 Q. Now, when you are going from east to west, what is the situation? A. Well, in going from east to west on account of the shallow water being east of the draw, you cannot line up the draw until you have come abeam of that shallow water, or past it, and the consequence is if there is any—if it is near slack water or low water, the eddies along the shore line with the fill there seem to throw the bow of the ship out of the channel.

40 Q. With reference to the bridge, and the bascule span in particular, what is the outer edge of the shoal you speak about in line with? A. Practically in line with the middle of the draw, that is for a deep draft vessel.

Q. You mean by that the bascule span? A. Yes.

Q. Is there any way of telling when it is slack water at the Narrows? A. It is a very hard matter.

Q. Do you find that the tide tables are accurate or otherwise with regard to the Second Narrows only? A. Since the bridge had been put there it seems to be a very hard matter to tell exactly when the water will be flowing easterly or westerly. The tide

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
—
T. Manson
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 T. Manson
 Direct.
 (Contd.)

tables may be right, but it is a question of what direction the tide will be flowing.

Q. It is difficult to tell the length or period of slack water any time? A. I don't think the period is very long on a large tide. It is a matter of minutes, I should say.

Q. I think I asked you this before, but if I did, you might answer it again, how have you found the tide tables, accurate or inaccurate with regard to the Second Narrows? A. Since the construction of the bridge they are not as accurate as before the construction of the bridge. 10

Q. Therefore you found them inaccurate? A. Yes.

Q. What is the amount of variation that you have found in the tide tables? A. That lays a lot with our weather conditions, that is taking the freshets in the Fraser River, or a heavy fall of water up in the Inlet. That will change that. It has the greatest effect.

Q. Under average conditions, what is the greatest variation now? A. Probably 15 minutes.

Q. At low water slack? A. Yes.

Q. By that you mean the low water slack might be 15 or 20 minutes on either side of the time mentioned in the tide tables? A. Exactly. 20

Q. At slack water in the Second Narrows, what eddies or currents may one expect to meet with? A. The last of the ebb tide going in a westerly direction with the ship, it seems that since that fill was put there the current comes up the shore line and strikes the fill and throws the current in a northerly direction across the channel.

Q. Yes. Now, say with reference to Seymour Creek? A. Well, when there is a big freshet in Seymour Creek, that also flows across the channel across the bridge in a southerly direction. 30

Q. Did these tides exist before the bridge was built? A. The tides existed, yes, but there was not these cross-currents there.

Q. That is to say, the cross-currents you have mentioned as striking against the south end of the bridge and being deflected across. You say that that was not there before the bridge was built? A. No.

Q. How did the tide flow before the bridge was built? A. Pretty well up and down the channel, the centre of the channel—the tide was very true there. 40

Q. Can you now at any time estimate beforehand the strength of the current you might meet in the Narrows? A. I myself could not. I would not say for anyone else.

Q. You feel that you could not? A. No.

Q. What time do you usually try to make the bridge when passing through with a loaded ship with reference to the tide? A. I always try to pass through the bridge at slack water or slightly

before. I give myself half an hour to spare so that when approaching the bridge I can be governed by the conditions I see existing there when I am approaching the bridge.

Q. So that passing through the bridge east to west with a loaded ship, do you try to get through sometime a little before slack water at the last of the ebb? A. Yes.

Q. Either the last of the ebb or slack water? A. Yes.

Q. What do you consider is the proper speed for a vessel going from east to west to approach the bridge? A. Well, it depends on the speed of the ship. If it is a ship with big power, 10 four or five knots are all right, but if it is a slower ship, three or four knots.

Q. Before the bridge was built, at what stage of the tide did ships pass through the Narrows? A. They passed through successfully there for many years almost at all stages of the tide.

Q. Now that the bridge is there at what stages do they pass through? A. Well, if you have only one high water slack in the day time, in day light, you have practically only one hour for large ships. We have ships going up there, 15,000 ton ships. I have 20 taken one up. A ship with 15,000 tons is a large ship, and going through, she cannot go through the span very well at low water.

Q. Were you in Court when the "Captain of the "Eurana" gave evidence? A. I was.

Q. Was the navigation of the "Eurana" proper navigation in your opinion? A. To the best of my knowledge it was.

Q. Have you had any accidents at the bridge? A. No, I have not.

Q. Have you had any near accidents? A. Yes, a good many.

30 Q. Is the bridge an obstruction to navigation? A. To my mind it is.

Q. Is it a menace to navigation? A. I think that is a good name for it.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. How many years have you been piloting ships through the bascule? A. Ever since it was built.

Q. And the size of the craft has varied somewhat. In what directions have you taken them through? A. I should say from 10,000 tons down to possibly 2000 or 3000.

40 Q. And you took one through, you said, of 15,000 tons? A. Yes, that was just before the bridge was built.

Q. Yes, that was before there was any pier there? A. Yes.

Q. Are there any ships of that size seeking business east of the bridge today? A. Yes, the oil tankers.

Q. They go through? A. Yes.

The Court: I cannot hear what you say? A. Yes, these

RECORD
British Columbia
Admiralty Dist.

Defendant's
Case

T. Manson
Direct.

(Contd.)

T. Manson
Cross-exam.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 T. Manson
 Cross-exam.
 (Contd.)

oil tankers go through carrying 15,000 tons and have gone through since the bridge was built.

Mr. Donaghy: That is something new we have had. Have you taken any of them through? A. No, there has been only one that has passed through, 15,000 tons, to my knowledge since it has been built.

Q. Are there any over 10,000 passing through there from month to month? A. Yes.

Q. Running up to what tonnage? A. I should say around 10,000. 10

Q. And carrying what draft? A. About 28 feet.

The Court: Learned counsel asked you what ships over 10,000 tons were going through the Narrows now. I did not hear you make a clear answer to that question? A. The fuel oil tankers.

The Court: The tonnage of the ships, and what their sizes are—it is so important to know what these are. You told us that you took through one of 15,000 tons, and learned counsel is asking you to what extent do ships over 10,000 tons pass through that bridge today. Tell us what you know about it? A. The fuel oil tankers pass through. 20

Mr. Donaghy: Is that the name of the ships, or the line of ships? A. A line of ships.

Q. Known as— A. Imperial Oil tankers.

Q. Oh, Imperial Oil tankers? Yes. Have you taken 150 ships or made 150 passages through the bascule? A. I said that I considered over 100, but I just cannot recall the exact number. I could tell you definitely if I had time to prepare it.

Q. You have spoken of a northerly undercurrent under the bascule. At what stage of the tide have you found that to exist? A. Just about the first of the flood tide; the last of the ebb and the first of the flood. 30

Q. That is the only stage of the tide you have found it to exist at? A. That is my experience.

Q. I am asking you that you have found. You understand what I mean? A. Correct.

Q. Yes, all right. That is the only stage of the tide you have found the northerly undercurrent under the bascule. Is that correct? A. Correct.

Q. Very good. Will you tell why you make it a point to arrive at the bridge about half an hour before the turn of the tide as indicated on the time table or the tide table? A. Well, it seems that since the fill was put in at the end of the bridge that the first of the flood tide comes along the shore and strikes the shore light and runs along the fill and of course when a vessel is coming from east to west, that tide strikes her bow and throws her over on the north side of the channel. It works vice versa with a ship coming from— 40

Q. Let me finish with that first, and then you can revert to it. I think the point is cleared that on the young flood—you think there is first of all a flood undercurrent? A. Correct.

Q. And you want to get there before the flood undercurrent starts? A. Yes.

Q. And does this undercurrent that we have been speaking of indicate—is this undercurrent we have been speaking of in any way indicated by the surface of the water in the form of eddies or anything of that kind? A. When it gets sufficient strength
10 to show on the surface, there is generally quite a tide there.

Q. Does it show in the earlier stages? A. No, I don't think so.

Q. So at any rate you desire to get there before this flood undercurrent begins? A. Yes, sir.

Q. And that really means that you have got to get there 20 minutes or 30 minutes before slack water as shown by the tide table? A. Correct.

Q. And I take it that is what you do when you are navigating at the long run out? A. Yes.

20 Q. Have you navigated with deep draft vessels through any other bridges in the world? A. No, sir.

Q. None? A. Not as master.

Q. What other bridges have you navigated in any capacity; important bridges, with deep draft vessels? A. Well, I have been on this coast for 30 years, and I went to sea at the age of 14 years on sailing ships and my experience with bridges is not very much.

30 Q. Can you answer the question. I did not ask you your life history, I just asked you to name the bridges? A. No, I have not.

Q. All right. Then I take it you mean you have not navigated any important bridges with deep-sea craft in any form or capacity as an officer or master or pilot or whatnot? A. No.

Q. What is your answer? A. I have been a seaman passing through bridges, but not as an officer.

Q. I said in any capacity? A. Yes.

Q. Tell us of those bridges, where they are and what are they? A. I have passed up and down the Clyde.

40 Q. Yes? A. I am not quite clear exactly as to the other bridges, I cannot recall from memory; I am not prepared on that particular question, but if you wish I could prepare that and give it to you.

Q. I don't think that you need a great deal of preparation for that? A. No.

Q. I should think so, if you are a seaman. You have mentioned the bridges on the Clyde? A. Yes.

Q. There are other bridges. Have you been up the Thames and the Mersey. A. Yes.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. Manson
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. Manson
Cross-exam.
(Contd.)

Q. Where else? A. I have been on the Mersey and the Thames at different times.

Q. You have not a very clear recollection of the bridges there? A. This is many years ago, but I can prepare that for you.

Q. Not if it was so long ago, probably it would not be interesting? A. Thank you.

Q. Now, you have ventured the opinion that the bridge has made the tide table inaccurate, that is, it has done something that changes the tide so that the table is no longer accurate. I take 10 it that was your statement. A. Yes.

Q. What leads you to the conclusion that this bridge could hold the tide? A. It is narrowed at the Second Narrows by putting in this fill.

The Court: Turn this way, I cannot hear you. A. It has narrowed the Second Narrows by the fill in here, and the piers; it has confined the tide to a narrow place and seemingly has changed the time of the tide in that way.

Mr. Donaghy: Q. That is your opinion? A. That is my opinion. 20

Q. Did you know or do you know that since the bridge was constructed, the channel has been enlarged? A. Yes, there has been a cut on the north shore, but that has not affected the present span that the vessels are passing through.

Q. It has not affected the bascule span? A. No.

Q. I did not ask you that? A. Yes, I am aware of that cut that was made there.

Q. You are aware that since the bridge was built the channel was enlarged for the water in the Second Narrows to flow in? A. I would not be quite prepared to say that it was enlarged. From 30 the present plan the cut was put there, it is a hole that has been dug on the north shore, but you could not say that it enlarges the channel.

Q. Can you say that it has not? A. No, I won't.

Q. You are not really qualified to say? A. No.

Q. Before this bridge was constructed did you take large heavy draft vessels through the Second Narrows? A. Yes.

Q. Name some of them? A. The "James McGee," 15,000 tons.

Q. You told us of that one, what other? A. The "Mina 40 Brea," the "Torontolite."

The Court: Counsel is now asking about large ships, is that right.

Mr. Donaghy: Yes, or large ships. A. The "Montana," and different Dollar ships.

Q. Averaging a tonnage of what? A. 10,000 tons down.

Q. Did you take those large ships through at all stages of

the tide, or did you select the tide? A. Depending on the size of the ship.

The Court: These are before or after the bridge was built.

Mr. Donaghy: Before.

Q. You understand that? A. Yes.

Q. These are large ships with a deep draft. Having that in mind, did you take them under those conditions before the bridge was built, or did you select the tide? A. On spring tide in the Second Narrows, I don't like to navigate a heavy draft loaded ship
10 on a spring tide.

Q. Why? A. Well, it was considered like all other narrow channels with a strong tide, it is considered unsafe, like the First Narrows.

Q. Thank you.

Mr. Smith: Q. Save and except the long run in at a spring tide, is it your opinion that the bridge as to navigation—

Mr. Donaghy: One moment, my friend opened that, and that is why I cross-examined. He opened on the question of the navigation of the Second Narrows.

20 Mr. Smith: If you object I will leave it. I was clearing it up for your satisfaction.

Mr. Donaghy: My learned friend generally does this. I may say that this is not the first time.

The Court: Q. Witness, you see, you told the court that before this bridge was built that you had taken yourself a 15,000 ton vessel through the Narrows? A. Yes.

Q. Have you taken more than one 15,000 ton ship, or about that class through the Narrows? A. To my knowledge there have been only two 15,000 ton ships.

30 Q. Never mind, just answer my question. I will come to that later. Have you taken more than one? A. No.

Q. Now, since the bridge has been there you have taken none of that class through? A. No, your honour.

Q. Of your own knowledge do you know that ships of that class are still running through that bridge? A. Yes, your honour, there has been one.

Q. Now you say one, do you mean that that is on a regular so-to-speak established run? A. No, your honour.

40 Q. Where would this vessel be running to, you say it was an Imperial Oil tanker? A. Yes.

Q. Is she supplying some sort of an oil depot? A. She made one voyage here, but she is used more on the East Coast.

Q. Is there only one vessel here that you know of over 10,000 tons going through that bridge? A. Over 10,000, but not 15,000.

Q. Over 10,000. Do you know of any line of vessels, or of

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

—
T. Manson
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 T. Manson
 Cross-exam.
 (Contd.)

a vessel that actually runs, we will say, customarily? A. Yes, the Dollar Company's.

Q. Yes, not occasional tramp steamers? A. Yes.

Q. Do you know of any vessels appreciably over 10,000, say 12,000 to 15,000 tons running through that bridge now? A. No, 10,000 is the largest.

Q. At this moment. When I say this moment, just about this time, this day or the same month or week, is that bridge being used by vessels of that description over 10,000 tons? A. It has been and is used today for 10,000 ton ships, quite a number. 10

Q. You understand that is what I am trying to get at. Is there an appreciable shipping business carried on above that bridge by vessels over 10,000 tons? A. Yes, the Imperial Oil Company, their ships are continually running there.

Q. Over 10,000 tons? A. Yes.

Q. Thank you.

Mr. Smith: Thank you, Captain.

(Witness aside).

C. B. Smith
 Direct.

CHARLES BARBER SMITH, a witness called on behalf of the Defendant, being first duly sworn, testified as follows: 20

DIRECT EXAMINATION BY MR. SMITH

Q. You live in Vancouver? A. Yes.

Q. What total experience have you had on this coast? A. Twenty-three years.

Q. And what experience have you had as master in command of coast vessels? A. Eight years with the Union Steamship Company.

Q. And what experience have you had as pilot? A. Two years and a half.

Q. Can you tell me how often you have passed through the Second Narrows since the bridge was built? A. Since the bridge was built 75 times. 30

Q. What in your opinion is the proper stage of the tide at which to pass through the Narrows. A. Slack water, high or low.

Q. Is the bascule span of the present bridge in the proper position? A. No, it is too close to the south shore. It is out of the centre of the channel.

Q. Is the bridge at right angles to the fairway or otherwise? A. No, otherwise. 40

Q. Is this a disadvantage or otherwise? A. A disadvantage.

Q. Is there deep water all around the span? A. The bascule span?

Q. Yes? A. You mean the draw?

Q. Yes? A. There is deep water in the draw.

Q. I mean along the shore line? A. No, on the east shore it shallows up, on the bank on the east side.

Q. How far is the shoal on the south shore to the east of the bridge where it juts out? A. It is pretty near the centre of the span, the bascule span.

Q. Now, how does this shoal affect the navigation of the bridge? A. Well, coming west you have to line the bridge up and naturally you get well over on the south shore to line the
10 bascule span up, and if the tide is not absolutely slack water, which it is impossible to tell, if the tide is flooding at low water slack, flooding on the south shore it will set you over to the northeast of the draw, and going east, why naturally it will do the same thing. It will set your boat over there.

Q. Is there any way of ascertaining when it is slack water at the Narrows? A. Only by the tide book. That is as near as you can get to it.

Q. Have you found the tide book accurate or otherwise?
A. Otherwise.

20 Q. Similarly, is there any way of telling what length of slack water there may be? A. There is no way of telling at all at the different tides, small and large tides, sometimes there is fifteen minutes slack and at other times no slack at all. It just turns and runs the other way right away.

Q. How far have you found the tide tables to be out with reference to time, with reference to slack water? A. The furthest I have found is twenty-five minutes.

30 Q. What currents or eddies may be found at low water slack around about the bridge? A. On the west side the current sets across, right across the draw of the bascule span, northeast, on the first of that flood, that is the first hour and apparently at slack water you cannot judge it. The tide may have turned a little.

Q. Was that tide you describe running northeast there before the bridge was built? A. No.

Q. Were there any currents from Seymour Creek? A. Oh, no; freshets in the spring time, but right now, of course, there is none.

40 Q. How does the Seymour Creek current flow? A. That sets right across the channel, almost at right angles, until the tide gets strong enough to carry it through.

Q. Have you had any experience with two surface currents running opposite directions at the same time? A. Yes, that happens right at the span there. On the north shore it will be ebbing and on the south shore flooding.

Q. Is it ever possible to estimate beforehand the strength of the current that may be met with? A. Mentally, that is all. You just judge it yourself. You cannot with any reliability.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

C. B. Smith
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

C. B. Smith
Direct.

(Contd.)

Q. Before the fill in was built at the south end of the bridge did the current flow right through the Narrows along the contour of the land on the south shore?

Mr. Burns: That is a leading question.

Mr. Smith: Q. Did it or did it not?

The Court: Just ask him how it did flow before.

Mr. Smith: Q. How did the current flow through the Narrows before the bridge was built? A. Through the centre of the channel it flowed straight. But on each side of the channel there was always these eddies.

10

Q. How did the eddies flow? A. Away, the opposite way to the direction of the tide, and of course we got the whirls there, whirlpools on account of the irregular bottom.

Q. What in your opinion is the proper method of navigating through the bridge with a loaded ship going east to west at low water slack? A. With a loaded ship I would not go through the bridge at low water slack.

Q. Not if you could help it? A. Not if I could help it, but if I was forced to go through I would come west as far as—within 1,000 feet of the bridge keeping midchannel and then I would head right through the bascule span, that is at slack water. I have done it several times.

20

Q. Since when have you made up your mind you would not try to go through at low water slack? A. Since the trouble with the last two ships that have gone through.

Q. Since the "Eurana" accident? A. Yes.

Q. And the "Norwich City" accident? A. Yes.

Q. What do you think is the proper speed at which to approach the bridge? A. That depends on the ship itself. If it is a good steering ship why I would approach at about 6 knots; a bad steering ship I would just practically drift through.

30

Q. Before the bridge was built at what stage of the tide did ships pass through the Narrows? A. Well, I was only on small ships and I used to go through at any stage as long as I could stem the current.

Q. At what stages do they pass through now? A. At high water slack, that is a loaded ship. A light ship goes through at low water or high water slack.

Q. Have you had any accidents at the bridge? A. Yes, I had an accident just after the bridge was built with one of the Union boats. I was told to go up to Ioco with a vessel and she was light and I went through on the first hour of the flood and the tide from the south shore coming out of that bay swept me right on to the north pier bodily. She was 150 feet long that ship was and I was close to the south span, that is the bascule, the lift span, I was right close to there, within 100 feet of the draw and before I could get through I was right up against the north pier. That ship has about 16 feet beam.

40

Q. Did you do any damage to the ship? A. 32-foot beam, I should say. Yes, it broke the guards, and dented the plates on the starboard side, just about on the quarter. That is the only accident I have had.

Q. How long was that ship? A. Between 150 and 160 feet long. That was going full speed, trying to get through without touching.

Q. Do you know this notice, the notice No. 76 of 1925 dealing with the regulations for the bridge.

10 Mr. Donaghy: Let me see it, please. I have not seen it.

Mr. Smith: (Produces to counsel.)

Q. You are familiar with this notice, No. 76 of 1925? A. Yes.

Q. Dealing with the bridge and the regulations for passing through? A. Yes.

(NOTICE TO MARINERS, NO. 76 OF 1925, MARKED EXHIBIT NO. 23.)

The Court: No. what did you say?

Mr. Smith: 76.

20 The Court: Of 1925. Yes. He is familiar with that. Yes.

Mr. Smith: Q. I refer you to paragraph 3, section 6, under traffic regulations which says this. (Reads.) A. Yes.

Q. Is the effect of that regulation as a matter of fact to cause a breach of the rules of the road in the case of deep-sea vessels?

Mr. Burns: Surely, that should not be put that way. That is a leading question. What is the effect of the rule.

30 Mr. Smith: Q. What is the effect of the rule with reference to deep-sea vessels going east to west? A. Naturally they will have to pass on the wrong side of the channel. Rule 25 says every vessel in the Narrows channel shall keep to that side of the fairway which is the starboard side.

Q. Going east to west deep-sea vessels must keep to the south side? A. Yes.

Q. For what purpose? A. To go through the bascule span.

CROSS-EXAMINATION BY MR. BURNS:

Q. Do you mean by that, Captain, that a vessel follows—going through this span, that is from west to east? A. No, east to west.

40 Q. Has to keep to the port of the channel? A. Has to keep on the port side.

Q. Because the bascule span is to the port of the channel? A. Yes.

Q. The vessel has to go through the bascule? A. Yes.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case.
C. B. Smith
Direct.
(Contd.)

C. B. Smith
Cross-exam.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

C. B. Smith
Cross-exam.
(Contd.)

Q. What difficulty is there about that? A. No difficulty but a vessel coming west would have to cross her bows to keep on her side. You are breaking the rules of the road.

Q. I understand your point? A. There is no difficulty unless there is another vessel coming the other way.

Q. And the other vessel knows, the vessel you have referred to is coming through that bascule span? A. Yes.

Q. Must do so? A. Yes.

Q. So that there is nothing difficult about it? A. No, just the rules, it breaks the rule, that is all. We often do that. 10

Q. But it is quite plain to any mariner what he has got to do. A. Yes.

Q. I thought that the way you were referring to it was causing confusion. What is the name of that ship, the one 150 feet long? A. The "Chilkoot."

Q. You say that you were going up on the first hour of the flood? A. Yes.

Q. Going east? A. Yes, the big tide.

Q. What was the size of the tide? A. About a twelve foot tide. 20

Q. When you say the first hour, you mean one hour after it started? A. Yes.

Q. Was she going pretty strong? A. Running very strong. I could not judge the strength of the tide, I know she was strong when I got there.

Q. You would naturally expect at the end of the first hour of a twelve foot tide she would be going pretty strong. Was she established? A. Yes.

Q. Then you took full speed to get through? A. To try to get through without hitting. 30

Q. What I was going to ask about was this, this current coming out from that bight on the south shore and into the full race? A. Yes.

Q. That was the one that threw you against the north pier of the bascule? A. Yes.

Q. Or in proximity to it? A. Yes.

Q. And that current was quite apparent to you. You could see it? A. Yes, but it was too late to turn. I had the tide with me.

Q. But so far as the state of the current at that time it gave evidence of itself on the surface. There is no doubt about that? A. Yes. 40

Q. And it would be doing that for some little time? A. Yes, it would have been doing that for, I should say, just before the slack.

Q. Just before the slack? It would be doing that for some considerable time. As a matter of fact, I am going to ask you a

frank question. We have been having a lot of evidence with respect to these currents and this particular current. I am going to ask you a question and I want you to give attention to it as I ask it. You know this spit or fill? A. Yes.

Q. You know there was a spit there before the rock was put on top. You knew that? A. Just shallow water.

Q. But it ran out in a spit? A. Ran parallel with the shore.

Q. Wasn't it as a matter of fact a definite spit running into
10 the water? A. No.

Q. It was a rounded spit? A. Yes, more like a ledge.

Q. And this rock was put on top of it? A. Yes.

Q. Filled in? A. Yes.

Q. And as a matter of fact a very small portion of rock is under water at low tide? A. Of course, I cannot tell what is under water.

Q. You size it up as that in your opinion? A. I should judge that.

Q. And the effect of that as I understand this evidence is that
20 it has a tendency to deflect the incoming flood tide? A. Yes.

Q. Across in a northeasterly direction? A. Yes.

Q. Some of the witnesses said northerly? A. Northerly or northeast. It varies from time to time.

Q. If you can follow me do not break in. I am coming to the question in a minute. Now, would you say, Captain, that at the start of that deflection that the deflection is not shown on the surface? A. At the start of it.

Q. Yes, the start of it. Just leave it that way. That is, the flood tide is coming on; it shows evidence of itself in the bight
30 and then there is a certain amount of deflection as it comes on to go through the Second Narrows? A. I have never seen it on the surface at the start.

Q. Have you ever seen any real effect of it when there was no indication on the surface? A. Yes.

Q. Tell me when? A. When coming through with ships several times, east to west.

Q. I understand, east to west, and without any evidence of the flood tide having started on the surface you have felt the effect of that? A. Yes, without any evidence of the flood tide having
40 started in the channel I have felt the effect when I got up there.

Q. Another question I am going to ask you along the same line—are you prepared to say that your experience of that effect was not caused by the whirls that you spoke of or eddies in the slack water or water between the two tides? A. No, there is very little until after the tide is through the bridge, very few whirls.

Q. Caused by irregularities in the bottom that you spoke of a minute ago? A. The tide has got to be very strong to get the whirls from the irregularities in the bottom.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. B. Smith
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

C. B. Smith
Cross-exam.
(Contd.)

Q. Are you prepared to say this effect you experience when coming through— A. Eh?

Q. From east to west, coming down on the bottom of the ebb or back of the ebb and meeting the commencement of the flood— A. Yes?

Q. —that is not caused by the whirls and eddies in the slack water? A. Yes, I have seen in that bight, I have seen the tide run straight back without any whirls at all which would not be caused by the—I don't think it would be caused by the whirls.

Q. Are you prepared to give as your testimony that this effect you experience would not be from whirls and eddies in the slack water, but must have been the current coming off that fill? A. Yes.

Q. And there was no evidence of that deflection of the current on the surface? A. In the channel, but in the bight there was.

Q. And also coming into the fill there was? A. No, I could not see it coming into the fill, not at the first.

Q. That is perfectly smooth. Now, in the channel the effect that you experienced was when you were in the bascule? A. Was when I just got through.

Q. In fact, it was to the west? A. Yes.

Q. Any deflection of the current there, will you agree with this, is more northerly than northeasterly? A. Yes, about nor'-nor-east.

Q. That is about midway, across the channel to the north nor-east? A. Yes.

Q. And its effect would only be felt about the east side of the bascule span, or possibly a little further east than that? A. Yes, I should say about 100 feet at the most.

Q. Yes, if you are going to give it some portion, or some distance east of the bascule span to have any effect at all it would be the limit when you say 100 feet? A. Yes, it depends on the strength of the tide and how long it has been running.

Q. Mind you, we understand this, that the current we are speaking of is lost once it is established? A. Yes.

Q. We are only speaking about this current— A. Yes, as it gradually increased it is lost.

Q. Dropped away? A. Yes.

Q. At least by the water in the first hour of the flood? A. Yes.

Q. So as a matter of fact you just about got the end of it in this experience of yours with the "Chilkoot?" A. Yes.

Q. At its greatest force it could only give any effect to the extent of about 100 feet east of the bascule? A. Yes, about 100 feet.

Q. You said also there were two surface currents right at the span? A. Right at the bascule.

- Q. Was it the bascule? I want to clear that up. There were two surface currents at some point of the tide? A. With the tide, when it was running strong in the centre of the channel there were two surface currents opposite sides.
- Q. The tide was going which way? A. Either way in the bight is where the surface currents are.
- Q. I am in the mid-channel now? A. Yes?
- Q. When the tide is going either way there is a tidal current in the middle of the channel and eddies on either side going the opposite way? A. Yes.
- Q. Eddies, that is eddying currents? A. Surface currents. You can notice on them on the surface.
- Q. And those obtain any time the tide is running? A. Yes.
- Q. Right away. And those obtain all over the south shore? A. Along the south shore and well over on to the north shore.
- Q. This position is a fair one, at the end even of the ebb tide while still there is an ebb going on, while still the ebb is running out up to the point that it ceased to show as running out in mid-channel? A. Yes.
- 20 Q. There is a back eddy current on the south shore going the other way? A. No, when the current stops running in the centre of the channel, then that is the flood tide making.
- Q. I am talking about before the flood tide comes in? A. You said slack.
- Q. No, while it is still ebbing? A. But apparently slack you said.
- Q. No. What I have in mind, there is a deep current mid-channel going out? A. Yes.
- Q. While that definite current exists and is flowing, there is a back eddy current on the south shore? A. Yes.
- 30 Q. As well as on the north shore? A. Well, no, on the south shore.
- Q. So that is a natural condition, on the south shore it runs in and ebbs, running out in mid-channel? A. Yes.
- Q. That is indicated on the surface? A. Yes, you cannot get anything else. You cannot get anything but a surface current unless you go under the water.
- Q. If the surface is running a certain way, the under water will be going the same? A. Yes.
- 40 Q. When she stops ebbing, when the run out is about finished? A. Yes.
- Q. Does this eddy current on the south shore stop too? A. No, the flood tide starts to make, to run in to the north, to make; about half an hour before low water slack the tide starts, to make; the tide is rising by the shore line.
- Q. While it is still ebbing out? A. Yes.
- Q. In that case, then, the tide coming in is only helping that

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 C. B. Smith
 Cross-exam.
 (Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 C. B. Smith
 Cross-exam.
 (Contd.)

ebb current on the south shore, because that is going the same way? A. Yes.

Q. Isn't this a natural proposition that this eddying current on the south shore exists while the tide is ebbing out? A. Yes.

Q. And the flood coming in must accent and emphasize that south shore current? A. No, when the tide is ebbing, it is too strong to affect any part of the centre of the channel, and then when it slacks up, the force of the flood comes in around the bight and increases across by the fill there.

Q. Am I right in this, that the commencement of the flood tide that is commencing to overcome the ebb, or slack water, whatever you call it— A. Yes? 10

Q. Must not the effect of that necessarily help the eddying current going east on the south shore? If that is not a proposition you accept, then explain to me why it is not? A. You mean the ebb tide?

Q. The ebb tide runs out in the middle of the channel. You have given me this? A. Yes.

Q. And eddying currents run in on the south shore? A. Yes. 20

Q. Now, the ebb is getting lower, and the flood tide is coming up? A. Yes.

Q. Now, in coming up, wouldn't naturally the flood tide go to the least resistance and help that eddying current which is in its favour on the south shore? A. Sure.

Q. It wouldn't do any harm? A. Sure, the flood tide helps it along.

Q. How do you account for this, these chaps coming here and saying that this force or current that met this "Eurana" ship was an under-current, and gave no indication of it on the surface, when as a matter of fact we have the position now which I think you agree with me that the flood tide coming up would naturally help the current on the surface going along the south shore, and would be on the surface. How do you account for that? A. The undercurrent? 30

Q. Yes, that undercurrent and not the surface current? A. I cannot say nothing about the undercurrent. I have never experienced any undercurrent. Anything I experienced I could see, bar Seymour Creek.

Q. You are not one that adheres to this idea? A. There may be undercurrents there. 40

Q. If that is so, and we have discussed it to this point, that is where the oncoming tide must be helping the surface current that already exists? A. Yes.

Q. And it must because it follows the line of least resistance. How could there be an undercurrent going that way and not be showing on the surface? A. Well, after the—

Q. Low water slack on the surface, there is possibly an undercurrent in the middle of the channel? A. It is in the middle of the channel in the deep water part of the channel.

Q. Where does that come? A. The ebb is still running, that you cannot see.

Q. If the ebb is still running, could it run out? A. Yes, run out, but still this other force may still be coming back strong.

Q. If it came back you think it would naturally go to those parts not far from the south shore in order to hit the bascule right
10 about 400 feet off? A. Yes.

Q. How could you figure that there would be an undercurrent there coming in and no indication of that on the surface when as a matter of fact on the surface there has been running a current right in line with it according to your view? A. I cannot tell what is under water.

Q. You expect it? A. Where you encounter those things, irregular bottom, you will encounter an undercurrent and under tow.

Q. My suggestion is this that that is not an undercurrent,
20 but this eddy we are talking about, that is, the eddy from the shore backing up from the ebb tide? A. With the "Eurana?"

Q. Yes? A. With the "Eurana" no doubt it was Seymour Creek and striking that eddy on the bow.

Q. Striking an eddy in this way? A. Yes.

Q. So far as Seymour Creek is concerned, eliminate that? A. That hit the stern and the other catches the bow and helps it all the more.

Q. And the resulting condition would be also helped by the fact that he did not have much steerage way? A. Yes, it would
30 be helped.

Q. If he did not have much steerage way, that position would be helped? A. Yes, but a vessel going slow has a much better chance to get through than a vessel with a load if she takes a sheer. The vessel is not moving fast and will feel it right away.

Q. If you had a good strong steerage way you would be in a better position? A. No, not if she takes a sheer. When you are so close to the bridge as that you cannot do a thing. You haven't got room.

Q. That is all.

40 (Witness aside.)

The Court: Well, gentlemen, how many more witnesses?

Mr. Griffin: Several more, my lord.

The Court: I do not say for one moment that you have not been doing very well, because the case has proceeded with commendable despatch. It has been a real pleasure to listen to it. It has been interesting as well as informing. In view of the sittings of the Court of Appeal commencing tomorrow, what do you propose?

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

C. B. Smith
Cross-exam.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.

Mr. Griffin. I am in your hands. I was hoping that your engagement would enable you to take a day or two more.

The Court: It is absolutely impossible. The criminal cases are first on the list, and the bench has got to be as strong as possible. That is out of the question. Have you discussed with your learned friends when is the most convenient time for all concerned to resume the hearing?

Mr. Griffin: No, my lord.

The Court: I would be glad to have the benefit of your suggestions. 10

Mr. Donaghy: I would suggest on or about the conclusion of the sittings of the Court of Appeal which commences tomorrow, unless your lordship found that you could suit your convenience at some near date.

The Court: I think that is the only thing to do, because it is really impossible to name a date.

Mr. Griffin: I feel with great deference as to the defendant's position, we have voluminous evidence before you and adjourning for a lengthy time will not give you the greatest opportunity to keep the evidence in mind. 20

The Court: Don't you think it is in the public interest, there are other people as well as yourselves.

Mr. Griffin: I appreciate that, therefore the earliest date your lordship can give us.

The Court: I appreciate that, that is more satisfactory to me than anything else. I don't like the delay.

Mr. Griffin: But delaying it to the foot of the Court of Appeal list would be a disadvantage to the defendants. We have our witnesses ready and would like to proceed. So the earliest date that you can give us is our request. 30

The Court: I do not understand how you could be damnified.

Mr. Griffin: By not being able to get the witnesses again. We have sort of lined them up and arranged it all and it is not by any means certain that we can get them again.

The Court: How much longer will it take to present your case.

Mr. Griffin: I think we could finish tomorrow if we put in the day.

The Court: I told you that it is absolutely impossible on the opening day of the Court of Appeal. There is the criminal cases first on the list and those are matters which give us particular concern, and there is the time-honoured and very proper policy adopted in the administration of justice in this court to make the bench in those cases as strong as possible. It means that it must be adjourned, and I cannot understand why, if it is to be adjourned at all, Mr. Griffin, why it will be to your detriment in the slightest way to let it stand until the Court of Appeal is over. 40

Mr. Griffin: We feel that it would.

The Court: In what respect, upon what ground?

Mr. Griffin: On the ground that it is humanly impossible to have the same memory of the evidence. That is my real ground. You might remember it a few days, but no human being can remember it a few weeks.

The Court: You would be surprised if you saw my notes. Is there any other misapprehension.

Mr. Griffin: There is the one as to the disappearance of the
10 witnesses.

The Court: I am vested with a good memory, and I am fortified by my notes which would surprise you if you were to see them; how elaborate they are. Now, is there any other misapprehension?

Mr. Griffin: There is the disappearance of the witnesses. And then there is the difficulty of presenting the argument after a long period. I am afraid that I will not be in shape to remember everything myself.

The Court: This is a case of the first magnitude and what is very often done by other counsel, that is to say, if there is any
20 witness that they are not sure of, any witness' evidence whom they are relying upon they can obtain passages of their evidence. This will give you time to have that extended, and it is a very useful thing to do.

Mr. Griffin: Yes.

The Court: Extended for both sides. Counsel generally do that, anything that they are relying upon. I do not ask you for a moment, because I am so satisfied with my notes. I am satisfied with them, but that is another thing from saying from your point of view there is something particular you would like to emphasize,
30 and if so you would like to have an extension of the notes.

Mr. Griffin: We have some.

The Court: Pick out what you think you may need for future reference. It is a matter of public concern. I think that the Statute says this is an undertaking that is run for the general benefit of Canada. The public are concerned in it. Therefore, I think the best thing would be to speak to me again about the matter to arrange for the completion of the hearing so at some time towards the end of next month when we can see how the Court of Appeal list is progressing we shall be able to fix a date. There
40 are 49 cases, I understand. We had a large list the last time. By that time we will know about it and your learned friends will see how many witnesses they will have to call if they have any more. That is for them to say. By your telling us you will be able to finish tomorrow, it shows the extent of your case.

Mr. Griffin: That is an estimate.

The Court: I should be very pleased to hear you at some

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

time towards the end of next month if you will communicate with the Registrar. Just adjourn the court *sine die*.
 (4:50 p.m. Court was thereupon adjourned *sine die*.)

November 28th, 1928.

PROCEEDINGS AT TRIAL CONTINUED PURSUANT
 TO ADJOURNMENT ON OCTOBER 1st, 1928.

A. B. MACDONALD, ESQ., K.C.,
 appearing for the Dominion Government,
 with a watching brief.

The Court: Mr. Donaghy, do you wish to bring forward the 10
 evidence now that you mentioned before.

Mr. Donaghy: I am hardly ready to bring that forward
 right now, my lord. I have Mr. Swan, the engineer here.

The Court: Yes.

Mr. Donaghy: And we found the Order-in-Council—not a
 certified copy, and there are plans referred to in it. They sent
 us, however, a photostatic copy of the plans instead of certified
 copies. We returned these and asked to have them duly certified.
 We have a wire that they were mailed to us last Saturday and we
 expected them in today's mail. As Mr. Swan has to report on 20
 these plans, I can't make way on them until I get them and I ex-
 pect them in today's mail, my lord. I have furnished my friend
 with a copy sometime ago of the Order-in-Council.

The Court: What is the date of the Order-in-Council?

Mr. Donaghy: It is 20th August, 1925.

The Court: Yes, thank you.

Mr. Donaghy: Number P. C. 1310.

The Court: Then you will proceed to call your witness, Mr.
 Donaghy?

Mr. Donaghy: I don't know if my friend was through. He 30
 did not announce that he was through on the navigation features.

Mr. Griffin: Oh, no, we are not finished. I am not finished,
 but my friend in the former proceedings asked your lordship to
 postpone the questions that were reserved against him. The limit
 of indulgence surely now has been reached. We have adjourned
 for two months to enable my friend to supply himself with certain
 information.

The Court: I do not understand you. You say you were
 producing some evidence, and I was not quite certain of the situ-
 ation, you see, whether this engineer, Mr. Swan, having come here 40
 —whether his evidence was to be interjected into the proceedings,
 or whether you wished to continue your evidence.

Mr. Griffin: My lord, the position is this—

The Court: Being a witness from a distance, I thought there might be some difference in his case, you see.

Mr. Griffin: My lord, I have one witness who wishes to get away, and I am going to ask your lordship's permission to call him; but I say my friend, if he desires to proceed with the matters which your lordship allowed him to reserve, that is the presentation of these matters, one of which was for liberty to call Mr. Swan, and I took it that my friend had now made that motion.

The Court: No, he did not say that, because it was really a
10 mis-apprehension on my part. I thought Mr. Swan was here.

Mr. Griffin: He is, my lord.

Mr. Donaghy: Yes, but it is the plans that I need—the certified copies.

The Court: I did not know Mr. Swan was here.

Mr. Griffin: Yes, my lord.

Mr. Donaghy: Yes, I have him here this morning.

The Court: Yes, thank you.

Mr. Donaghy: I need the plans as well.

The Court: Would that be quite convenient, really, Mr. Griffin,
20 fin, because we left at the 17th witness, Charles Baker Smith.

Mr. Griffin: Yes, my lord.

The Court: I understood you to say then at that time that, apart from Mr. Swan, you had some others that you wished to call.

Mr. Griffin: Yes, my lord, that is so, but I want to limit my friend to his right to make the motion at the opening of this court such as your lordship allowed him to make, and if he is going to make it then I wish to oppose it.

The Court: I did not understand him to make it, do you not
30 see. Do not mis-apprehend the situation. I heard no motion yet. All that has happened is that when the court opened no motion was made by anybody, and I simply asked Mr. Donaghy a question. I do not want you to think by any observation I made that I placed anybody in a wrong position.

Mr. Griffin: What I propose to do, my lord, subject to your lordship's ruling, is to ask to call this one witness, then take my position in regard to Mr. Donaghy's motion.

The Court: Then you will call the witness?

Mr. Smith: Captain T. L. Higgs.

40 THOMAS LEONARD HIGGS, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

The Registrar: Your full name? A. Thomas Leonard Higgs.

The Court: Now, I will not hear you here, you see, if you mumble in that way? A. Yes, sir.

The Court: Come a little closer now and speak up.

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

Defendant's
Case

T. L. Higgs
Direct.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseT. L. Higgs
Direct.

(Contd.)

DIRECT EXAMINATION BY MR. SMITH:

Q. I have got to hear you over here too, you see, so speak as loudly as you can, Captain. You live in Vancouver, Captain? A. Yes.

Q. You live in Vancouver? A. Yes.

Q. You are captain of the tug "Dauntless?" A. "Dauntless," yes.

Q. And for quite some time you have been towing through the Second Narrows? A. Yes.

Q. For how long a period? A. Oh, since 1912.

Q. Since 1912, then you have towed through there both before and since the present bridge was built? A. Yes.

Q. And what do you usually tow through? A. Well, logs.

The Court: How many years did he say, Mr. Smith?

Mr. Smith: Since 1912, my lord.

The Court: Oh, since 1912, yes.

Mr. Smith: Q. You usually tow logs through? A. Log booms, yes.

Q. Yes. Before the construction of the present bridge, at what stages of the tide or what tides have you usually towed through? A. Well, all stages of a fair tide—of a flood tide.

Q. Yes, at all stages of a flood tide? A. Yes.

Q. Yes. Now, that bridge has been built—yes, by a fair tide you mean a tide behind you? A. Yes, flood tide, yes, proceeding east, of course.

Q. Now you are dropping your voice.

The Court: Now, speak out. You seem to have a cold, I know, but that does not assist us. Speak out and speak plainly so that everybody can hear you in this big room here. Please stand there? A. Yes, my lord.

The Court: You seem to be a big man, you know, you ought to have a corresponding voice.

Mr. Smith: Q. Then, at all stages of a fair tide before the bridge was built you usually towed logs through the Second Narrows? A. Yes.

Q. Now, since the bridge has been built, what alteration did you find in the tides? A. Well, it increased in velocity and—

Q. A little louder, please? A. And it is narrowed down a lot from what it used to be, and the tides are much stronger, and there is a cross-set—cross-eddies, and a cross-set in the span, just before we approach the span there is a strong set right across the span—across the bridge.

Q. You will have to speak a little louder as I don't hear you here. You said that—

The Court: You see it is very annoying, witness. You see, for the third time I have asked you, and counsel tells you himself that he cannot hear you, and he has told this, surely you under-

stand what your duty is. Why do you not speak up. Is it impossible for you to do so? A. No, my lord, I will speak as loud as I can.

The Court: Just imagine you are on board your ship and say you were ordering some more breakfast from the steward.

Mr. Smith: Q. This set that you speak about, where does it come from, Captain? A. It sets from the south shore towards the north across the face of the bridge.

Q. Yes, and what is the effect of that set? A. Well, it makes it very hard—very hard to line up in the span of the bridge when we are approaching it. As soon as we strike the set, why it tends to send us toward the north shore, and makes it pretty hard to get into the bridge.

Q. Yes. When you speak about the bridge, have you reference to that part through which tugboats and logs pass, namely, the 300 foot fixed span? A. Both.

Q. Both that span, and what other span? A. Both the bascule—the draw, both the draw and the 300 foot span.

Q. I see. Then you say that both of these spans are affected by this cross-set? A. The cross-set runs right across.

Q. Yes, and that cross-set comes from what part of the bridge? A. The south side.

Q. The south side. Well, you mean the south end of the bridge, I suppose? A. Yes, the south end.

Q. Yes. You said, too, that the tides had increased in strength? A. Quite considerably.

Q. Yes. At what stages of the tide do you tow through logs now? A. Low water slack if it is possible, if we are proceeding east.

Q. Proceeding east, you must go through at low water slack? A. Low water slack.

Q. I see. So that the navigability of the bridge has been reduced too? A. To low water slack.

Q. Yes, to low water slack. Do you know the bascule span? A. Yes.

Q. In your view is the bascule span in proper position or otherwise? A. No, I should consider it was too far to the south, to the south side of the channel. You have got to go too close to the south shore before you can get into it properly, and you get into shallow water.

Q. Yes? A. It seems to me it would better if it was where the 300 foot span is now.

Q. Yes, is there anything else wrong with it? A. Well, it is an obstruction in the channel, the piers and everything make it very hard for us to get through.

Q. Yes? A. In our particular trade anyway.

Q. Yes, and does the bascule span span the deepest part—

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. L. Higgs
Direct.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 T. L. Higgs
 Direct.
 (Contd.)

the deepest water or not? A. No, from the charts that I have seen it does not, it is in shallow water on the south side.

Q. Before the bridge was built was it customary for tugboats in proceeding east against the tide, if they so desired, to hug the south shore? A. If it was a little tow, yes, if you could get up in the eddy—you would find an eddy on the south shore.

Q. Is it possible to do that now? A. No.

Q. In your opinion is the bridge an obstruction to navigation? A. Very much so.

Q. And is it a menace to navigation? A. Yes.

Mr. Smith: Thank you.

10

T. L. Higgs
 Cross-exam.

CROSS-EXAMINATION BY MR. BURNS:

Q. How long have you been in command of the "Adolphus?"

A. The "Dauntless."

Q. Oh, it is the "Dauntless?" A. Since—two years ago the 12th of May this year.

Q. So that you were not in command of the "Dauntless" before the bridge was built? A. No, sir.

Q. Were you in command of any tug before the bridge was built? A. Yes.

Q. What? A. The tug "Erin."

Q. When? A. In 1915.

Q. 1915, for how long? A. Well, I really couldn't tell you now. I was in command of several boats at that time, the "Jessie Mac" and the "Erin."

Q. And the what? A. The "Erin."

Q. The "Erin," yes? A. And the "Jessie Mac" at that time.

Q. Those are small tugs? A. Yes, the "Jessie Mac was a small tug.

Q. So was the "Erin," wasn't it? A. No, the "Erin"—

Q. Compared with the "Dauntless?" A. No, about the same size.

Q. Oh, was it? Well, then, what were you doing, that is 1915 to 1926, when you were in command of the "Dauntless?" A. I was master of the "North Shore."

Q. That is a tug too? A. The tug "North Shore."

Q. Now, with those other tugs, did you go up and down the Second Narrows? A. Yes.

Q. I understood you to say that you would take any stage of a fair tide in doing it? A. Yes.

Q. In other words, you would go up and down on the tide, would you? A. Yes.

Q. And when you say any stage of the tide, you would make use of the tide in connection with your tow and your boat in going up and down? A. Quite so.

30

40

- Q. And in fact looked for the tide to help, that is so is it not?
A. Well, we couldn't go through unless we had a fair tide, with logs.
- Q. Well, you could go through in slack water? A. Yes. slack water, yes.
- Q. If you had power enough and could control your tug, couldn't you? A. Well, providing it is low water slack.
- Q. Well, or high water slack? A. If you had sufficient tide to get clear you could.
- 10 Q. Well, as a matter of fact it comes down to this, Captain, doesn't it, that in slack water, as long as a tug has got power enough to move a boom and can control it, that she can go up and down there on slack water? A. Well, slack water is a very short period.
- Q. Well, that is so, isn't it? A. No, at certain stages—
- Q. In short runs it is quite a considerable period, is it not—comparatively speaking? A. Well, never over ten minutes.
- Q. It was never over ten minutes that slack water occurs?
A. No, I wouldn't say.
- 20 Q. No, then you spoke of that—are you talking about that? You put it ten minutes as a matter of fact? A. No, no, I wouldn't.
- Q. Well, then, what do you mean? A. I say on an average.
- Q. You wouldn't say never over ten minutes? A. Well, it is between that—there is hardly any slack at all at times.
- Q. Well, I understand that. What I am talking about, when you get short runs in and short runs out you get a longer period of slack water in between than in the reverse cases? A. Yes.
- 30 Q. Isn't that so? A. Yes.
- Q. Now, then, when you get those longer periods, I am asking how long could that last or would that last? A. Well, I wouldn't like to put a definite time.
- Q. Well, you see a minute ago you said it would never be more than ten minutes. What do you say with respect to that answer now? A. Well, at times I have seen that slack for ten minutes.
- Q. I know, but don't you see—surely you understand what I mean. I was asking—
- 40 The Court: Turn this way, come a little nearer over this way.
- Mr. Burns: Q. I was asking you, in your experience—I presume you are speaking from your experience, are you? A. Yes, my own experience.
- Q. What would be the greatest length of the time of slack water in between tides which you have seen? A. Well, in my experience, ten minutes, I will say ten minutes.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 T. L. Higgs
 Cross-exam.
 (Contd.)

Q. And would you say that slack water could not last for longer than that period at any time? A. I wouldn't say.

Q. Well, you said a minute ago never more than ten minutes, didn't you? A. Yes, that is in my experience.

Q. Well, all right, leave it at that in that way. Now you said a minute ago never in my experience, didn't you? A. Yes.

Q. Now, then, you qualify that, do you? A. Yes, that is my experience.

Q. That is your experience, that you have never seen slack water for a greater length of time than ten minutes? A. No. 10

Q. Now, you spoke of this cross-set, just where does that occur? A. Well, about—about 50 feet before you get to the bridge, that is proceeding east on the low water slack.

Q. The commencement of this cross-set that you speak of is at 50 feet— A. Approximately 50 feet.

Q. Approximately 50 feet? A. Yes.

Q. On the west side of the bridge? A. Yes.

Q. At low water slack? A. At low water slack.

Q. And just where is that commencement in relation to the channel. You say it comes from the south shore, well, whereabouts do you see it first? A. Well, we strike it when we are approaching the draw, or it strikes us, I don't know which. 20

Q. When you say the draw, are you speaking of the bascule span? A. The 300 foot span.

Q. Oh, the 300 feet? A. While we approach the 300 foot span, and your boom proceeding, when we get through we pull out to the 300 foot span and drop out and back, you see, and then go through the bascule span and pick it up on the other side again and proceed, you see. The boat is too high to go underneath the bridge. 30

Q. Yes? A. So we have to take her through the bascule span and the tug boat through the 300 foot span.

Q. Then you put your boom through the 300 feet and you slip in and go through the bascule? A. And pick it up.

Q. And pick it up? A. Yes.

Q. Now, just where do you first get this cross set. I want to get the inside of this? A. Well, approximately 50 feet before we reach the bridge.

Q. Well, that would be 50 feet west of the bascule span? A. West of the bascule span, yes. 40

Q. And in what direction is it going? A. Well, across the channel at the start—at the start.

Q. What is that? A. There is a sort of eddy.

Q. I know, we will come to that, I am wanting to get your understanding of this cross-set pretty much in detail if possible. You say that when you hit that cross set first it is at right angles to the channel? A. Well, I wouldn't say exactly right angles.

Q. Well, approximately? A. Approximately right angle, yes, it is setting across.

Q. Yes, that is what I mean to say. At first, and then how does it go? A. Well, it is never really the same always after it goes across, it goes across the bascule span and then it sort of forms eddies.

Q. That is to say, there are no eddies across—in front or to the west of the bascule span, but they become eddies as the cross-set goes on towards the 300 foot span? A. Yes, they sort of disperse in the tide.

Q. That is because they become eddies, that is the only reason
10 you say that it is not approximately at right angles to the channel, although it is? A. Yes, after.

Q. I understand; and you say you hit this cross-current west of the bridge? A. Yes.

Q. Can you see where it comes from on the south? A. Oh, it apparently comes up along the shore, although the bight in there.

Q. Along the bight? A. Yes.

Q. It comes up and along the bight? A. Yes.

Q. And it come out of the bight? A. Yes.

Q. Simply takes the contour of the shore? A. It follows
20 the shore, and then there is a fill—there is a fill on the south side of the bridge that appears to push it out more than it used to.

Q. That helps it, you think? A. I think so, yes.

Q. Then how far does that extend towards the bridge, the set? A. The cross-set.

Q. Yes, it is the cross-set we are discussing? A. Oh, it goes out and across the 300 foot span anyway.

Q. I know, but I say towards the bridge. Now we have got that, that the cross-set goes towards the 300 foot span? A. Yes.

Q. Then how far does it go towards the bridge, how deep
30 is it or wide is it? A. You mean deep—

Q. I mean width? A. Oh, it varies.

Q. Well, give me some idea of it? A. I have seen it 50 feet—200 feet sometimes. It varies, it is never—you can't say it will be the same always.

Q. Well, would you say that there would be a cross-set even if aided by this fill that could be 200 feet wide, do you mean that? A. Yes, it will at times.

Q. It might be 200 feet wide? A. Only when it comes up along the shore, the turn of the tide.

Q. Then the eastern limit of that 200 feet of this width, if
40 that is the width in between, would necessarily be opposite where it comes out of the south shore, wouldn't it, or else it would be spread out, it wouldn't be a set at all? A. I can't quite follow what you mean.

Q. Well, we will take the bight, you say that this cross-set is made by this bight? A. Yes.

Q. On the south shore? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. L. Higgs
Cross-exam.
(Contd.)

Q. Then it must come out of the lip of the bight—call it the lip of the bight, or come across— A. Yes.

Q. Isn't that so? A. Yes.

Q. Now, then, if it is 200 feet wide, the easterly boundary of that 200 feet must necessarily be approximately opposite that lip. That must be so. Isn't it? A. I don't know.

Q. Well, so far as the current would be straight across the channel, it wouldn't be a cross-set at all, would it, or at least tend not to be, isn't that so? A. No, I wouldn't say that.

Q. You don't say; but at any rate, could you say that that cross-set at any time is felt at the bridge itself, that is, within the boundaries of the bridge itself? A. Do you mean in the span? 10

Q. In the bascule span, in the 300 feet? A. I wouldn't like to say. I haven't been through there very much.

Q. Oh, you haven't been through there very much? A. I haven't taken a tow through—

Q. I thought you were giving evidence here as the result of having a lot of experience and knowledge up there? A. I haven't taken a vessel through there, only a small boat, that really can't stick it. 20

Q. You can feel it with the small boat? A. Not with a light boat.

Q. Why, because you haven't got draught enough to feel it, or what? A. Well, she is short one thing, the boat is short, and you go through so quickly and you hardly pay any attention to it. It is only when you have a boat—a heavy boat that you notice the tide.

Q. Well, doesn't it amount to this, Captain, although you have been through there several times, that you don't suggest—I don't know how many times, several times—this current has not affected you so much that you can tell whether it exists between the west side of the bridge and the bascule span? A. Right in the span? 30

Q. Yes? A. I wouldn't say it was right in the span, it is before—we feel it before approaching the span.

Q. Before approaching the span? A. Before going into it.

Q. Then you see it going toward the 300 foot fixed span? A. Yes.

The Court: When you say "span" there, Mr. Burns, I suppose you mean the 300 foot as distinguished from the bascule? 40

Mr. Burns: Yes, my lord, I am trying to be as careful as I can.

The Court: I thought that is what you meant.

Mr. Burns: Yes, the 300 foot.

The Court: When you say 300 foot, you say span?

Mr. Burns: Yes.

The Court: That is to say, that will be the distinction, and the other is the bascule.

Mr. Burns: Yes, my lord.

Q. Now, so far as this bridge being an obstruction, of course we all know it is an obstruction, you can't go where piers have been put in, and that is by reason of the piers, for instance; but isn't it a fact, now, I put this to you, that prior to the bridge being there you tugboat men could go up and down on a fair tide and let the tide take your boat, and could go up with less power than you have to use now, isn't that so? A. Before the bridge was there?

10 Q. Yes? A. No, we used to go up with less power; we have more now.

Q. Yes, I say you used to be able to go up with less power?

A. Yes.

Q. By using the tide as power to— A. No, not by using the tide.

Q. But it helped you, didn't it? A. Oh, the tide helped, of course.

Q. And isn't it so, even in these days the boom would be if not ahead of the tug at any rate alongside of the tug in going
20 along the tide, isn't that a fact? A. My boom never was.

Q. Well, you have seen that anyway? A. I have seen them go through ahead of the boat, yes.

Q. Of course you wouldn't admit that your boom ever did. Now, so far as the bascule span being in shallow water comparatively speaking, you never sounded anything there, did you? A. I see by looking at the chart that is the only thing I can go by.

Mr. Burns: Just by the chart, well we can all look at the chart.

Mr. Smith: All right, Captain, thank you.

30 (Witness aside.)

The Court: I notice, Mr. MacDonald that you appear here?

Mr. MacDonald: Yes, my lord.

The Court: And do you wish your appearance to be recorded?

Mr. MacDonald: I am appearing on behalf of the Department of Justice—they asked me to appear.

The Court: Oh, yes, a watching brief, I suppose?

Mr. MacDonald: A watching brief.

40 The Court: Well, I am very pleased to see you, Mr. MacDonald, and to have the National Government represented in a case of this importance, which has its national aspects. I will just record you then as a watching brief. What Department do you say, Marine?

Mr. MacDonald: Marine and Public Works.

The Court: Marine and Public Works, yes.

Mr. Griffin: Now, if your lordship pleases, I do not desire to call any more testimony. The next question I think your lord-

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. L. Higgs
Cross-exam.
(Contd.)

Proceedings at
Trial.

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

ship has to decide is whether my friend shall or shall not finally close his case. You will remember in the beginning that on the last occasion—I have forgotten the date for a moment—my friend Mr. Donaghy said at page 78—has your lordship got the transcript? Your lordship will have the advantage of the transcript as it has been made. If your lordship will turn to page 78 about line 15, “Mr. Donaghy: My lord, there remains the proof to be brought forward that this bridge has been constructed in accordance with these plans and so on. That I had proposed to prove by the evidence of Mr. Swan. I shall not attempt to have any other engineer go over it, because it would be a very lengthy and expensive matter, of course, to follow that out, and show in a way the detail had been followed out. 10

“The Court: I understand then what you mean is that—what we will call the evidence, the facts, apart from the actual manner in which the bridge was constructed, is concluded.

“Mr. Donaghy: Yes.

“The Court: You now propose to show that you did perform—you did erect this bridge in conformity to the plan?

“Mr. Donaghy: Yes, and the engineer is the one who can do that.” 20

And then my friend goes on at the top of page 79: “Now, there is one other thing, my lord, that I wish to mention and reserve—I wish to have your lordship’s leave to reserve the bringing of proof of another matter. There is a question as to whether the authority which we have produced in the form of an order of the Board of Railway Commissioners, authorizing the raising of the bridge five feet is made under the proper Section. It says, and it is confessed it is made under Section 251—”

Mr. Donaghy: That should be “professed.” 30

Mr. Griffin: All right. Then she goes on—my friend then proceeds: “There is a further question as to whether or not an Order-in-Council had been passed authorizing the raising of the bridge five feet. Now we are having further inquiry made, my lord, in regard to that. That has to be made in the department at Ottawa. In the Privy Council records. I am asking leave to bring that in if it is found. Neither of these matters will interfere with the course of the evidence for the defence.”

And then over the way, after a little discussion, over the page at line 10 my friend says “That closes our case, my lord.” 40

Now, my friend therefore has reserved, with your lordship’s consent, the right to move to call Mr. Swan, and the right to move to introduce that document—two documents. Now, I therefore desire that if he proposes to make these motions he should make them now before I call any further testimony. That I think was your lordship’s direction and intention, that my friend should do so at the resumption of this court, just as he would have had if the case had then continued straight through to the finish.

The Court: Mr. Donaghy?

Mr. Donaghy: My lord, it appears at the top of page 81 that your lordship pointed out to counsel "There are two distinct branches to this case," one was the question of the proper construction in accordance with the Act of Parliament, of the bridge and the other was the question of navigation. And as a result of this discussion I find your lordship reserves to me the right to bring any evidence in relation to these technical matter which I had then moved for leave to do and your lordship granted me that
 10 leave I suggested that my friend should proceed with his evidence regarding navigation, which he did, and I notice that at the top of page 88, after your lordship had decided on that, my friend asked for fifteen minutes to consider whether he would do so or not and he said in the middle of page 88, "My lord, I have decided to accept the suggestion made and to proceed on the basis indicated by your lordship." So that was the end of the motion and the disposition that was made. I would be very happy to interject Mr. Swan here, my lord, had it not been that copies of the plans which they sent us were only photostatic copies, not certified copies.
 20 It seems difficult to get them to understand what is technically required in a court of law, and as I said in opening, these were mailed to us on Saturday and they should be in tonight's or the morning mail, and then I will be in a position to call Mr. Swan and ask him if these plans have been conformed to in the construction that was being built. Now, my friend says—I take it from what he said at the top of page 88, that he would proceed with his evidence on navigation, that he now wishes to recede from that position.

Mr. Griffin: That is not the position at all, my lord, but any-
 30 way I might go further and allow my friend to proceed with his witness on the basis of the photostatic copies, if your lordship allows that evidence at all. I contend that your lordship merely reserved to my friend leave to move to introduce these things and to introduce the witness. Your lordship then as I understand it did not say finally that he has leave, but only leave reserved to move, and I desire him to do so at once; otherwise I wish to be in a position of saying that any further evidence tendered by him at a later date to prove his original case will be objected to, and the arrangement merely was that I should proceed as far as I could
 40 before the trial was adjourned, that was all, which I did in deference to your lordship's desire that I should as far as possible continue, but I have not in any way waived or given up my right to have my friend close his whole case at the right time except on the one thing, that he was to produce this witness if your lordship allows that witness. And I wish now if my friend proposes to call him that he make the motion now and have it determined whether that witness is to be called, because it will affect my conduct of

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

my case; and what I say is I will ask your lordship to hear him now, and as I say I will waive any argument about the plans, let my friend go on with his case with the photostatic copies for the present.

The Court: It is really only a matter of what is most convenient, Mr. Griffin, and, of course, I shall see that you are both fully protected so that there may not be the slightest prejudice to you. As I say understood it, really it was this—we are getting along very nicely, that you should continue to exhaust your evidence upon this particular point that you have been directing your attention to and then take up the other. 10

Mr. Griffin: Yes, my lord, that is quite satisfactory to me. I had to in other words accept that position on the previous part of the trial by reason of Mr. Swan's absence, but now, I am not prepared to do that, so that I would rather have the matter not continue now, I desire to have it stand over until my friend is finished.

The Court: Well, I rule now, Mr. Griffin, that you had better proceed with any further evidence you have got upon this same line that we have been hearing for several days. 20

Mr. Griffin: Your lordship will then note my objection to that course.

The Court: Yes.

Mr. Griffin: Of course, I say that prejudices my position.

The Court: Well, I cannot see what possible way it can. It is very apparent to me it will not. So have you any more evidence.

Mr. Griffin: Yes, my lord, I have a good deal more evidence.

The Court: Just a moment, please. On the same position that we have been hearing for some time, that is the only arrangement, that is the convenient one under the circumstances. 30

Defendant's
 Case

 D. Clinton
 Direct.

DANIEL CLINTON, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH

Q. Now, you will have to speak loudly, Captain, because I am a long way from you here. Captain, you live in Vancouver?

A. Yes.

Q. And you are a pilot? A. Yes.

Q. And what experience have you had at sea? A. Thirty-two years.

The Court: A little bit closer here. 40

Mr. Smith: Q. And how long have you been in command of deep-sea ships? A. Fifteen years.

Q. And subsequently to that, how long have you been a pilot in B. C. waters? A. Four and a half years.

Q. How long or how often have you piloted vessels through

the Second Narrows? A. On an average of twice a month during that period.

Q. That is twice a month for four and a half years? A. Yes.

Q. In your opinion is the bridge at the Second Narrows an obstruction to navigation? A. Yes.

Q. Is it a menace to navigation? A. In my opinion it is.

Q. Is it a menace to the public safety? A. Well, yes, I would say that also.

10 Q. Is the bascule span at the bridge properly situated? A. No.

Q. Well, what in your opinion is wrong with it? A. Well, I think it has three defects: First if all, it is placed too close to the south shore. Second, it is not placed at right angles to the fairway. And third, the opening is too narrow. It is only 150 feet wide and it ought to be at least 300.

Q. Is there a shoal at the south end of the bridge and just to the east of the bridge? A. Yes.

20 Q. What effect has this shoal on the navigation of a vessel passing through the bridge? A. Well, it means that a vessel passing from east to west has to approach that shoal dangerously close in order to line up and get at right angles to the draw before entering. That is, I might say it seems to me to be the most dangerous position, and it certainly is a time of great anxiety to those in charge of the navigation of a ship.

Q. Yes. Now, what currents are to be met with at the bridge? A. Well, the tidal currents at the bridge—

The Court: Which way is he going now, east or west?

30 Mr. Smith: I don't think he is going any way in particular, my lord.

The Court: Q. You were coming in then—going east? A. Going east.

40 Mr. Smith: Q. Yes, going east? A. Well, of course, we generally try to get to the bridge as near as possible on slack water, but in my experience, I have never found it just exactly slack. The tides are very erratic. You may go in there and the surface water might be perfectly smooth and yet there is a considerable undertow running underneath. I know that on the flood tide, for instance, it hits the rock fill at the south end of the bridge there and it is deflected across in a northerly direction. I know that from experience.

Q. Do the piers of the bridge themselves cause any deflection or alteration of the tides? A. Well, I would say that they are bound to cause eddies and cross currents.

Q. Were you through the Narrows before the bridge was built? A. Well, yes, the bridge was in course of construction, I think, when I started—I started piloting in May 1924.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseD. Clinton
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case

D. Clinton
 Direct.
 (Contd.)

Q. Yes? A. But that time we were using the ordinary channel.

Q. Yes, and what were the tides like then? A. Well, as far as I remember—of course, the tides were strong, but it didn't interfere with navigation.

Q. You mean the tides did not? A. No. Of course, there were considerable overfalls at spring tides, but in my experience at that time we didn't have any difficulty. Of course, at that time we kept to the fairway—the centre of the channel, and now you see a vessel has got to hug the south shore in order to pass through the bascule span, and in that way, of course, she is liable to get the effect of that set across the bridge that I referred to before. 10

Q. Before the bridge was built was it customary to take ships through at all stages of the tide? A. Oh, yes.

Q. Now, in what way has the act of building the bridge altered the tides? A. Well, that rock fill in particular has caused that set to the northward.

Q. Has the strength of the current been increased by the building of the bridge? A. Well, I wouldn't say that, but they certainly—we have certainly been exposed to numerous cross currents that were not—we didn't experience before the bridge was built. 20

Q. Can you give any definite cases in which you have experienced trouble when going through the bridge with ships? A. Oh, I daresay I could, numerous cases.

Q. You say numerous cases, well, could you just mention one or two, Captain? A. I will have to look—I have got some dates here, probably to refresh my memory. I have one here, a case of the "West Hemrod" in June, 1925, proceeding west, loaded ship drawing 25.6 from Dollarton to sea. Everything was all right until we got to Berry Point. After passing Berry Point we had considerable difficulty in holding her in mid channel. When we got down about—oh, 1500 feet from the bascule we experienced a heavy sheer to starboard. The vessel at that time was proceeding slow, just lining up the bridge, and when she took this sudden sheer I put the engines full speed ahead and the helm hard astarboard in order to counteract the sheer, but it did not seem to have any effect on her. I then reversed the engines full speed and let go the port anchor and veered out cable to 105 fathoms. This seemed to break the sheer, but she still had considerable way on her; let go the starboard anchor and veered out to about 75, and by that time she had brought up about 150 feet from the centre span of the bridge. At that time there was a tug stationed there—the bascule was not, of course, working, although it was in position, but there was a tug stationed there that came to our assistance and we proceeded through the bridge after heaving up the anchors without any further trouble. 40

- Q. Now, that happened you say about low water slack? A. At low water slack.
- Q. Of course, you were proceeding west with a loaded ship? A. That is right.
- Q. And as I remember, you experienced two sets, the first set you said was just after passing Berry Point? A. Yes, that was towards the south shore.
- Q. That was towards the south shore? A. Yes.
- Q. And the second set you experienced was what distance from the bridge? A. About 1500 feet, I should imagine.
- Q. About 1500 feet east of the bridge? A. East of the bridge.
- Q. And that was set towards— A. Towards the north.
- Q. Towards the north? A. Yes.
- Q. And then having experienced that you didn't bring the ship back—it wouldn't come back with hard starboard helm? A. No, and with full speed on the engines. Of course, I didn't have sufficient room to manoeuvre to keep her going that way.
- Q. And then you said you dropped both anchors and brought her up? A. Yes.
- Q. What caused that sudden sheer to the north? A. Well, I presume it was that eddy from the rock fill, and the shoal water, of course, being so close on the port hand. That is the only thing that I can account for it.
- Q. Yes; and could you avoid being so close to the shallow water on the port hand? A. Oh, no, not at low water slack, you can't.
- Q. Well, you had to go so close to the shoal for what purpose? A. In order to get at right angles to the draw and line up.
- Q. And line up for the draw, yes. Well, that was one case, the "West Hemrod," is there any other case that you have in mind? A. Well, then, I had—yes, I had a case coming east on July 2nd of that same year.
- Q. What ship? A. The steamer "Eldridge."
- Q. Yes? A. Drawing 22 feet of water, we approached the span—the bascule, and there was considerable smoke close to the Narrows at that time, construction vessels were around there and the place was all full of smoke, so we were going ahead, there were no signals on the bridge, the bridge—the bascule was not operating then either, and when we got close to the bridge—I would imagine about 500 feet, all at once we saw a large vessel with two tugs emerging out of the smoke. I saw at once that we would both arrive at the opening at the same time, so I reversed my engines and gave the customary signal; but she was not bringing up in time and I let go both anchors again, the vessel swung across the channel, but we managed to bring her up just before arriving at the bascule. Then the other ship came on—when he heard my sig-

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Direct.
 (Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Direct.
 (Contd.)

nal he came on with the tugs and proceeded through; but it demonstrated to me at that time that it was a very dangerous position to be in. Of course, now, they have established signals at the bridge; but nevertheless when there is traffic going in either direction it is very difficult to hold a large vessel up in a small estuary like that, where you are exposed to all kinds of currents.

Q. That is the second ship. Have you any other ships in mind now where you have had trouble? A. Yes, I had the "Montana," April 3rd, 1926, going west, when about 1500 feet from the bridge she sheered to starboard, the same as the "Hemrod" did. 10

Q. Yes? A. And on that occasion I put the engines again full speed ahead, hard astarboard, and this time she broke her sheer all right and gradually came up, and when I saw that I kept her going full speed ahead, but not release the helm when I went through the draw going full speed and the helm hard astarboard—a very dangerous proceeding.

Q. What was that sheer due to, Captain? A. Well, that was—on that particular occasion it was a high water slack.

Q. It was high water slack? A. Yes, and I can only—the only conclusion I come to is that possibly the flood tide hadn't spent itself and there was considerable set from the flood tide striking the rock fill on the south side—the south end of the bascule. 20

Q. Now, was there any other case, Captain, that you have in mind also? A. Well, there are several, I think I have here the "Diana Dollar"—no, the "Edmore" going west—just a similar experience to that of the "Montana."

Q. A similar experience to that of the "Montana?" A. Yes.

Q. Well, just describe it quite briefly, will you, going west, and she arrived at the bridge, and what happened? A. Well, we went—coming down again in high water slack. 30

Q. Yes? A. When about 1,000 and 1500 feet from the bascule we got that sheer again—not such a heavy one, but it was necessary to give her full ahead and hard astarboard again. Well, she lined up for the centre all right, but you could feel by the action of the ship that if we had released the helm she would have gone over towards the 300 foot span, and it was necessary to keep the helm hard astarboard and the engines full ahead all the way through the span. 40

Q. Yes, in that case also you went through with helm hard astarboard? A. Yes.

Q. And the engines full speed? A. And the engines full ahead.

Q. What was the name of that ship at that time? A. That was the "Edmore."

Q. Have you got any other? A. I have the "Stuart

Dollar," April 1928, going east. On entering the bascule span she sheered heavily towards the north shore, and she was going full ahead in the span. I immediately put the helm hard aport, and she continued going towards the north shore, but after her counter cleared the north pier she started to come around a little, but not sufficient for me to release the helm; in fact on that occasion we carried that port helm about—I should say half way—half over all the way up to the black can buoy which lies off Berry Point.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
D. Clinton
Direct.
(Contd.)

10 Q. Now, are there any other ships that you might mention, Captain? A. No, I don't seem to have any others here that I have details on.

Q. Well, do you remember any other ships in which you had difficulty or danger in going through the draw, not necessarily their names, but were there such cases? A. Oh, yes, there must be quite a few that I really had quite an anxious time, that is to say, the idea of going through a small opening like that full speed and the vessels helm hard across, as I said before it is a very dangerous proceeding, and there must have been several cases
20 other than those that I have mentioned.

Q. Have you ever experienced the set there caused by Seymour Creek on any particular occasion? A. Yes, I have, in heavy rains, I have experienced a freshet.

Q. Well, do you remember any ship in which you have experienced that? A. Well, no, I can't recall any—I have certainly experienced the set from Seymour Creek during heavy rains, and of course we look out for it at that time; but I have also been on the lookout for it later on and found it having set by the northerly set from the rock fill when I expected setting from Seymour
30 Creek.

Q. Yes. When you pass Berry Point coming westward, did you as a rule look at the buoy there to judge the state of the tide? A. Oh, always, always.

Q. Have you passed that position when it was slack water and still found a tide running at the bridge? A. Oh, yes, quite often.

Q. And do you remember any case in particular? A. Yes, I do, I remember also with the "Eldridge" coming west, and on that particular occasion I remember it was only a very—it was a
40 high water slack, and I think it was only eight-tenths of a foot rise, and in a case of that kind, of course, you would imagine it was practically slack water. Well, on passing the buoy at Berry Point everything appeared to be quite all right, the water was quite smooth, there was no ripples, there was no overfalls or whirlpools, the surface was perfectly slack, but when we got down within about—oh, well, in the vicinity of Seymour Creek she took a sudden sheer to port, but recovered, of course, with the engines and helm

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Direct.
 (Contd.)

and we had no further difficulty; but that demonstrated that there was a considerable set at that time from Seymour Creek.

Q. Yes, and in that case you sheered to port instead of—

A. Sheered to port instead of starboard, yes.

Q. Now, for what lines do you usually pilot, Captain? A. Principally for the American Mail Line and Blue Star Line.

Q. Have you got any special orders from any of these lines as to going through the bridge? A. Yes, I have instruction from the American Mail Line—

Mr. Burns: My lord, I don't think that is a proper thing to ask him. 10

The Court: No.

Mr. Smith: Q. Then I put it this way, Captain: In piloting vessels of any of your lines through the bridge do you aim to be going through at any particular time? A. Oh, yes, we always aim—ever since that experience I had with the "Hemrod" we endeavoured to navigate going through low water slack or a big run out.

Q. I see and you endeavour to navigate at low water slack. Do you ever navigate through the bridge during the hours of darkness? A. No, I don't, not with the American Mail Line. 20

Q. Then is it right to say that with that line in particular you only navigate through the bridge at high water slack and day light? A. That is right.

Q. And with respect to the other lines for which you pilot, do you restrict yourself in the same way? A. Well, I always act, of course, in an advisory capacity in the light of this experience that I have had, I always advise the master that it is very dangerous at low water slack and I leave it to his discretion whether to go through or not. 30

Q. Yes. Now, in the case of a vessel going through bound west at low water slack, at what time should she arrive at the bridge? A. Well, when I was navigation at low water slack some times I used to aim to get down there—oh, about fifteen minutes before low water slack according to tide tables.

Q. Yes, and what was your idea in that, Captain? A. Well, my idea that we would possibly get through before the first of the flood and avoid that northerly set across the draw.

Q. Yes, so that your idea was to get there early? A. Yes.

Q. And avoid that set? A. That is it.

Q. Then at that time would you or would you not be getting there with the last of the ebb? A. Well, yes, at that time, of course, we look for it being pretty well spent. 40

Q. Yes? A. But I think that it is the lesser of two evils, is to go through even if it was a little ebb in order to counteract the effect of the flood, which you might arrive ahead of time.

Q. Yes, and that is your opinion today as the proper way

to navigate the bridge now at low water slack? A. Yes, I would think so.

Q. To arrive early? A. Yes.

Q. And go through with the last of the ebb. Now, what tide or what current would you say—what force of current would be running through say the last half hour of an ebb tide of an average height? A. The last half hour, well, it is just pretty hard to get down to the real thing, but approximately I should not think it would exceed a knot.

10 Mr. Smith: That is all.

CROSS-EXAMINATION BY MR. BURNS:

Q. What speed of the current on an average height tide—

The Court: Just a moment, you speak so well it has been a pleasure to listen to you, but just keep turning this way?

Mr. Burns: Q. At what speed of the current, Captain—at least, what speed would the current have on the first hour of the flood on an average height tide? A. The first hour of flood?

Q. Yes? A. An average tide, I should say three knots.

20 Q. Well, when would it attain that three knots? A. Oh, that is very difficult—I have no reason to—I have nothing that I can gauge my statement by, but it is only by my experience of the tides—

Q. Well, let me put it this way, possibly we will agree: It would increase from the start up to the hour? A. Yes, the first hour and a half, in my experience it attains its greatest velocity in a flood tide.

Q. That would be at the end of an hour and a half? A. Yes.

30 Q. Well, then, as far as this water is concerned, its velocity or speed, would it increase from the start to the end of the first hour? A. Yes.

Q. Wouldn't it? A. Yes.

Q. And therefore the three knots, or approximately three knots—it is not exact? A. Yes.

40 Q. —the facts we are dealing with now, but just your approximate idea. The three knots approximately would be at the end of the first hour. The first would be imperceptible, it is practically running from imperceptible to three knots at the end of the first hour, wouldn't that be so? A. Well, I wouldn't say that, because the flood tide comes up very strong.

Q. Well, would you say that the flood tide—the start of the flood tide has any velocity to speak of? A. Yes, I would, I would say—

Q. How much velocity? A. It would be a knot and a half.

Q. A knot and a half? A. Yes.

Q. So that the first appearance of the flood in your estimation would be a speed of a knot and a half? A. Yes, in the

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

D. Clinton
Direct.

(Contd.)

D. Clinton
Cross-exam.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 D. Clinton
 Cross-exam.
 (Contd.)

vicinity of the Second Narrows Bridge it would be, because you are converging into a small area.

Q. Well, we are speaking of that vicinity. So let us put that on record now, that your idea of the tide in the Second Narrows is that the first appearance of the flood has a velocity of a knot and a half? A. Yes, sir.

Q. You would not know that the flood was making at all until you saw a speed of a knot and a half? That is what that means, doesn't it? A. Yes.

Q. And that is so, is it not, according to your idea? A. Yes. 10

Q. Now, are you sure about that, Captain? A. Well—

Q. Have you studied the matter? A. Only from being on a vessel and experiencing the sets caused by the flood tide.

Q. You would say that—does that affect you? A. Oh, yes, I—you are not studying the water when you are going through with a ship, you are studying the ship going ahead.

Q. Yes, you feel the ship do that? A. Yes.

Q. But at the same time you are using your eyes, aren't you? A. Oh, absolutely.

Q. Yes, and at times the eye would be on the surface of the water and you would see it in the surface indication of this knot and a half at the start? A. Oh, yes, oh, yes, you can see it—you can see whirlpools coming along, in fact, you can see the tide coming—coming up and approaching. 20

Q. The water is smooth, the water disappears and these whirls occur, isn't that the way it happens? A. Oh, well, at the Second Narrows the start of the water is very often disturbed, you know.

Q. I know, but let us stick to smooth slack water. Now, you are not saying that that does not occur in the Second Narrows, do you, at times? A. Oh, yes. 30

Q. All right? A. I said before you have smooth water on the surface and the current running underneath.

Q. Never mind, we are coming to that, Captain, but let us discuss this matter from my point of view for a while? A. All right, sir.

Q. Then at times it must be at slack water whether it is high slack or low slack it doesn't matter, that is to say, at times there is a smooth surface at the Second Narrows? A. Yes.

Q. Now, if it is low slack, for instance— A. Yes. 40

Q. —and the surface of that water is disturbed by the incoming flood, that is what makes the disturbance that occurs afterward, isn't that so? A. Yes.

Q. All right. Now, the first indications on the surface of that incoming flood are these whirlpools, swirls, are they not? A. Not necessarily, no.

- Q. The start of the knot and a half of water coming up against the smooth water? A. No.
- Q. Well, what is it? A. That current can also come at a distance under the surface sometime before the flood tide.
- Q. I said the surface, Captain, I said the first indication on the surface of the incoming flood are these swirls and so on? A. Well, yes, they are eddies, yes.
- Q. Well, these swirls are not the indication of a knot and a half tide, are they? A. Why not?
- 10 Q. Well, are they? Explain that to me, that is what I want to understand? A. They are moving.
- Q. What is that? A. They are moving.
- Q. At a knot and a half? A. Well, that is my estimation of it.
- Q. Well, then, we have got this, that the disturbance on the surface is practically a knot and a half tide? A. At the first of flood.
- Q. At the first of flood? A. Yes.
- Q. So the first disturbance on the surface, you say, is the result of a knot and a half incoming flood tide? A. Yes.
- 20 Q. Well, then, we have got that understood. And that is the start, absolutely the first commencement of the flood tide? A. Of the flood tide.
- Q. Before that it is smooth slack water? A. Well, it may be.
- Q. Well, but that is what you have been talking about, is it not? A. No. You say the surface may be smooth, yes, but I am not going to say that actually at the slack water that the water is absolutely still and you have no current, I couldn't for a moment say that, because I have felt that conditions entirely different from that. I have had a vessel sheering at supposed slack water.
- 30 Q. Well, I was coming then to that matter of that undercurrent you spoke of? A. Yes.
- Q. But what I have been discussing with you so far is the question of the surface indications? A. Yes.
- Q. Of the swirling on the surface? A. Yes.
- Q. Disturbing the smooth water, as a sign of the incoming flood tide; and that occurs at once at the velocity of a knot and a half. We have got that down? A. That is so.
- 40 Q. Now, then, what do you say with reference to the undercurrent? A. Well, that is—
- Q. Do you say that that undercurrent has been going on for some time before the disturbance occurs and is shown on the surface? A. Well, as I say—of course, I am not—I think we are getting a little mixed, because this—we have first of all to take the flood tide coming in.
- Q. Yes? A. Well, we are agreed on that, it is a knot and a half.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Cross-exam.
 (Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

D. Clinton
Cross-exam.
(Contd.)

Q. Yes? A. Now, I agree—

Q. I will not agree, but we have got your evidence on it?

A. Yes, all right, sir. Well, now, the undercurrent you meet with at slack water as indicated by the tide tables.

Q. Well, then, let me ask you this, is this undercurrent that you speak of prior to the surface indications or not, that is the surface indications of the incoming tide? A. Well, I would say prior—yes, prior to the indications of the flood tide.

Q. Appreciably prior? A. Oh, well, now, I can't tell you that, because when I get down—as I said before, we aim to go out the bridge at slack water, now to get back and tell you just exactly when these things occur is a very difficult thing for me to say. 10

Q. Well, I am trying to get what you can say, Captain, because you are here giving evidence by reason of certain experiences you have had in that Second Narrows. A. Yes.

Q. Well, now, we want to understand— A. Well, I will say at slack water as indicated by the tide tables I have felt the effects of undertow or undercurrent.

Q. Then I ask you again, does that undercurrent exist prior to the indications of the incoming flood on the surface or not? A. Well, it probably is still there when the flood tide comes in, and they are both going at the one time. 20

Q. Well, then, is this what you mean, that as far as the undercurrent is concerned, that undercurrent is not necessarily prior to the incoming flood on the surface, and they come in, together, is that right? A. Not necessarily, no. I think, and I think I am right when I say that at periods—or close to slack water, in the vicinity of the Second Narrows Bridge, you will have two tides or currents. You will have an undertow and surface current, and both may be going in the same direction, or in contrary directions. 30

Q. Well, how if they are going in the same direction can there be two currents, Captain? A. Well, you can have an undertow.

Q. What do you mean, underneath or something in between? A. No, you can have an undertow setting at a certain angle from your flood tide, for instance.

Q. Well, but then you said that they could be both going in the same direction? A. Well, they could be. 40

Q. That doesn't mean a different direction, by the angle? A. No, of course, when we get down to that, that is a little getting away from the facts.

Q. Well, all right, we don't want to get into theories. I will ask you again then, you say that there is an undercurrent by reason of, or caused by the incoming flood tide? A. No, not caused by that at all.

Q. Well, it is the incoming flood, could you put it that way?

A. No, I don't know what is the cause of the undercurrent at all, I couldn't determine that at all.

Q. You see we have had several witnesses here who have been talking that way? A. Yes.

Q. That the incoming flood tide has an undercurrent before it is shown on the surface? A. Well, I couldn't testify to that at all.

Q. You can't say? A. No.

10 Q. In fact you would not subscribe to that, would you? A. I can tell you that I felt the effect of an undercurrent when there was no apparent current on the surface.

Q. Yes, but you wouldn't subscribe to the proposition that the incoming flood tide makes in the nature of an undercurrent below the surface before it is shown on the surface, would you?

A. Well, I wouldn't say that it did not.

Q. You wouldn't say that it did not? A. No.

Q. But you wouldn't say that it did? A. No, positively, I wouldn't, no.

20 Q. In other words, you would say that the incoming flood tide could have an undercurrent before it is shown on the surface?

A. Well, the chances are that the incoming flood tide, especially when that same tide hits south of the pier, for instance—or any of the piers for that matter, it is quite possible that the deflection of that tide and the action of that tide under the surface would make a contrary undertow.

Q. Well, but the pier comes out above the water, it would have the same effect on the surface water as under water, wouldn't it? A. Not—the tide might run under the surface more, you

30 know.

Q. Well, it couldn't be the pier that would change a body of water into an undercurrent against the surface, could it? A. It couldn't be the pier?

Q. Yes? A. It certainly could be the pier.

Q. How could it be when the pier is meeting all of that water in the same way? A. Yes, well, your surface water might easily take another direction there from your undercurrent.

Q. But not by reason of an obstruction which goes against the whole body of water, surely, Captain? A. Well—

40 Q. Can you believe that? A. My opinion—underwater conditions, of course, are something I don't know anything at all about.

Q. Well, we will take that. Now, you say that a vessel going west, navigating the Second Narrows Bridge at low water slack should get there about fifteen minutes before low water slack. What do you mean by getting there—at the bridge? A. Well, getting in proximity to the bridge.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Cross-exam.
 (Contd.)

Q. Well, will you define that proximity? A. Well, I should say she should get within three ship lengths.

Q. That would be what—about a thousand—1200 feet? A. 1500 feet, about.

Q. 1500 feet? A. Yes.

Q. She should be there fifteen minutes before low water slack? A. Yes, according to the tide tables.

Q. To avoid that northerly set? A. Yes.

Q. That is your evidence? A. Yes.

Q. Now, will you explain to me what that northerly set is? 10
 A. Well, the northerly set as I understand it is caused by the incoming flood tide striking the rock fill at the south end of the bridge and being deflected across in a northerly direction.

Q. Yes, now, then, that is your understanding after your experience navigating the Second Narrows Bridge for four and a half years, about twice a month? A. Yes.

Q. Your understanding is that that northerly set that you speak of is just caused by the deflection of the water at the fill?

A. Yes.

Q. Now, that is definite in your mind, is it? A. Yes. 20

Q. And for no other reason. Mind you, you have got no other reason? A. No. No, I don't think so; I think that is the most prominent reason anyhow.

Q. You are quite content. So that you get down fifteen minutes before low water slack in order to avoid that set that comes off the fill? A. Yes.

Q. And then how far do you say that set extends? A. Oh, well, in my experience with these ships carrying—for instance, going east and being deflected towards the North Shore for the distance that we carry the port anchor to recover and come back 30 into midchannel, I should say that that set extends a quarter of a mile.

Q. A quarter of a mile from the bridge east? A. Yes, east of the bridge.

Q. Now, a quarter of a mile? A. Would be about two thousand feet.

Q. What—1320 feet, is it not? A. Yes, it is about 1500 feet. Yes, that is right.

Q. Approximately, the point that you say you should be at—where you should be at 15 minutes before low water slack? A. 40 Yes.

Q. So that your evidence is that this set practically made by this fill, extends a quarter of a mile—1300 feet or 1500 feet you will accept, will you? A. Yes, 1500 feet.

Q. 1500 feet east of the bridge? A. Yes.

Q. And you have no other explanation for this so-called northern set? A. No.

Q. Or northerly set? A. No.

Q. None whatever? A. No.

Q. It couldn't be the incoming flood tide underneath, undercurrent, could it—I mean that is absurd, is it not, when we come down to cases? A. Yes, I have seen the—I have seen the average flood tide striking the rock fill, making a decided eddy across the channel.

Q. I quite understand that, I am assuming that, so far as your evidence is concerned, so that we can go on. I understand
10 that, we will deal with that viewpoint later, but for the time being in order so that we can understand each other, we have this position, that this so-called northerly set that runs there occurs round 1500 feet east of the bridge, or 800 feet or anything like that, is caused in your opinion by the deflection of the water from the rock fill? A. Yes.

Q. And couldn't be such a thing as an undercurrent caused by the incoming flood tide before any indication of that flood tide is shown on the surface. That couldn't be, could it? A. Well, I wouldn't say that it couldn't be, because you see you can only
20 testify from what you see by the eye.

Q. Well, but surely, Captain, you will say—. You have had long experience as a mariner? A. Well, I will say that it is possible, yes.

Q. You say it is possible that the incoming flood tide would have a strong undercurrent without any indication on the surface? A. Yes.

Q. Say forty or fifty feet depth of water. Would you say that? A. Yes.

Q. In the Second Narrows Bridge? A. I will say that it is
30 possible, yes.

Q. All right. Well, now, then, assuming then that possibility so far as your state of mind is concerned, still your evidence is, and I am coming back to it, that with reference to that northerly set, that occurs only by reason of the deflection from the rock fill? A. That is in my opinion, yes.

Q. Yes, that is in your opinion. Now, then, you say that you never found it just exactly the same, that is always irregular, when you are speaking of the body of water in the Second Narrows. By the way, Captain—you nodded your head, that is right,
40 that is what you said? A. Yes.

Q. By the way, did you navigate the Second Narrows before the bridge was there at any time? A. Oh, yes.

Q. For how long before? A. Well, I commenced in May, 1924, now, the bridge was opened, I think, in October, 1925. Of course, during that period the bridge was in course of construction and we used the ordinary fairway that was used prior to any bridge being ever thought of.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

D. Clinton
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Cross-exam.
 (Contd.)

- Q. Yes? A. That is where the 300 foot span is today.
- Q. That was the first time you navigated the Second Narrows? A. That was, yes, and I have been through there as shipmaster.
- Q. What is that? A. I have been up as shipmaster previous to that, with a pilot on board.
- Q. Yes. Then what time do you say that the bridge was opened? A. Well, as far as I remember I think it was October, 1925—or November, I should say.
- Q. November, 1925? A. Yes, that is right. 10
- Q. So that so far as this—I will just cover that now—so far as the “Eldridge” is concerned and the “Hemrod”—A. Yes.
- Q. They were all before the bridge was opened, weren't they—these two were before the bridge was opened? A. Yes, before the bridge was opened, yes.
- Q. And the time that construction was going on? A. Yes.
- Q. But with the “Hemrod” you said you had difficulty holding the ship to midchannel fifteen feet from the bascule, is that right? A. No.
- Q. I mean 1500 feet, of course? A. Yes, would you please 20 repeat that.
- Q. That you had difficulty in holding her to midchannel? A. No, no.
- Q. 1500 feet from the bascule? A. That was prior to 1500 feet it was, that is Berry Point, to a point 1500 feet from the bascule we had difficulty in holding her to midchannel, yes.
- Q. From Berry Point to the 1500 feet? A. Yes, that is where she took the sheer.
- Q. Which way? A. To starboard, to the North Shore.
- Q. And you were in midchannel? A. We were in mid- 30 channel.
- Q. What was the state of the tide—the stage of the tide? A. Well, we were coming down, as I said, trying to aim for low water slack, and get down—
- Q. Never mind that, what was the stage of the tide? A. Well, the stage of the tide was approximately 15 or 20 minutes prior to low water slack according to tide tables.
- Q. That is, you were on the last of the ebb? A. The last of the ebb, yes.
- Q. Fair tide? A. Fair tide. 40
- Q. And you say—have you got any detail on that particular case? A. No, I haven't, I just got dates here, that is all.
- Q. Have you got your speed? A. Yes, we were proceeding about three knots.
- Q. That is three knots—as far as over the ground, you were going faster over the ground, were you not? A. No, the speed, I think we would probably be going three knots over the ground.

Q. Well, your speed so far as the engine was concerned—A. Was slow.

Q. Was considerably less than that? A. Oh, no, because I don't think the ebb tide had any great velocity at that time, although there was a drain of ebb. Well, I will say three knots, I don't think she exceeded three knots.

Q. Engine? A. Yes.

Q. You say you got a sheer to starboard? A. She took a heavy sheer to starboard.

10 Q. How near were you to Berry Point? A. Oh, we were not at Berry Point at all, we were 1500 feet east of the bridge at that time.

The Court: East of what? A. East of the bascule.

The Court: Yes.

Mr. Burns: Q. Well, how near were you to the south shore?

The Court: Q. East of the bascule where it is now. Of course, it was not built then? A. It was in, yes, sir, it was not going—not operating.

20 The Court: Yes, I see, I did not quite understand you, when you were calling that—I don't think Mr. Burns understood that.

Mr. Burns: Yes, I understood that, my lord, possibly I should have asked the question more definitely.

Mr. Griffin: Even the piers were in long before, the superstructure.

The Court: Well, I did not understand that, counsel know that better than I do, and I have been assuming.

Mr. Burns: I should have brought that to your lordship's attention, because I knew that. This was in June, 1925, the bridge was opened in November, 1925.

30 The Court: It must have been there.

Mr. Burns: Q. Even the superstructure was on at that time, I presume? A. Yes.

Q. But they were not operating the bridge? A. That is right.

The Court: Yes, I understand.

Mr. Burns: That is right, you corrected me properly, the sheer occurred when you were 1500 feet east of the bridge? A. Yes.

40 Q. Then I want to know how near were you to the south shore? A. Well we were lined up at that time steering for the north span of the bascule—the north pier, I should say of the bascule, so that Berry Point was right astern, and I presume we were in midchannel.

Q. Would you say that you were between Berry Point—when I say between, I mean inside of Berry Point, between Berry Point and the bascule pier? A. No, sir, my Berry Point—according to my bearing, was right astern, that is my mark going

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

D. Clinton
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 D. Clinton
 Cross-exam.
 (Contd.)

down channel. Berry Point was right astern and the north pier of the bascule was right ahead.

Q. Well, then, looking from the bascule at your ship and at Berry Point they would be in line? A. Yes.

Q. Berry Point would be behind your ship? A. Berry Point was behind the ship, yes.

Q. So that you would in the sense that I use the term be inside of Berry Point? A. Not inside of Berry Point, no, not inside of Berry Point.

Q. Well—

The Court: Not from a seaman's point of view.

Mr. Burns: Q. Yes, correct me then, Captain, I want to get it right? A. Well—

Q. As I understand it you have now said that if you were standing on a pier—say the north pier of the bascule— A. Yes.

Q. —looking at your ship— A. Yes.

Q. —and then looking beyond you would see Berry Point? A. Yes.

Q. In other words, that—what is the term I want to suggest? A. Well, you would have your north pier and Berry Point in line.

Q. In line with your ship? A. To the ship.

Q. And your ship— A. In one line.

Q. Yes, in other words, when I said inside, you mean they were right in line, your ship being inside? A. Yes, if I had been inside Berry Point, Berry Point would bear off my starboard quarter.

Q. Yes, all right.

The Court: You see that is quite right.

Mr. Burns: Yes, my lord.

The Court: It has a nautical significance when you say with-
 in.

Mr. Burns: Yes, I see that, my lord, and the term that I used, that it was inside—I understood the term, but I said inside when I should not have.

Q. From your recollection you are willing to say that you were absolutely in line? A. Yes.

Q. That is, Berry Point, the north pier of the bascule and your ship? A. The north pier of the bascule, yes, sir.

Q. And you were steering for the north pier at this time? A. Yes, at that time.

Q. Now, did you change your course? A. No, not—

Q. That was the time of the sheer? A. That was the position when she sheered.

Q. Now, can you tell me how far you were from the south shore approximately? A. No, I couldn't approximately, all I know is that that was the position of the ship.

Q. Well, is this correct, by reference to the chart, placing

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the ship as you have now stated the distance can be obtained? A. Oh, yes.

Q. That you were from the south shore? A. Yes.

Q. And that would be the distance? A. Yes.

Q. Now, to get in that position you must have been steering south of the north pier, must you not? A. To get in that position, no, not necessarily.

Q. You mean to say that— A. I could have been steering—

Q. You could have held your course? A. I could be steering
10 ing north—a little north of that position and still be in that position.

Q. You could. Now, you say that the shoal on the south side is something that you can't get dangerously near? A. Well—

Q. And you must not get dangerously near— A. Well, unfortunately we have got to get dangerously near in order to pass through the bascule.

Q. Yes, I was just taking your evidence up so that I could get some place to start. A. Yes.

Q. And discuss that reference to this shoal; you say that you
20 have to be careful not to go dangerously near the shoal on the south shore, is that right, or do you have to go dangerously near? A. No, we have to go dangerously near.

Q. You have to go dangerously near? A. That is it, yes, sir.

Q. In order to line up with the bridge and get at right angles with the draw, is that right? A. That is right, sir.

Q. In order to do that how near the shoal do you have to go? A. Well, I have never placed it on the chart, but I know exactly
30 from my mind's eye now that it must be pretty close, because the shoal extends out as far as a line with the south pier, that is the contour.

Q. That is the line of the south pier if it were extended? A. Yes.

Q. It would come to the shoal? A. Quite so, in fact, I think it would come inside the shoal, if it was drawn right a straight line, I think you would find that the shoal came over the straight line or right angle.

Q. Well, when you say shoal, can we define that a bit as to the depth? A. Well, there is $3\frac{1}{2}$ to 5 fathoms water in the shoal.

Q. $3\frac{1}{2}$ to 5 fathoms, so the 5 fathom line would be the outside
40 edge of the shoal? A. Yes, probably.

Q. I will assume that, I just want to get it now. And you would say that if you extended the line of the south pier that would cut the 5 fathom line at this point we are speaking of? A. That would cut your shoal water, yes.

Q. Now, then, how near did you have to go to that point in the matter of depth, for instance, in order to navigate the bridge?

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

D. Clinton
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Cross-exam.
 (Contd.)

A. Well, as I said before I never actually measured it, but on looking at it, we are bound to—we are bound to go within feet of the shoal.

Q. What do you mean by feet? A. Well, for instance, we must—we will say you must go within 200 feet of it.

Q. 200 feet of the— A. Or 250 feet of the shoal.

Q. Of the shoal or shore? A. Shoal.

Q. Yes, on the 5 fathom line? A. Yes.

Q. I want to put it your way? A. Yes.

Q. That you have to go 200 or 250 feet— A. Yes. 10

Q. Near— A. To the shoal water.

Q. To this 5 fathom line? A. Yes.

Q. Now, that you call dangerously near, would you? A. I would say so.

Q. In the circumstances? A. I would say so.

Q. Anything nearer than that would be very dangerous, wouldn't it? A. I would say so.

Q. And no captain should have his ship anywhere nearer than that, anyway? A. Oh, no, not if he can avoid it.

Q. Not if he can avoid it; and if he did get nearer than that sort of thing, there is such a thing as cushioning off? A. Yes, 20

Q. Ricochetting off the two piers, off from the field of the shallow water? A. You would certainly feel the shock if you did that.

Q. Well, you would feel the shock, you would feel the sheer, wouldn't you? A. Yes.

Q. Could you say, for instance, taking the vessel the "West Hemrod" placed where we were discussing it a minute ago, would you say that she was about 200 or 250 feet from that shoal at that time? A. Well, she was on that line between Berry Point and that north pier, now if you put that on the chart you will probably get the exact position. 30

Q. Now, you say that you have to go down there to line up and get at right angles to the draw. That draw, you say is 150 feet wide. That is right, is it not? A. Yes.

Q. In fact, that is your third objection to the bridge? A. Yes.

Q. It is too narrow? A. Yes.

Q. Only 150 feet, and ought to be at least 300. Now, you are figuring on the basis that the draw is 150 feet, are you? A. Yes. 40

Q. And you don't know that you are wrong there, do you? A. Oh, no, I can't be so very far wrong, because I will tell you why.

Q. You are coming here and giving this evidence and ready to give it in the way you have, and you say that that draw is only 150 feet wide, that is 150 feet clearance? A. Yes.

Q. Well, are you going to be surprised when I say that she has 165 clearance? A. Yes, I am.

Q. 181 wide? A. I am.

Q. You are surprised? A. Yes.

Q. When I say that she has 165 feet clearance? A. Yes.

Q. Would you be also surprised when I suggest to you that it was made 165 so that that draw would be taken at an angle and an angle that good navigation would give in coming to that bridge, would you be surprised at that? A. Yes, but I don't think that
 10 putting the draw at an angle is a very—is not a good—it is not a good proceeding to have a ship in to an angle, because you narrow the draw when you do that.

Q. Quite true, that is the immediate result of that narrowing, but you have heard suggested or told you that this draw was made 165 feet so that there would be that amount of 150 feet clearance at the angle that it was taken at? A. Yes.

Q. You have never heard that? A. I have never heard that, no.

Q. What is the objection to going straight through the draw
 20 —straight through the draw, mind you, if you have got reasonable clearance—at a slight angle. Is there any objection to that? A. Yes—well, of course, it is—you naturally want to go straight through; and then again if you expose your vessel at an angle, we will say, you are exposing the flank of the vessel to any current that may be. If you proceed directly at right angles to the stream you are not exposing the vessel to so much danger as you would be as exposing your flank to the current.

Q. You will agree with me in this, Captain, will you not, that supposing 1500 feet east of the bascule, the difference between
 30 going through at an angle there or going away down so that she would land up and go through at right angles wouldn't amount to very much, would it? A. Oh, yes, it would, it would be quite considerable—it would be.

Q. Now you say that you would not say the current has been increased by reason of the bridge, but numerous cross currents have been created by the bridge. I asume that is what you meant? A. Yes.

Q. Will you just enumerate these? A. Well, the fact of these cylinders being sunk there, you are opposing, of course—
 40 you are obstructing the tides. When the tides strike a cylinder they are bound to cause commotion and deflect the water.

Q. So your statement is that these cross currents are caused by the cylinders? A. Yes, sir, that is what I would say.

Q. And to what extent are cross currents caused? I mean what kind of cross currents? A. Well, currents that are—well, as I say, it is very—they are very irregular and erratic, these currents, and I can't tell you in which direction they go, but they are bound to cause erratic conditions.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseD. Clinton
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 D. Clinton
 Cross-exam.
 (Contd.)

Q. Well, you mean just around the bridge? A. Well, I will say, too, east and west of the bridge, depending on how—whether it is ebb or flow.

Q. Well, to what extent east or west? A. Well, they must—they must be at least 300 feet, I would think.

Q. Supposing you get a flood tide, you would get 300 feet of cross currents on the bridge, would you? A. I would think that you would be liable to get that, yes, and of course, depending on the strength of the tide as to the exact direction—

Q. We will say an average tide, we will say, that is the extent that you will go, and you say that for 300 feet east, the water on a flood tide in going to the average height, that there will be cross currents caused by the piers at the bridge? A. Well, that is my opinion, yes, that there would be. 10

Q. Now, then, to what extent do these currents cross? I mean, are they right across the channel? A. Well, they possibly may not be right across the channel.

Q. Well, when you say possibly would, what do you mean by that, does that come from your experience? A. Well, I can't tell you, because I say they have had all these cylinders and I couldn't tell you exactly how they come. 20

Q. You can't tell me. Would you be surprised to know that our evidence on that is that with a flood tide or ebb tide that the piers cause no cross currents at all? A. I would be surprised.

Q. You would be surprised to hear that? A. Yes.

Q. And you say that you have seen cross currents? A. No, I don't say I have seen them, I have experienced them, I have experienced the effects of them.

Mr. Burns: That is all.

Mr. Smith: Thank you, Captain. 30

(Witness aside).

The Court: I won't trouble you any more, Mr. Smith, just at present—after lunch.

(12:55 P.M. COURT ADJOURNED UNTIL 2:15 P.M.)

(2:15 P.M. COURT MET PURSUANT TO ADJOURNMENT)

Mr. Smith: Captain Sinclair.

A. Sinclair
 Direct.

ANDREW SINCLAIR, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. Now, I am some distance away, so speak as loudly as you can, Captain, will you? A. Yes. 40

Q. You live in Vancouver? A. Yes.

Q. And you are a pilot? A. Yes.

- Q. How long have you been at sea? A. Twenty-four years.
- Q. How long have you been a pilot on the B. C. Coast? A. Five years.
- Q. And what is the total experience you have had on this coast? A. Twenty-one years on the coast.
- Q. Twenty-one years. Did you navigate the Second Narrows before the bridge was there? A. Yes.
- Q. And you have navigated after the bridge was built? A. After it was built.
- 10 Q. After the bridge was constructed at what stages of the tide did you navigate through the Narrows? A. Well, it was on coasting vessels and I would—I used to take it any time of the tide.
- Q. Any time at that time, and since the bridge has been constructed when did you navigate? A. At slack water approximately.
- Q. Approximately at slack water? A. Yes.
- Q. Is that during the day and night also? A. Not now, we don't usually navigate the bridge at dark now.
- 20 Q. No, so that now your navigation is restricted to daylight? A. Daylight and slack water.
- Q. And slack water. In your opinion, is the bridge an obstruction to navigation? A. Yes.
- Q. And is it a menace to navigation? A. Yes.
- Q. In what way has the bridge, if at all altered the tides or currents since it was built? A. Well, it narrows the place altogether, it gives greater velocity to the current, and also diverts the current in different ways, the piers and the fill on the side, and piling on the north side and the fill on the south side.
- 30 Q. Yes, and in what ways do they divert the currents? A. Well, it diverts it angling across the draw of the bridge.
- Q. Yes, well, what place—any particular part of the bridge? A. In the draw where the ships go through.
- Q. Yes, but what causes the diversion? A. Well, the contour of the land and the fills that have been made.
- Q. Yes, and the site of the fill is where? A. Approximately—
- Q. Whereabouts in the bridge. A. At the end of the bridge, the south end of the bridge.
- 40 Q. The south end of the bridge, and the contour of the land and the rock fill at the south end of the bridge causes deflection of the tide across the draw of the bridge? A. Yes.
- Q. You, of course, know the bascule span? A. Pardon?
- Q. You know the bascule span? A. Yes.
- Q. Is it properly situated or otherwise? A. It is not properly situated, it should be in the centre of the channel.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. Sinclair
 Direct.
 (Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 A. Sinclair
 Direct.
 (Contd.)

Q. Well, what various things are wrong with it, in your opinion? A. Well, it is too close to the south shore and it is not in the centre of the channel where the tide runs straight.

Q. And anything else? A. Well, I think that is enough.

Q. Well, yes, that is so. Do you know a shoal anywhere near the south end of the bridge? A. Oh, yes.

Q. And what effect has that shoal on the navigation of a ship? A. Well, especially a ship coming from the eastward.

Q. Yes, from the east or west? A. The ship has to be close to the shore to line up for to go through the bridge. 10

Q. Yes? A. And that has the tendency of cushioning off that shore bodily.

Q. Yes? A. Also the tide is angling across that way, too, and has the same tendency.

Q. Yes, in your opinion is the bascule draw wide enough for navigation? A. It is wide enough if there was no current.

Q. Can you give an idea of how often you have been through the bridge? A. Well, I will give you approximate.

Q. Well, say, how many times a month have you gone through? A. Well, piloting—since I have been piloting, you mean? 20

Q. Yes, since you have been piloting? A. Oh, probably from 120 to 150 times.

Mr. Smith: Thank you.

A. Sinclair
 Cross-exam.

CROSS-EXAMINATION BY MR. BURNS:

Q. Did I understand you, Captain, that your experience before the bridge was there was in coasting vessels? A. Coasting vessels, yes.

Q. And you would go up and down any time? A. Any time. 30

Q. And in deep sea vessels your own experience has been since the bridge has been there? A. Since the bridge has been there—well, while the bridge was under construction.

Q. Well, I mean since the bridge has been there in that sense that you have had to go through the bridge?

Mr. Smith: Will you speak a little louder, Captain, was that yes or no? A. Yes.

Mr. Burns: Q. Now, when you speak of lining up for the span, will you just explain that?

The Court: Did he say to you, Mr. Burns, that before the 40 bridge he went through there at any time with deep sea ships?

Mr. Burns: No, my lord, in coasting vessels.

The Court: Mr. Smith did not quite catch it, you see.

Mr. Burns: Q. Now, with the deep sea ships you have been through the Second Narrows only after the bridge was there? A. Yes.

Mr. Griffin: And during construction, you see.

Mr. Burns: Well, during construction, that is after the piers were there.

Q. Now, would you explain what you meant or what you mean by lining up for the span, that is to say, going from east to west? A. Yes, always you have the ship in perfect control at a reasonable distance from the draw that she is heading through, that you don't have to use any great angle of helm.

Q. Well, when you say lining up with the draw, do you mean lining up at right angles with the draw or not? A. Well, lining up in the position that you would go—that you wish to go through, you line up the course you wish to take.

Q. Well, is the vessel at right angles to the draw or not? A. It should be.

Q. Well, but is it. I am talking now about a ship going from east to west, going out? A. Easterly.

Q. And when you speak of lining your ship up for the draw, when you have lined her up, is she at right angles to the draw, that is what I want to know? A. Well, personally I don't go through that way she is not at right angles, she is to the northward of the line of right angle.

Q. To what extent could you say? A. Well, I couldn't say for sure, probably—

Q. Five degrees? A. Five—ten degrees anyhow.

Q. Ten degrees? A. Yes.

Q. And when you set that course that will take you on your course to go through? A. Yes, if the ship will go straight.

Q. Well, I mean to say, leaving that out? A. Yes.

Q. As far as the course is concerned? A. Yes.

Q. Your course is then direct. About ten degrees to the northward of that point, which would make you at right angles to the draw? A. Yes, sir.

Q. Yes, speak so we will get it down. And that is your usual practice, is it? A. It has been.

Q. Yes. Then do you say when you are in that position that you are near that shoal so that the shoal would bother you?

A. With a heavy draft ship at low tide it would.

Q. Low slack? A. Yes.

Q. That is when there is a long run out or— A. Yes.

Q. Or an average low? A. If it was low.

Q. Have you an understanding as to the depth there where you would be? A. Oh, yes.

Q. What would you say? A. Under the ship?

Q. Yes, the depth of water that you are in? A. Oh, I would have 65 feet.

Q. About 65 feet. That is to say, when you are lined up in the way that you have described for the draw you would have

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. Sinclair
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 A. Sinclair
 Cross-exam.
 (Contd.)

about 65 feet of water, is that right? A. Under the—yes, that is from the—at low water?

Q. I am talking about low slack? A. Yes. Of course, you deduct the draft of the ship from that.

Q. Well, I understand? A. Yes.

Q. But that 65 feet of water, your ship is in that 65 feet of water, that explains it, doesn't it? A. Yes.

Q. Now, at that point—in that position what point is your ship heading for, that is, what point of the draw, north, south, the south pier or the centre of the draw? A. Well, heading for the 10
 centre.

Q. For the centre and that is the course you keep right through? A. Yes, if she doesn't swing.

Q. Well—

Mr. Griffin: Speak up, witness, we can't hear.

Mr. Burns: Q. If she doesn't swing, well, we are leaving out her swing? A. Yes.

Q. I mean that course would take you right on the draw? A. Yes.

Q. And you are heading for the centre. Would you say that 20
 it would be any more than ten degrees? A. No, I wouldn't say because I haven't—I never looked at the compass going through there, I am watching the ship's head.

Q. Well, you have been through there a number of times and you have got some experience in that connection? A. I would say approximately ten degrees.

Q. You know as a pilot and a captain that if you closer to a shoal than, say, 65 feet of water that you would be shoved off, wouldn't you, the ship would tend to be shoved off? A. It would 30
 tend to shove it off, yes, if she was—

Q. At what point would you say—at what depth of water would you say that that tendency would be indicated? A. Well, it would be pretty hard to say really.

Q. Well, you take 25 feet draft of ship? A. It is not really the water under, it is the water—the distance from the shoal she is.

Q. Yes, well, the shoal, we say, is at 5 fathoms, and how near would you have to get to that shoal to feel the effect of that shove off?

The Court: That is 25 foot draft. 40

Mr. Burns: 5 fathoms.

The Court: I think you said that.

Mr. Burns: Yes, 25 foot draft of ship.

The Court: Yes, 25 foot, and a 5 fathom shoal—edge of shoal.

Mr. Burns: Q. Yes, how near would you say, where you would feel that shove off? A. You would feel it in five fathoms.

Q. Of course, I assume that, but how near would you have to get to that 5 fathoms with a 25 foot draft of ship to feel that—sense that shoving off? A. Well, I couldn't say—just say definitely.

Q. You couldn't say. Now, then, when you are in that position that we have been speaking of how are the currents running, that is to say, supposing you are coming down on the ebb—it was an ebb tide? A. Yes.

Q. How is that current running in relation to the lay of your
10 ship, if I am using the proper term. Are they running parallel or across the ship in any way? A. Is that right at the bridge or—

Q. No. Where you have lined up for the bascule span that we have been discussing? A. Well, they vary.

Q. I mean in a perceptible ebb tide? A. Well, in an ebb tide it runs fairly straight with the ship.

Q. Straight with the ship, when you are in that position?
A. Yes.

Q. By the way, when you assume that—at least, whereabouts
20 are you, in relation to the bridge when you assume that position that we have been discussing, about how far, say? A. Oh, approximately 1500 feet east of the bridge.

Q. About 1500 feet east of the bridge? A. Yes.

Q. And you say that the currents are running straight with the ship, that is, on a perceptible ebb tide? A. Up to there—up to that position.

Q. Well, then, is there any change of the currents in relation to the ship, when you continue that course? A. Yes, quite often
30 feel a set off from the south shore.

Q. A set off from the south shore? A. Yes.

Q. Do you attribute that to the shoal? A. Part of it, and part of it from the first of the flood.

Q. The first of the flood? A. Making up on the south shore.

Q. You say that the flood makes up on the south shore in the narrowest pass, you are still in the narrows, you see, you haven't come up to the bridge yet? A. Yes.

Q. You say that the flood makes up on the south shore in the narrows then? A. It will—it will slacken up the ebb current;
40 it may not be running up, but it will slacken up the ebb current on that shore.

Q. You can see that, can you, in the water? A. Sometimes; sometimes you can't.

Q. And can you feel it without seeing it on the water? A. Yes, you can feel it quite often. Sometimes the water looks perfectly slack on the surface and you will feel a set underneath.

Q. Would you, as the last witness, Captain Clinton, say that

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
A. Sinclair
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 A. Sinclair
 Cross-exam.
 (Contd.)

that was due to the set off from the south shore, from the shoal?

A. From the—

Q. Yes, from the shoal? A. The shoal above the bridge?

Q. Yes? A. No, not necessarily.

Mr. Smith: Captain Clinton never said that, pardon me.

Mr. Burns: I think he did. However, if you don't agree I don't care very much.

The Court: Q. Would you repeat what you said there, witness? A. What is that?

Q. Just repeat what you said? 10

Mr. Burns: Q. Well, could you say—pardon me, my lord.

A. I would say that the set was on account of the contour of the land and the fill at the bridge.

Mr. Burns: Well, that is what Captain Clinton said.

Mr. Smith: Yes, that is what he said.

Mr. Burns: Q. Now, you know that that set was due to the fill at the bridge? A. Yes.

Q. Now, you add the contour of the land? A. Well, there always was a set off there before. Probably the fill has made it greater. 20

Q. Before the bridge? A. Yes.

Q. Well, then, you took that course before the bridge, did you, when you went through? A. Not that course, no, the centre channel course.

Q. How did you know that there was a set there? A. Well, I could see it.

Q. You could see it? A. Yes.

Q. On the surface? A. Yes, you could feel it also.

Q. You would not feel it in midchannel? A. No, but you got over that way sometimes—before the bridge was there, you didn't really follow a direct line sometimes, sometimes you would vary your distance off the shore. 30

Q. And you say that set occurred at the commencement of the flood or later on when the flood was making? A. Yes, when the flood was commencing.

Q. And you would also attribute it to the fill at the bridge?

A. Well, when the fill was put in at this point on the bridge it would certainly set the current off more.

Q. Well, does it or does it not, according to your own observation? A. Well, as far as I can see, I say it does. 40

Q. And that is how much east, how far east of the bridge?

A. Well, I would say probably 1500—2,000 feet.

Q. The effect of this fill? A. The effect.

Mr. Burns: That is all.

Mr. Smith: All right, thank you very much, Captain.

(Witness aside).

Mr. Griffin: Mr. Arenberg.

The Court: Did he say 1500 or 1,000 or 2,000?
Mr. Burns: 2,000.

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CHARLES ARENBERG, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

Defendant's
Case

DIRECT EXAMINATION BY MR. GRIFFIN:

C. Arenberg
Direct.

Q. Mr. Arenberg, you remember what was said to all the witnesses now about speaking out loudly, as best you can. It is astonishing how hard it is to hear here. A. Yes.

Q. You are Pacific Coast Marine Superintendent of the Imperial Oil Company? A. Yes, sir.

Q. And have occupied that position for about fifteen years? A. Yes, sir.

Q. And you live in Vancouver? A. Yes, sir.

Q. Your company have an oil—

The Court: Q. Did he say superintendent, Mr. Griffin?

Mr. Griffin: Marine Superintendent.

The Court: Marine Superintendent?

Mr. Griffin: Yes; they may have others.

The Court: Yes, thank you, superintendent for fifteen years.

Q. The premises of the company are at a place called Ioco, that is east and above the Second Narrows Bridge? A. Yes.

Q. And there you have a plant where you keep a supply of oil? A. Yes, sir.

Q. That is brought there in tank vessels? A. Yes, sir.

Q. And has been there for a number of years? A. Yes.

Q. Now, speaking of conditions before the building of the Second Narrows Bridge, your company then were employing what large vessels, give them one by one, with the name of the ship. His lordship asked for it on a previous day.

The Court: Now, this is before the bridge?

Mr. Griffin: Yes.

The Court: Before the piers were built, Mr. Griffin.

Mr. Griffin: Yes, my lord, the conditions before the bridge was put in at all.

Q. Just give the names?

The Court: Yes.

A. We had the following large vessels, the S.S.—

The Court: Just stand a little this way and a little nearer.

That is it, thank you.

A. We had the S.S. "Vancolite," 15,000 tons; the S.S. "Victorlite," 15,000 tons; the S.S. "Albertalite," 12,000 tons.

The Court: There are two vessels at 15,000?

A. Yes, sir

Q. One of 10, did you say? A. Twelve.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 C. Arenberg
 Direct.
 (Contd.)

Q. One of 12,500? A. 12,000.

Q. I beg your pardon? A. S.S. "Albertalite" 12,000 tons.

Q. Yes? A. S.S. "Calgaralite" 12,000; S.S. "Montralite" 9,000; S.S. "Torontolite" 9,000 tons; S.S. "Mina Brae" 9,000 tons, and a coasting vessel the S.S. "Imperial," 950 tons.

Mr. Griffin: Q. Now, were all these vessels navigating through the Narrows at one time or another before the bridge was built? A. Yes, everyone of them.

Q. What trade were they engaged upon? A. They carried cargoes of oil to Ioco above the Second Narrows Bridge and discharged up there. The S.S. "Imperial" carried cargoes of gasoline and refined oil to the various coast boat stations. 10

Q. Now, I am going to lead on unimportant matters unless my learned friends object. Your company, I believe, have disposed of all those particular named ships? A. Yes.

Q. The ones you have named? A. Yes.

Q. Except the "Imperial?" A. Most of them.

Q. And have substituted others to a certain extent, having the same names, and I will read the names out to you and you may confirm these. You now have motor ships instead of steamships? 20
 A. Yes, sir.

Q. And they are as follows: "C. O. Stillman" 23,000, the "Victolite" 16,000 tons; the "Vancolite" 16,000 tons.

The Court: That first one was how many, Mr. Griffin?

Mr. Griffin: 23,000, and 3 at 16.

The Court: 23,000, 2-16.

Mr. Griffin: 3 16, they are called "Victolite," "Vancolite" and "Calgolite." One 15,000 called the "Montralite," 2 12,000 tons, "Reginalite" and "Ontariolite."

The Witness: Pardon me, I think you left out the "Canada- 30
 lite"—M.V. "Canadalite," she is 15,600.

Q. You actually have it, I missed her, yes. Then following from that we have smaller classes going down, the "Torontolite," now that figures 9,000, and the "Mina Brae," I take it 9,000?
 A. Yes.

Q. The "Imperial" 950 tons; "Fuelite" 500 tons, and a chartered ship called the "El Grillo," 10,000 tons.

The Court: 10,000.

Mr. Griffin: Yes, my lord.

The Witness: There is another. 40

Q. Is there another chartered vessel? A. Yes, the S.S. "Aledo" 12,000, and there is another coasting boat, the S.S. "Nanaimolite" 650 tons.

Q. Now, your vessels have been in trouble with the bridge and have had accidents and near accidents during the course of the last three or four years? A. Yes, sir.

Q. Have you for the purpose of assisting the evidence pre-

pared a list of these with the damages sustained. Have you prepared such a list? A. Yes, I have it here.

(Producing document).

Q. Oh, you have it there, have you? A. Yes.

Mr. Burns: Pardon me, my lord—

The Court: Yes, just look at it. For the last few years, you say, Mr. Griffin?

Mr. Griffin: Yes, my lord, '24, '5, '6 and '7

The Court: Four years.

10 Mr. Griffin: Yes, just four years, bringing the last a little bit into 1928.

Mr. Burns: My lord, this is apparently a list or statement setting out the names of certain vessels with certain costs against them, purporting to be costs of holding and damages sustained by vessels owned by the Imperial Oil Limited arising out of the construction and operation of the bridge over the Second Narrows. Now, unless this witness knows this of his own knowledge I object to its use.

20 The Court: I am afraid, Mr. Griffin, unless this witness could speak like the other witnesses who were examined by Mr. Smith, as to his own knowledge, knowledge of the respective cases, that would not be advancing the case, and this might have been owing to their own negligence.

Mr. Griffin: No, my lord, I am only showing it as showing the condition of navigation, and I will ask the witness to so understand, that I am asking it from his personal knowledge.

Mr. Burns: Yes, if it is confined to personal knowledge because as a matter of fact the reports might be erroneous.

30 The Court: Yes, it is his knowledge, you see. It would not really be profitable, would it, Mr. Griffin, unless it seemed, of course, that it was the man's knowledge in each case, otherwise the evidence is quite wrong.

Mr. Griffin: We have had most of the figures on the "Mina Brae"—

The Court: Of course, some of them you have included.

40 Mr. Griffin: Yes, some of these, my lord, have already been given in the evidence, in the testimony others undoubtedly have not, and I was not going to ask this witness, for instance, the "El Grillo" was dealt with, the "Mina Brae"—the two cases have been dealt with.

Q. Mr. Arenberg, to what extent, taking first the delay claims—hours of delay, to what extent are you personally familiar with the fact that the vessels were in fact delayed?

The Court: The vessels were in fact what?

Mr. Griffin: Delayed by the necessity of going through the bridge at specific hours, that is demurrage, my lord, if they are held for many hours above the bridge it results in damage due to

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

C. Arenberg
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 C. Arenberg
 Direct.
 (Contd.)

demurrage by keeping them, which is a direct cost to the vessel and is charged against it.

The Court: But assuming it is a loss, Mr. Griffin, you are quite right, but then don't you see again, of course, on that feature Mr. Burns' objection is this, that fact can only be proved by somebody who was on the vessel at the time, who was in command, because of course it may have been due to a number of things. He cannot tell unless he was there.

Mr. Griffin: My lord, this witness is in charge of the department, would be present and see the vessel, he would be right there. 10 I had better go into that and see.

The Court: Mr. Burns' point is that he is not right there, he is at Ioco, but he ought to be right there at the bridge, that is his point.

Mr. Griffin: No, my lord, the delay does not take place at the bridge, the delay takes place at the dock, not at the bridge.

The Court: I understand that, but that is not Mr. Burns' point, Mr. Burns' point is that it is really irrelevant to give any evidence of this kind unless you can actually bring forward all these cases, like you have in the other cases, quite properly, that it 20 was owing to some obstruction at that very time.

Mr. Griffin: Well, I am proposing to see if this witness can—

The Court: I mean, I understand this man is not a navigator.

Mr. Griffin: No, my lord, he is marine superintendent in charge of all navigation.

The Court: I understand that, but that is not Mr. Burns' point, his point is that he cannot cross-examine this man at all, it would be useless, assuming that the man, in the position in which he is employed, he is not actually at the place at that time when 30 these vessels were delayed, at the locality, on account of this so-called obstruction of the bridge—or the so-called obstruction there.

Mr. Griffin: I was going to ask.

Q. Mr. Arenberg, were you personally present on the occasions when these vessels were held up? A. Most of the time.

Q. Most of the occasions you were present? A. Yes.

The Court: But where, that is the point?

Mr. Griffin: My lord, I can only ask the questions one by one.

Q. Where were you present? A. Well, at the wharf where the vessels were discharging and loading the oil. 40

The Court: How far is Ioco away, how far is Ioco from the bridge? A. From the bridge?

Q. Yes? A. About ten miles.

Q. Well, that is ten miles away, you say? A. Yes.

Mr. Griffin: Now, at what hours can these vessels—

A. I would also go aboard the ships in the harbour, when they anchor in the harbour before they go through the bridge, and frequently go up on them.

Q. So that you have personal knowledge of the times of their arrivals and departures? A. Yes, we have a correct account of the time.

Q. Well, then, are you familiar personally with the causes why they were delayed? A. Yes.

Q. What is that cause, stating it—

Mr. Burns: Well, pardon me, my lord.

The Court: Now, do not misunderstand this, because it is a perfectly clear line of demarcation here, and I propose to see
10 that I do not allow anything of that kind. You have elicited from the witness that on some occasions he was on board some of these ships.

Mr. Griffin: Yes.

The Court: Now, if you can show any time he was on board these ships at the point complained of, and therefore the delays attributed to that of course is evidence, but it must have been at that time. You understand what I say, do you. You do not object to that, Mr. Burns?

Mr. Burns: No, no,

20 The Court: No, but if he does not know about it, he is away back ten miles away, not at the First Narrows, or anywhere else, why, of course, his evidence is clearly of no value whatever.

Mr. Griffin: Yes, my lord, all I can do is ask him.

The Court: Certainly.

Mr. Griffin: Q. Then take the list in your hand, Mr. Arenberg, I am going to deal with the ships one by one and see if you can from memory say which of these are the ones on which you were personally present and know the facts? A. The "Mina Brae"—

30 Q. Now, begin in the year 1924. The first item, the "Mina Brae," yes? A. And the "Albertalite."

Q. Yes? A. The "Torontolite."

Q. That is, you have jumped to 1926, haven't you? A. Yes.

Q. The "Torontolite," yes? A. The "Ontariolite."

Q. On both occasions the "Torontolite." I see she is there twice. A. Yes, I have been on board on both occasions.

Q. The "Ontariolite?" A. The "Ontariolite." I think that is all that I have been through the bridge on.

40 Q. No, but these are the ones—these five are the ones on which you were through the bridge on the boat itself? A. Yes.

Q. But I want to know in addition to that if there are any other cases in which by reason of your presence at the place where the ship was loading or discharging you became personally aware of the reason why she was delayed in leaving?

Mr. Burns: But, my lord, loading and discharging—

The Court: Yes, that is your point, Mr. Burns. Of course, you cannot ask that.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. Arenberg
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 C. Arenberg
 Direct.
 (Contd.)

Mr. Griffin: My lord, if he was present and in control and he himself directed the thing he could give evidence of the reason that the vessel was not allowed to leave.

The Court: How can he?

Mr. Griffin: But he was there himself and directed it.

The Court: Suppose he was, he was not master of the ship.

Mr. Griffin: No, my lord, but he directs the master, he is the master's superior officer.

The Court: Yes.

Mr. Griffin: Well, then, if he is forced to hold back the 10 vessel by reason of the fact that the tide won't allow it to leave on account of the bridge, then he is the very man that did it.

The Court: How does he know that?

Mr. Griffin: Because he knows the time of the tide.

The Court: Oh, he may know that, but you have got to lay a foundation.

Mr. Griffin: I am endeavoring to do that.

The Court: But you have got to lay your foundation before you can ask the question you are asking. You are asking the question before laying the foundation, you are reversing it. 20

Mr. Griffin: That may be, but I can't—

The Court: I hope this witness is not going to indulge in any idle speculation, but if he has anything to tell with regard to the actual conditions of this bridge, of course that evidence must be received, but if he does not I do not propose to have him take up our time in idle speculation.

Mr. Griffin: Q. Who has control or superintendence over the department in which the ships come? A. Well, I have.

Q. In other words, do the captains take their orders from you as to when they sail? A. Yes. 30

Q. Well, then, were those ships—either all or some of them delayed in leaving under your orders by reason of conditions existing at the bridge? A. The orders to our captains are to only navigate through the bridge in slack water and daylight.

Q. And daylight, and I suppose such delays as these were in consequence of having to wait for slack water and daylight? A. Yes, sir.

Mr. Burns: That, of course, I submit—

The Court: I beg your pardon?

Mr. Burns: That, I submit, my lord, this witness is not en- 40 titled to say.

The Court: It is not really—it is really of absolutely no value.

Mr. Burns: Yes, my lord, I undersand that, but I am simply endeavoring to keep the evidence within proper bounds.

The Court: The orders, of course, that he has given—he has not yet shown, of course, that he knows anything about it at all,

he simply says because of certain reports made to him he has issued certain orders, and the value of that is, I don't know—none at all that I can see.

Mr. Griffin: My lord, this is the only evidence—

The Court: Because it all depends upon the question as to whether the reports so made to him are true, and whether the reports made to him are true how can he say, he cannot swear to their verity.

Mr. Griffin: But, my lord, in consequence of that—in consequence of these reports, what he told these captains—

The Court: That amounts to nothing at all.

Mr. Griffin: If your lordship thinks that is of no value I won't press it any further.

The Court: None at all.

Mr. Griffin: But I would like it noted that I tender the evidence as being the conduct of the company—

The Court: That just happens to be that Mr. Burns did not object quite as clearly—it is so clear to be of no value whatever that I suppose that is the reason he did not object.

Mr. Griffin: Q. Well, Mr. Arenberg, in any of these cases were you present yourself at Ioco when these vessels were in fact lying there delayed? A. Yes, sir.

Q. And were you at that time aware of the cause of their being delayed? A. Yes, sir.

Q. And were they then held by your orders? A. Yes.

Q. Now, then, can you pick out these?

The Court: Now, let me understand, in case we are drifting away, you know, in this matter, and I do not propose to do so.

Q. Now, what are you speaking of, witness? Are you talking of something you know yourself, because you were on board these vessels when you came through the bridge? A. Yes.

Q. Now, there is no objection to that, then you see you answer the learned counsel; but if you don't know anything about it, because you were not at the bridge at the time, you see, don't say anything more until a ruling is made, because there is an objection.

Mr. Griffin: Q. Well, we will take the top one, the "Mina Brae," 1924, where you claim for a total of hours of delay, 79 hours? A. Yes.

Q. Is it a fact that the vessel was delayed for 79 hours?

The Court: If you don't know you need not answer that. Objection sustained.

Mr. Griffin: He knows about that one, that is one of the ones he went through the bridge in.

The Court: Is that one of them?

Mr. Griffin: Yes, my lord.

The Court: That was the trouble, if he would just simply

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. Arenberg
Direct.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 C. Arenberg
 Direct.
 (Contd.)

look at the list, he has got it in his hand now, and say himself, "I was on this vessel." That is what he has been asked to do.

Mr. Griffin: He gave these five, my lord, already. Well, I will go back and endeavor to follow your lordship's method.

The Court: Yes, pick out the first one. Is that the one you refer to, Mr. Griffin?

Mr. Griffin: Yes.

The Court: The "Mina Brae," yes, I see, that is the first one he was on.

Mr. Griffin: The "Mina Brae," we got that one. The witness was on board—you say? A. Yes. 10

Q. And can you verify the number of hours of delay?

The Court: I have not got a copy of that list you see, I cannot quite follow it.

Q. Now, you will look at this list you see, and you are saying this—you are going to say which one of the vessels you were on at the time where you had some cause of delay at this bridge in question, so that you can give firsthand evidence of the case. Now, which are the ones you refer to, counsel has asked you and I want to know them? A. Well, the S.S. "Mina Brae" for the year 1924, that 79 hours is the delay for the whole year. 20

Q. Oh, I see, yes. Well, were you on her then on one of these occasions? A. Yes, I have been on her on one of these occasions.

The Court: Well, just speak to Mr. Griffin, you see—he can bring it out.

Mr. Griffin: Q. On how many occasions were you on board her, how many trips? A. Well, I have been aboard her every time she comes in the harbour out here and anchored waiting for the tide.

Q. Then you can verify that all the way through, can you, personally? A. Yes. I am also at Ioco when they are there unloading. 30

Mr. Burns: He is not on the ship at all, my lord—part of the time he is at Ioco.

The Court: Q. Yes, do you not understand what counsel is asking you? —what he understood from you I understood from you, that you were actually on board this ship at the time she went through this bridge, if you can tell us that. A. I do go on them sometimes, my lord.

Q. You see, he is asking you what times. Can you say? A. It is difficult for me just to remember what times I did go up, but I go up very frequently. 40

Mr. Griffin: Q. Now then, the times that you didn't go up on the vessels— A. Yes, there are times when I don't go up.

Q. Well, how do you become aware of the times she arrives in the harbour and the time she arrives at Ioco? A. Because I keep close touch with them and know when they pass Prospect

Point, and know when they come in the harbour, and we generally go out and meet them in a launch, I go aboard them.

Q. Have you checked the hours that you can remember exactly at each particular trip? A. No, I can't.

The Court: Now, the result is that he cannot tell us one single occasion upon which a ship was delayed for one solitary hour to his personal knowledge because of this bridge, that is the difficulty.

10 Mr. Griffin: No, my lord, he does not mean—he understands the occasions but he cannot give the dates.

Q. Now, take the "Mina Brae" then—

The Court: Now, that is it again, you see, because there are apparently cross-currents on this examination, you mean one thing and he means another and Mr. Burns means still another. So let this witness understand, what is meant, one single occasion on which he was on board a vessel which was actually delayed at this bridge. Now, that is very simple and clear, anybody can understand that who has any intelligence at all. Now, just speak, if you know it.

20 Mr. Griffin: Q. Can you remember, witness, any occasion upon which you were there personally, saw the vessel and were aware of her having been delayed by reason of her difficulty in getting through the bridge. That is what we want, any that you were present on when she went through the bridge?

Mr. Burns: Well, that is the point.

The Court: That is just the very point.

Mr. Griffin: No, my lord, I am asking him that.

The Court: No, Mr. Burns is objecting because you did not ask him that.

30 Mr. Griffin: But your lordship is not giving me an opportunity.

The Court: His objection is sustained.

Mr. Griffin: I don't suggest that the delay took place at the bridge, I say the vessel is held up at a point below the bridge or above the bridge by reason of a cause of delay at the bridge.

The Court: But Mr. Burns' point is the condition is not known?

Mr. Griffin: Yes, but he knows it at the time.

The Court: He does not know, you see.

40 Mr. Griffin: Yes, my lord, he knows the time of the tide.

The Court: Oh, no, he does not you see.

Mr. Griffin: Yes, my lord, he does; he knows it from the tide book like anybody else.

The Court: He has no personal knowledge of it, he must say it definitely.

Mr. Griffin: But he is there, present.

The Court: But he is not there present. The Master might be at the bridge.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. Arenberg
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 C. Arenberg
 Direct.
 (Contd.)

Mr. Griffin: He is present with the ship and the Master.

The Court: But he was not present, you see.

Mr. Griffin: But the witness has not said he was.

The Court: No, he did not, you see. Now, answer the question, witness.

Mr. Griffin: Q. Now, go on, witness, that you personally were present on these occasions, you know of these ships—

The Court: Just keep Mr. Burns' objection in mind, you see.

Mr. Griffin: Yes.

Q. Were you present at Ioco when these vessels— 10

The Court: There, you see again, it has nothing to do with his presence at Ioco, the point is his presence at the bridge.

Mr. Griffin: I was not proposing to ask that question, my lord; he was not there.

The Court: Of course you are not.

Mr. Griffin: Well then, I think, my lord, I should ask the question I am able to.

The Court: Precisely, you have asked it several times and Mr. Burns has objected and I have ruled several times it is not admissible. 20

Mr. Griffin: Yes, your lordship has ruled on the question—

The Court: The witness himself says that he cannot explain in any particular case from his own personal knowledge how the ship was delayed at the bridge.

Mr. Griffin: No, he has not said so, my lord.

The Court: Well, you had better ask the question to make sure, and we will see, and we will have it a third time.

Mr. Griffin: Q. Have you been up at Ioco when there has been a vessel—

The Court: You see I have made the statement it is no good at all, that is not the point, that is not Mr. Burns' objection. Mr. Burns' objection is, this witness cannot speak of his own knowledge, of one solitary occasion upon which this ship was delayed for one solitary minute, of his own knowledge, at the bridge in question. That is Mr. Burns' objection. 30

Q. Now, you have heard it, witness, can you answer it? Do you know one solitary instance of your personal knowledge, as being present at this point in dispute? That occasion—anything there occasioned delay to this vessel? A. Well, I can't just say the exact date, but— 40

Mr. Griffin: Q. Can you remember occasions apart from the date? A. Yes.

Q. Well now, then, tell his lordship about that if you can remember the occasion of it, without regard to the date? A. Well, the last time the "Ontariolite" was in the harbour.

Q. Yes. A. She was anchored in the harbour.

The Court: Q. Were you on the vessel? A. Yes, sir.

Q. You were on the vessel yourself? A. Yes.

Q. And it came up through this bridge? A. Yes.

The Court: Now, that is perfectly good evidence, so proceed.

Mr. Griffin: Q. All right now, how long a time was she delayed in the endeavour to get through the bridge?

The Court: This vessel was what—what is her name?

Mr. Griffin: The "Ontariolite."

The Court: The what?

The Witness: The "Ontariolite."

10 Q. The "Ontariolite;" yes, I see that. Yes, the "Ontariolite," that is a motorship, in 1926? A. Yes.

Q. On one occasion, that is—

Mr. Griffin: I don't think that was necessarily the occasion in that list, my lord.

The Witness: I am referring to 1927.

The Court: 1927, yes.

Mr. Burns: Q. The last occasion she went through you said? A. Yes.

Mr. Griffin: Q. All right. Now, what length of time was
20 she delayed by reason of the difficulty of getting through the bridge? A. Well, of course we haven't got it on the list here, the exact number of hours.

Q: No, I am trying you from your memory—how long, to the best of your memory, was it? A. It seems to me it was about five hours.

Q. About five hours? A. Yes.

Q. What was the reason that occasioned the delay, what was it that she was waiting for? A. Waiting for slack water—high slack water.

30 Q. And under whose orders was that? A. It was under my orders, or the company's orders.

Q. Well, your orders direct to the Captain? A. It is a standing order. It is a standing order to all our Captains.

Q. Now then, give me another occasion when you can remember the occasion of that happening, a similar kind of thing, although you can't remember the date. A. Well, I went up on the "Torontolite" in 1927, I can remember that quite well.

The Court: Q. The "Vancolite?" A. "Torontolite."

40 Q. Oh, the "Torontolite," yes. A. The "Torontolite," yes, sir.

Q. And another occasion in 1926? A. Yes.

Q. On the "Torontolite:" yes? A. Yes.

Q. Yes, what happened then? A. That she was delayed, anchored in the harbour here waiting for slack water for as near as I can remember, approximately four hours.

Mr. Griffin: Q. All those that you can remember, without

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

C. Arenberg
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 C. Arenberg
 Direct.
 (Contd.)

giving the date? A. Yes, I went up on various occasions, I can't remember just the details very well.

Q. But can you remember that there were other occasions?

A. Oh yes, I know that there were several occasions where ships—if a ship comes in, that she can just go up to the bridge at slack water, why, of course she doesn't anchor, she goes straight on; but invariably they have to anchor, and also they had to anchor before they can come through for unloading.

Q. Now, I will take you back to Ioco where the delay had been to ships, following the line laid down to you by his lordship, can you remember occasions, apart from dates, when vessels on their downward trip have been delayed under three hours at Ioco by reason of the fact that they could not go through the bridge?

A. Oh yes, I can remember several occasions.

Q. Now, try and give any of them that you can give from memory? A. I would speak of the same ship, the "Ontariolite."

Q. Which year? A. In 1927.

Q. Yes? A. The second last trip she was in here, she got as far as Berry Point and anchored.

The Court: Q. Is this the "Torontolite?" A. The "On- 20
 tariolite."

Q. The "Ontariolite," yes? A. She anchored—

Mr. Burns: My lord, pardon my interruptions, but I would like to ask the witness whether he was aboard her or not.

The Court: Yes, I want to know, precisely.

Q. Were you aboard her? A. No, I was at Ioco when she left.

The Court: Well, that is the objection.

Mr. Griffin: Q. But you saw her leave? A. Yes, and I went down to her on a launch when she anchored. 30

The Court: Q. Oh, you went down to her? A. Yes.

Q. When you saw her anchored where? A. At Berry Point—off Berry Point.

The Court: Well, that is all right, Mr. Griffin.

Mr. Griffin: Q. The same point? A. She had to wait until the next—

The Court: Q. You followed her down in a launch, yes?

Mr. Griffin: Q. And she had to wait until when? A. Wait until the next slack water.

Q. How long would that be? A. Approximately 6 hours. 40

Q. Now, that is the first one. Any other one that you can remember now? A. Well, I can't remember any more than that I was at Ioco when they left there and I know of their waiting, but I didn't go down on them, nor I didn't follow them down.

Q. Oh then, I will just make that question plain: Can you give me the names of any of them on which you can remember that they were held up there at Ioco when you were there and knew

the occasion, even if you didn't follow them down? A. Oh well, they are invariably all held up because—

The Court: Well, that is objected to.

Mr. Griffin: Q. We want you to give them one by one if you can, those that were held up going down, the names of the vessels when you can remember the occasion, even if you can't remember the date? A. The "Torontolite" was held up.

Q. What date—which were those years? A. In 1927.

Q. Yes. A. Not leaving Ioco from nine o'clock at till seven
10 o'clock in the morning.

Q. On one occasion? A. Yes, sir.

Q. Can you remember any others? A. Well, I don't think that I can remember any more. As I said before, they are more or less all held up.

Q. Now then, the balance of this list is made up from what records—what kind of records? A. It is taken from the ship's log book.

Q. Taken from the ships' logs? A. Yes.

Q. Oh well, his lordship has ruled against any that may be
20 from other sources. Now, what do you know about the accidents to the "Mina Brae," do you know personally anything about them? A. Well, the "Mina Brae" has had two accidents at the bridge, one January 9th—

The Court: Now, we will see.

Mr. Burns: My lord, the witness is not answering the question in the way he was asked, as I understand—whether I should continue to make these objections or not.

The Court: It must be personal knowledge, you know.

Mr. Griffin: Q. Have you any personal knowledge of it,
30 did you see it, any part of it? A. No, I was not present.

Q. Then how about these others that are mentioned in that list, did you see any of them? A. No, I haven't really witnessed any of them.

Mr. Griffin: No; then I won't press that, his lordship has ruled against it.

The Court: This list can go in as an exhibit, only to the extent of identifying it—only to the extent of using it so far as it gives a list of the ships, but not of course for the purpose of anything to which Mr. Burns' objection has been sustained.

40 (DOCUMENT MARKED EXHIBIT NUMBER 24)

Mr. Griffin: Q. Now, do you at the present time operate your large vessels, say those of 12,000 tons or more through the bridge? A. No, not over 12,000.

Q. What? A. Not over 12,000 tons.

Q. What is the reason for that? A. Well, in view of the accidents that we have had there and the danger that exists, our

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. Arenberg
Direct.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 C. Arenberg
 Direct.
 (Contd.)

company has decided that under no consideration are any of the larger vessels enumerated under any circumstances to go through the bridge.

Q. What special danger is there in regard to oil cargo?

The Court: Wait, now. Did I understand him to say, Mr. Griffin, that of that list none of the vessels—none of the larger vessels on that list now go through, and that all that they allow to go through are vessels of five thousand.

Mr. Griffin: No, he said any vessel of 12,000 or more is not allowed to go through. 10

The Witness: No vessel over 12,000.

The Court: Yes.

Mr. Griffin: No vessel over 12,000 is allowed to go through, and I was simply wanting to ask him what is the special reason, if any, in connection with oil cargoes? A. Well, what we fear most is that one of our loaded vessels will have a serious accident going through the bridge and spill a hugh quantity of oil in the harbour, and if this oil should take fire, why the results are easily to be foreseen.

Mr. Griffin: Yes; your witness, Mr. Burns. 20

C. Arenberg
 Cross-exam.

CROSS EXAMINATION BY MR. BURNS:

Q. I suppose, Mr. Arenberg, that there has been quite a lot of delay owing to foggy weather at times? A. There has been occasionally.

Q. And owing to snow—snowy weather? A. Of course these are not included in this list.

Q. No, I know these are not included in this list, but doubtless you have another list made owing to foggy weather and so on. A. Yes, occasionally.

Q. Other delays? A. Fog, certainly. 30

Q. And you say that foggy weather—in any instance, say with respect to any of these ships could you say that foggy weather did not enter into it at all, or does not enter into it? A. No, sir, not on that list, absolutely.

The Court: Now, I was writing something down and I did not get that.

Mr. Burns: He says fog does not enter into that list.

The Court: Oh yes.

Mr. Burns: Of course you don't know yourself, you are just giving evidence from information that has been given you? 40
 A. Well, the way we arrive at that is the Captains enter up in their port log all delays—

Q. Yes, I see. A. —and they also keep a port log and every hour and minute of the day is accounted for.

Q. Yes, that is quite true. A. And when a ship anchors in the harbour waiting for the bridge, it is entered in the log book.

When they are discharging at Ioco and ready to proceed to sea and waiting for the bridge—

Q. It is entered in the log? A. It is entered in the log.

Q. That is the way log books are used? A. Yes, it is taken from the ship's logs.

Q. You don't know from your own personal knowledge whether the entries in the log book are correct or not. That is a matter of whether the Captain— A. Well, we have—I think we have reliable men.

10 Q. You have got faithful and loyal men, of course? A. It is no object for them to put anything in there that is not correct.

Mr. Burns: No.

Mr. Smith: Q. Speak a little louder, Captain, will you?

Mr. Burns: Q. Now, these large vessels that you speak of, the "J. A. Stillman," the "Victolite," the "Vancolite," "Calgolite," and so on, that you had substituted for the steamship— A. Yes.

Q. —when did that substitution take place? A. Well—

Q. I mean, when was this fleet augmented to what it is now?

20 A. About two years ago.

Q. About two years ago? A. Yes.

Q. Since the bridge was installed—well, of course that follows. A. Well, some of them have come out even this year.

Q. Well, but I mean these larger vessels, 23,000, 16,000—three of sixteen, and two of 15,600, that are running now, these motorships, they came into your service, as far as Vancouver is concerned, within the last two years? A. Well, most of them.

Mr. Burns: I understood you to say.

Mr. Griffin: Thank you, Mr. Arenberg.

30 (Witness aside.)

Mr. Smith: Captain McKay.

EDWARD LEWIS McKAY, a witness called on behalf of the Defendant being first duly sworn, testified as follows:

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
—
C. Arenberg
Cross-exam.
(Contd.)

E. L. McKay
Direct.

DIRECT EXAMINATION BY MR. SMITH:

Q. Captain, you live in Vancouver? A. Yes.

Q. And you are Master of the "Nanaimolite?" A. Yes, sir.

Q. And how many years have you been at sea altogether?

A. About 20 years.

Q. And how many years have you been in command?

40 The Court: Master of what ship?

Mr. Smith: The "Nanaimolite," my lord.

The Court: The "Nanaimolite?"

Mr. Smith: Yes.

A. Approximately a year and a half.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseE. L. McKay
Direct.

(Contd.)

Q. Did you navigate through the Second Narrows before the bridge was built? A. Yes.

Q. How many times can you tell me were you through the Narrows before the bridge was constructed? A. I couldn't say the exact amount—several times I was through.

Q. And how many times were you through during construction? A. While the bridge was being constructed?

Q. Yes, just an approximation? A. Oh, just around two or three times.

Q. Two or three times? 10

The Court: Speak up, you see the learned counsel is speaking quite clearly, you ought to do the same.

Mr. Smith: Q. And how many times have you been through since the completion of the building of the bridge? A. 1928, I have made 180 trips through there—round trips.

Q. That is in the year 1928, this year? A. Yes.

Q. You have made 180 round trips? A. Yes.

Q. And how many round trips did you make last year? A. Approximately about—between 70 and 80 trips.

Q. Seventy and 80 trips? A. Maybe more, I don't know, 20 maybe less.

Q. And I suppose about the same the year before that? A. Yes, about that.

Q. Now before the bridge was built did you navigate through the Narrows at all stages of the tide? A. At all stages of the tide, yes.

Q. And since the bridge has been built when do you navigate through the Narrows? A. We navigate up to—up to ten feet in the "Nanaimolite."

Q. Now, just what—make that a little clearer, Captain? 30 A. Ten feet rise—up to ten feet rise.

Q. That is to say, when there is a range of— A. When there is a range of tide of ten feet high—when there is a run-out of ten feet—over ten feet, we don't attempt the bridge.

Q. You don't attempt it, no. By the way, will you describe the "Nanaimolite," how long is she? A. She is around 170 feet long.

Q. And what beam? A. Around between 29 and 31 feet, I don't know exactly.

Q. What what tonnage? A. She is around 550—between 40 550 and 600 gross.

Q. So that she is one of the smaller oil boats? A. Yes, one of the smaller tankers.

Q. And you are engaged in coasting, I understand? A. Yes.

Q. Now, what has been the effect of the construction of the bridge in the Narrows with respect to the current? A. There is always eddies and cross-currents since the bridge was put there.

Q. Yes, and can you deal with any of the cross-currents in particular? A. Yes, at all times there is cross-currents—we are on the lookout for cross-currents and eddies there at all times.

Q. Yes, and how do the cross-currents run? A. Well, at my experience there is liable to be—at any time—no time in particular do they run the same way, they may set off to the north side or the south side, you have got to be on the lookout for them all the time.

Q. What causes this current? A. The piers of the bridge
10 cause them, causing the tide current to strengthen since it is put there.

Q. And does anything else cause that? A. Well, the shallow water on the—on the east side of the bridge would cause a certain amount, but not so much before as since the bridge was put there.

The Court: What is that? A. There was always a certain amount of current running there before the bridge, but not so much as since the bridge has been put there.

Mr. Smith: Q. Has the building of the bridge had any effect on the velocity of the current? A. Yes.

Q. In what way? A. In both flood and ebb, it runs stronger there.

The Court: The shoal water—do you mean that shoal we have been speaking of?

Mr. Smith. Yes, my lord.

The Court: I suppose so.

The Witness: Yes.

Mr. Smith: Q. How do you pass through the bascule span, I mean by that, do you go through at right angles to the bridge or otherwise? A. On some occasions I do, not always. Personally
30 in navigating through that bridge, westbound, I come down and line up Berry Point with the Terminal Dock.

Q. Yes. A. And proceed through the draw, but sometimes I go to port or starboard to get in the centre with the set of the current.

Q. Well, when you are passing down through the bridge say at low water slack, or about low water slack, what currents do you usually meet with about that time? A. They vary, sometimes there is a set off-shore to the north shore, sometimes there is a set to the other side.

Q. Now, dealing with the bascule span, is the bascule span in the right position? A. No.

Q. Well, what is wrong with it? A. It is too close to the south shore.

Q. And what else is wrong with it? A. And it is not wide enough.

Q. What else? A. That shoal that that foundation runs off there, it causes the tide to set stronger at that point, too.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

E. L. McKay
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 E. L. McKay
 Direct.
 (Contd.)

Q. Now, what foundation do you refer to? A. The foundation alongside of the bridge—on the south side of the bridge, that fill.

Q. Foundation? A. That fill that they have there.

Q. You refer to the rock fill at the south end of the bridge?

A. Yes.

Q. Could you say what effect has that? A. It has the effect on the current that it runs stronger.

Q. Yes, in what direction? A. In various directions.

Q. Now, what is the effect on the navigation of the vessel of having the bascule span too far to the south'ard? A. Well, on the last of the flood it has a tendency to set the vessel to the north shore on a flood, and not in every occasion, sometimes it will set the other way, but as a rule it generally sets to the north shore.

Q. Is it ever possible to tell the period of slack water—or rather the time of slack water from the tide tables? A. It varies in my experience from—myself, 25 minutes that I have experienced the tide.

Q. Now, you mean by that just what, Captain? A. Twenty-five minutes the book is—the tide is slack water at—is out 25 minutes from the book.

Q. I see. There may be a difference of 25 minutes between actual slack and the slack as given in the book? A. In the book.

Q. Now, what about the duration of slack? A. Well, on the flood tide I would say around 15—ten—15 minutes.

Q. Have you had any accidents at the bridge?

The Court: Just wait; I want to get the minutes of that.

What did you ask him?

Mr. Smith: The last question, my lord, was the duration of slack water at the bridge.

The Court: Average duration.

Mr. Smith: Yes, the average.

The Court: High or low, did you not say which?

Mr. Smith: Well, he said slack water generally—I will ask him.

The Witness: High water slack.

Q. You mean high water slack? A. Yes.

Q. And your answer to that question, witness, just give it now to his lordship.

The Court: The average duration, you were asked, of high water slack is what? A. Is from 10 to 15 minutes, that is sometimes.

Mr. Smith: Q. Have you had any accidents at the bridge?

A. Yes.

The Court: Would you mind asking him—if it is material, not otherwise, Mr. Smith—what he says about the average duration at low water slack?

Mr. Smith: Oh yes, certainly, my lord; thank you very much for reminding me.

The Court: We have got high, I would like to know the low.

Mr. Smith: Q. What is the average duration at low water slack? A. There is no slack at low water, I have never experienced any slack water at low water slack.

Q. Have you had any accidents at the bridge? A. Yes, I dented a couple of plates in the ship on September 5th, 1928.

Q. Yes; what ship? A. On the S. S. "Nanaimolite."

10 Q. Well, how were you going at the time? A. I was going east.

Q. Going east? A. With a flood tide.

Q. And were you loaded?

The Court: Was it this year you spoke of there? A. September 5th, 1928. This is a light ship.

Mr. Smith: Q. A light ship, well, just describe what happened? A. Well—

The Court: Q. What ship? A. The S. S. "Nanaimolite."

Q. Oh yes. A. On September 5th.

20 Q. It was light at the time? A. Light ship at the time.

Q. Yes, but what was her draught at the time? A. When she is light she draws around 8 feet 6 aft, about 4 feet forward.

Mr. Smith: Q. Well, just describe what happened? A. At 7:30 a.m., about two hours before high water slack, I was approaching the bridge and I checked for the bridge to open, and when I got the centre of the draw there was a northerly set took the vessel and she went against the north pier and dented two plates in the ship's side.

30 The Court: Q. And what stage of the water did you say, again? A. Two hours—seven foot run in—seven foot flood, about two hours before high water slack.

Q. And you were going—you were outward bound? A. I was going east.

Q. You were inward then? A. Inward bound, yes, sir.

Q. This is supposed to be two hours before high water slack?

A. Yes, sir.

40 Q. Inward bound, and what happened to you? A. When I got near the draw of the bridge I lined the ship up for the draw and there was a northerly set took the vessel and she went against the north pier of the bridge and damaged—dented two plates in the ship's side.

Q. A northerly set took you against the north pier of the bridge? A. Yes, sir.

Q. Was there any occasion for that—how did that happen?

Mr. Smith: Q. Well, just explain what caused the ship to set off to the north like that? A. The flood tide, the tide running in.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

E. L. McKay
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

E. L. McKay
Direct.

(Contd.)

Q. Well, how was the tide running? A. The tide was flowing—was flooding, was running in—running east.

Q. Yes, but a flood tide behind you would not cause you to go to the north? A. Well, it took—there was a cross-current took the vessel when she got in the tide.

Q. Yes; now, what caused the cross-current? A. The tide—the flood tide.

Q. Striking what? A. Striking the pier.

Q. What pier? A. Striking that fill that was mentioned a while ago.

Q. That is it, yes. Now, is the bridge an obstruction to navigation? A. Yes, in my opinion it is.

Q. Is it a menace to navigation? A. In my opinion it is.
Mr. Smith: That is all.

10

E. L. McKay
Cross-exam.

CROSS EXAMINATION BY MR. BURNS:

Q. Do I understand you, Captain, that you have been Master of the "Nanaimolite" for a year and a half? A. Yes, sir.

Q. And before that what were you? A. Mate on the "Imperial."

Q. Mate on the "Imperial," the "Imperial" is 950 tons 20
coasting vessel? A. Yes.

Q. And I suppose before that you would be mate and some lower position and so on? A. On various ships around the coast.

Q. What? A. Various ships around the coast.

Q. All coasting vessels? A. Yes.

Q. And you have been as such for how long? A. I beg your pardon?

Q. How long were you mate for instance? A. On the coast here?

Q. Yes? A. I have been mate here since 1917.

30

Q. 1917, on what vessels? A. I have been on the C. P. R. ships, the "Princess Beatrice" and "Princess May" and the "Prince George" and "Prince Rupert," I held chief officer's jobs on them—on the vessels, that position, and on the "Prince John" and the "Prince Albert."

Q. All coasting vessels, mostly passenger? A. Coasting vessels running out of Vancouver and up the coast and around.

Q. Yes, previous to that what vessel were you on? A. Before that I was back in Newfoundland on schooners—sailing ves-
sels.

40

Q. I see. Well, then, when did you come here? A. I came out here in 1916.

Q. 1916 and started in on a seafaring life here? A. Yes.

Q. Working up to mate? A. Mate and master.

Q. On those vessels that you speak of? A. Yes.

Q. And then master a year and half ago? A. Yes.

Q. Is the "Imperial" the only other cargo vessel that you were mate on? A. Cargo vessels?

Q. Yes? A. The "Prince Albert" was a cargo vessel, the "Prince John" was a cargo vessel.

Q. Yes, I understand, but they are looked upon as passenger vessels. Take them as cargo vessels, what other ships now— A. The S.S. "Famous," I was on her for—

Q. The "Famous?" A. The "Famous," yes.

Q. Where did she run? A. She runs up and down the coast out of Vancouver, up to the west coast, and north, Skagway and all these places.

Q. Any other ship? A. That is the ships I have in mind now that I have been on.

Q. You have mentioned them all, have you? A. Yes.

Q. And then you were transferred from the last one to those that you mentioned? A. The "Famous" to the "Imperial."

Q. From the "Famous" to the "Imperial," when? A. 1926—the fall of 1926.

Q. 1926? A. I just can't remember the date.

Q. So where you got your experience of the Second Narrows was as mate on the "Imperial?" A. On the "Prince John" and "Prince Albert."

Q. The "Prince John" and the "Prince Rupert," what do they go up the Second Narrows for? A. They used to go up to loco for oil.

Q. When? A. In 19—all the way from 1918 to—1917 up to 1921.

Q. And how often? A. Well, I couldn't say how often.

Q. It wasn't very often, was it the "Prince John" and the "Prince Albert?" A. We have been up there several times. Sometimes they would go up there twice a month, sometimes more than that—three times a month.

Q. Sometimes even fewer times than that, isn't that so? A. Sometimes they would miss a month and wouldn't go up at all.

Q. But however that is the experience that you have had of the Second Narrows, was on the "Prince John" and "Prince Albert?" A. Yes, and the "Famous."

Q. Well, how often did the "Famous" go up? A. It was when—no, pardon me, I was on there since the bridge was put there; but the "Prince John" and the "Prince Albert" before the bridge was put there.

Q. For how long before the bridge was put there—what years? A. Well, in 1917—running up from in 1917 to 1918 and '19.

Q. When did you go on the C. P. R.? A. I joined the C. P. R. in 1916 when I came to the coast.

Q. Oh, you went up from the "Prince John" and the "Prince

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

E. L. McKay
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 E. L. McKay
 Cross-exam.
 (Contd.)

Albert" to the "Famous," is that right, just when did you go up—
 A. Well, the "Rupert" and "George" after that, various times,
 you see, but from the Grand Trunk Company to the "Famous,"
 yes.

Q. After you were on the "Prince John" and the "Prince
 Albert" then you went to the "Rupert" and "George?" A. Yes,
 and sometimes in the summer time I would go on there, and then
 we would ship back in the winter, you see—some of the ships was
 tied up.

Q. How many times would you say, now, that is a fair ques- 10
 tion, how many times would you say you had been through the Sec-
 ond Narrows before the bridge was there. I want your best an-
 swer? A. Well, I couldn't say exactly the times I have been
 through them.

Q. Well, approximately? A. Say approximately ten to
 fifteen.

Q. Ten to fifteen times? A. Perhaps a little more, perhaps
 a little less.

Q. Now, then, you say since the bridge has been there that
 eddies have all become—that the water is all eddies and cross- 20
 currents, never running the same way, they have got to be looked
 out for at all times, because of not knowing how they are running.
 That is your evidence, is it not? A. That is my experience in the
 bridge.

Q. And you say that that is since the bridge was put there
 and as a result of the bridge? A. Yes.

Q. I take it. Before the bridge was there any time you did
 go up and down the Second Narrows you were mate? A. Yes.

Q. You were not in command, were you? A. No.

Q. Will you agree with me that you don't have the same op- 30
 portunity of sizing up currents then as you would have when you
 had your own boat? A. I always took as much notice when I
 was mate of currents as I do since I have been master.

Q. You do, there would be no difference? A. I always take
 as much notice of the currents.

Q. Well, your answer is you think there would be no dif-
 ference. A. As far as taking notice of the currents in concerned,
 no.

Q. And you feel that your experience of the Second Nar- 40
 rows before the bridge was put there, that you are capable of say-
 ing that the bridge has turned the water into cross-currents and
 eddies, never running the same way, whereas before the bridge
 was put there that condition did not prevail? A. Yes.

Q. And you put that down—at least the cause of that down
 to the piers of the bridge, is that right? A. Yes.

Q. Added to the shallow water on the east side. You would
 never be there—on the south side, I mean, you would never be over

on the south side with the "Prince Albert" and the "Prince John," would you, at this particular point? A. We always—not at that particular place, but a little east and west we would.

Q. Well, a little east would be Berry Point, wouldn't it?

A. No, a little—Berry Point is—

Q. Well— A. We come in the channel about half way between the bridge and Berry Point.

Q. What do you mean by that? A. Well, there is a shoal on the north side and you can't come down wide to Berry Point
10 because you would run on that shoal.

Q. Well, you say that the "Prince Albert" and "Prince John" would be where the supposition was that you could see the shallow water or know something about the shallow water and what currents were there at that time? A. You would come down in midchannel.

Q. Well, where do you get any experience about the velocity of this current on the south side around that shallow water before the bridge? A. About five or six hundred feet east of where the
bascule span is now.

Q. And how near the south shore would you be? A. It
20 would be approximately seven or eight hundred feet off.

Q. About seven or eight hundred feet off the south shore before the bridge was there? A. Maybe a little more than that.

Q. Well, now, then— A. Approximately.

Q. Well, take me right, I would place this so that you could see these currents from the "Prince Albert" or the "Prince John"—or this particular current that we are discussing with you now, how far off the south shore? A. About—approximately about seven or eight hundred feet off.

Q. Seven or eight hundred feet, what you said before? A.
30 Yes.

Q. So that the "Prince Albert" and "Prince George" would be at the time we are talking about twelve or fifteen hundred feet east of the bridge? A. Yes.

Q. You have listened to the evidence, that is why I didn't take it up with you first—at least, describe it to you—so at that point you would be, before the bridge was there, when you were on the "Prince Albert" or "Prince George" about 700 or 800 feet from the south shore? A. Yes, something like that.

Q. Going east and west, both? A. Yes.
40

Q. And you say the flood and the ebb tide both are stronger in velocity by reason of the bridge, is that right? A. Yes.

Q. And why do you say that? Did you ever test the velocity? A. Because a vessel—we have navigated that bridge—that narrows with 11, 12 and 13 foot tides, I mean, when the tide is running in from minus to 12 and 13 feet.

Q. Yes, I understand you. A. In 10 knot vessels, in 9½ to 10 knots, whereas we couldn't do it right now.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
E. L. McKay
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 E. L. McKay
 Cross-exam.
 (Contd.)

Q. When was that? A. That was on the "John" and the "Albert."

Q. What years were those? A. Well, between 1907 and 1921, during the—

Q. 19 what? A. 1917 to 1921.

Q. 1917 to 1921? A. Yes.

Q. That is as near as you can bring me to it, is it? A. Yes.

Q. Some place in that time you say that the "Prince John" and "Prince Albert," ten knot vessels could navigate the current, but later on a ten knot vessel that you were on could not? A. 10 Yes.

Q. Is that right? A. Yes.

Q. Now, what was the vessel that you were on, the 10 knot vessel that you were on later that could not do it? A. The "Nanaimolite."

Q. When was that? A. Well, different periods since I become master of her.

Q. The "Nanaimolite" has the same speed as the "Albert" and "John?" A. The same speed as the "John," about that speed, or around there. 20

Q. That is the only way you have of testing it—your statement? A. Yes.

Q. That you figure there is—is that going east or west? A. That is going east and west.

Q. Both ways? A. Yes.

Q. And the tide is at what stage, you say? A. That is from a 10 to 13 foot rise.

Q. That you handled that 10 knot vessel before, or was handled by a 10 knot vessel on which you were before? A. Yes.

Q. And which you handled yourself, a ten knot vessel before 30 the bridge was there? A. Yes.

Q. That is all you have got to go on your statement that the velocity is stronger—at least, greater? A. Yes, and the tide—the tide before the bridge was put there ran straighter.

Q. Well, I wasn't talking about straight, I will come to that; but so far as velocity is concerned? A. Yes.

Q. That is all you have to go on, is it? A. That is what I have to go on.

Q. All right. Now, then, as far as straightness is concerned wherein has it been changed by the bridge? A. This place— 40

Q. The straightness of the current? A. Those places that I have already mentioned.

Q. Well, mention them again? A. About 1200 to 1500 feet east and west of the bridge.

Q. 1200 to 1500 feet east and west of the bridge? A. Approximately.

Q. According to what tide it is? A. Approximately.

Q. According to whether it is ebb or flood tide? A. Yes.

Q. And in what way is it changed? A. It is changed with the eddies and cross-currents.

Q. That is, there are eddies and cross-currents 1200 to 1500 feet east and west of the bridge according to what tide it is that were not existing before the bridge was there, is that so? Now—
A. Not so—

Q. I want you to watch your answer to that question? A. Not so strong before the bridge was put there.

10 Q. Not so strong before the bridge was put there. You say that 1200 to 1500 feet east and west of the bridge there are eddies and cross-currents that made the current crooked, is that what we are talking about—a straight current? A. Yes, it is crooked since the bridge was put there.

Q. Since the bridge was put there, by reason of the bridge being put there, is that so? A. Yes.

Q. Have you any personal knowledge about the dredging of the First Narrows, when it was done? A. I remember, but I just can't call the date.

20 Q. You never thought about considering that in the situation before—never gave that any consideration before coming to your opinion about these cross-currents? A. Well, I can't call it when these narrows was dredged, but I remember it.

Q. Well, you can answer this question: Have you in coming to your opinion that the bridge has caused this stronger current and crookeder current in the Second Narrows at 1200 or 1500 feet east or west of the bridge taken into consideration at all the proposition of the dredging of the First Narrows. You can tell me that, whether you consider it or not? A. I claim that the fills—
30 that the foundation at the Second Narrows Bridge cause these cross-currents and eddies to run.

Q. I know what you claim and his lordship knows what you claim? A. Apart from the First Narrows.

Q. Have you given consideration— A. Yes.

Q. —to the dredging in the First Narrows when arriving at your opinion that you have given to this court? A. Yes.

Q. What was that consideration? A. Well, that—it wouldn't make as much difference if the bridge wasn't there.

Q. But you agree in your mind, do you, that it would make
40 some difference, do you? A. No, I have not.

Q. Then you came to the opinion that the dredging of the First Narrows would make no difference in the Second Narrows, is that right? A. Yes.

Mr. Burns: So that is where we are at.

Mr. Smith: All right, thank you, Captain.

(Witness aside.)

Mr. Smith: Captain Clarkson.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

E. L. McKay
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.

Defendant's
Case

C. Clarkson
Direct.

CHARLES CLARKSON, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. Captain, you live in Vancouver? A. Yes, sir.

Q. Yes, speak loudly, Captain. And your present position is that of chief surveyor for British Columbia for the San Francisco Board of Marine Underwriters? A. Yes, sir.

Q. And how long have you been at sea? A. Twenty-one years, sir.

Q. And how long have you held a position as surveyor with the San Francisco Board of Marine Underwriters? A. Five and a half years.

Q. Do you know the Second Narrows Bridge? A. Yes, sir.

Q. Have you ever been through the bridge on any ship? A. Not with—I have been with small vessels, not with any large vessel.

Q. Well, on small vessels? A. Yes.

Q. And you went then, I take it, as a passenger. You were not navigating? A. Not navigating, no, sir.

Q. Have you ever watched any vessels going through? A. I have seen vessels coming through when I have been watching on the bridge or going across the north side.

Q. Yes, have you been interested in various accidents that have taken place at the bridge? A. Yes, sir.

Q. And which instance in particular? A. The small gas boat "Chummy," which sank at the Second Narrows Bridge.

Q. And what others? A. The "Eurana" and "Norwich City" and—

Q. And I suppose several other small vessels? A. Small vessels, yes, that have suffered more or less damage.

Q. Now, you need not go into that. Now, Captain, in your opinion as a navigator and as a surveyor, is the bridge an interference with navigation? A. It undoubtedly is.

Q. In your opinion is it a menace to navigation? A. It is.

Q. Is it a menace to life? A. It is.

Q. Do you know the position of the present bascule span? A. Approximately, yes.

Q. Well, what is your idea of its present position, is it a proper one or not? A. Well, it is a little too close to the south shore.

Q. Yes? A. In my opinion it should be in the centre of the fairway.

Q. Yes? A. Which would lessen the hazard anyway.

Q. Yes, is there anything else wrong with it? A. It would make it safer if it was a little wider.

Q. Yes, is there anything else that would help it? A. If it was placed at right angles to the current, probably would help it a little.

Q. Now, dealing with the bridge as a whole, in what particulars would you say it was an obstruction to navigation? A. It narrows up the channel and cross-currents from the piers that are built there form eddies and swirls, making it extremely hazardous to go through there except on very favourable occasions.

Mr. Smith: All right, thank you.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
C. Clarkson
Direct.
(Contd.)

10 CROSS-EXAMINATION BY MR. BURNS:

Q. Have you studied the currents, by the way, Mr. Clarkson? A. I haven't made an extensive study of them, Mr. Burns, since the accident to the "Eurana." I have watched it from time to time and I have thrown chips of wood on the south side of the pier and watched how they have gone through.

Q. Well, would you say that you had investigated the currents of the Second Narrows to such an extent so that you could give expert evidence? A. I am not trying to give expert evidence, no, sir.

20 Q. Well, I don't say you were trying, I was asking you now?
A. No, sir.

Q. In other words, you don't suggest for a minute that you can speak expertly—as an expert witness on the currents of the Second Narrows? A. No, sir.

Q. And you would not insist on this statement, for instance, would you, that the bridge has not had much or any influence on the currents? A. The only way that I can judge that is by taking the chart as any navigator would and knowing the direction of the flow that I see.

30 Mr. Burns: I see. That is all, thank you.
(Witness aside.)

Mr. Griffin: My lord, we have no more evidence available this evening. My friend suggested, my lord, that I add that we will have some more tomorrow morning, but we actually have nobody else here now.

The Court: You mean, Mr. Griffin, that you would like—you have another witness, but he is not ready and you would like the indulgence of calling him tomorrow morning?

40 Mr. Griffin: My lord, that would—if he is available, if any other witnesses are available tomorrow morning we will ask your lordship to hear them.

The Court: Well, I will reserve your right tomorrow morning to that effect.

Mr. Griffin: But you see I have gone on expecting not to proceed today at all.

The Court: I understand. It is not at all an unreasonable

C. Clarkson
Cross-exam.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 C. Clarkson
 Cross-exam.
 (Contd.)

request. If there is one you will consider it and I shall entertain an application to that effect tomorrow if you have another witness.

Mr. Donaghy: Well, my lord, may I suggest that it would be as well for the court to adjourn until ten or ten-thirty tomorrow morning. We would not then in that way be interjecting or interlarding evidence, and we will have it all in systematic form. There would be only another half hour before the court adjourned.

The Court: You think it would expedite matters?

Mr. Donaghy: I think it would, my lord, expedite my case. 10

The Court: Well, of course, you can figure that out. It seems to me a very reasonable request. Very well, Mr. Registrar, if you would please adjourn the court to half past ten tomorrow.

(3:55 P.M. COURT ADJOURNED UNTIL 10:30 A.M.
 NOVEMBER 29th, 1928.)

Vancouver, B. C., November 29, 1928, 10:30 a.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

MERVYN S. BRYAN sworn as stenographer.

Mr. Smith: I will call Captain McMurray.

Mr. Donaghy: My lord, I said yesterday that if my learned 20 friend desired I would call Mr. Swan this morning as soon as the plans arrived. I do not want to interrupt the procedure, but if he so desires I will do so.

Mr. Smith: Well, my lord, we have two witnesses here now and I would like to proceed with them.

The Court: I think so.

Mr. Smith: Very well.

Mr. Donaghy: Yes.

R. McMurray
 Direct.

ROBERT McMURRAY, a witness called on behalf of the De- 30
 fendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

Q. You live in Vancouver? A. Yes.

Q. And you are the marine superintendent for the C. P. R. coast service? A. Yes.

Q. By C. P. R. I mean, of course, the Canadian Pacific Railway coast service. Are you familiar with the bridge across the Second Narrows? A. Yes.

Q. Have you passed through that bridge? A. Yes.

Q. By the way, I should say first you are a master mariner? 40
 A. I am.

- Q. And have been in command of deep sea ships? A. Yes.
- Q. You know the position of the bascule span in that bridge? A. Yes.
- Q. In your opinion is the bascule span properly placed or not? A. No.
- Q. What is wrong with it? A. It is too close to the south shore.
- Q. Is there anything else that could be improved about it? A. It is too narrow.
- 10 Q. Taking the bridge as a whole, in your opinion, is the bridge an interference with navigation? A. It is a great interference with navigation.
- Q. Is it a menace to navigation? A. It is.
- Q. That is all.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 R. McMurray
 Direct.
 (Contd.)

CROSS-EXAMINATION BY MR. BURNS:

R. McMurray
 Cross-exam.

- Q. Captain, are you familiar with the course that ships took up and down the Second Narrows before the bridge was there? A. No.
- 20 Q. You cannot say then that the ships—the course of ships has been changed by reason of the bascule span? A. No, I have no knowledge of what they did prior to the bridge being there.
- Q. Have you taken any ships through yourself? A. No.
- Q. Then your evidence is based entirely on observations and what you would like it to be rather than what it is? A. Yes, based on observations.
- Q. In other words, it would be far more preferable if there was no bridge there at all so far as you are concerned? A. Quite.
- Q. Do you know how far the bascule span is out from the south shore? A. I could not give the exact distance, but I know 30 it is considerably nearer the south shore than the north.
- Q. You don't know the distance? A. Not the exact distance.
- Q. Do you know the depth of the channel, in the deepest part of the channel? A. I don't know the exact depth of it.
- Q. Do you know the exact width of the channel where it is deep enough for deep sea ships to go through? The width of the channel? A. 150 feet, I think.
- Q. I don't mean in the bascule span, I mean the channel in the Second Narrows itself? A. Well, I should think it is probably about eight—
- 40 Q. Do you know? A. I don't know the exact distance. I have not measured it.
- Q. And have you any definite knowledge at all with reference to the width of the navigable channel? A. Not unless I consult the chart.
- Q. That is all your knowledge with reference to that. In

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 R. McMurray
 Cross-exam.
 (Contd.)

passing through you do not know the width of the deep sea navigable channel? A. No.

Q. And you do not know how close in feet, for instance, or the distance the bascule span is from the south shore? A. No, I do not know the exact distance.

Q. So it comes to this that your evidence is based on what you see on the admiralty chart? A. And I have been through the bridge to see the conditions. I went through on purpose to study the conditions. I went up on one of our ships for the particular reason that I wanted to study the conditions there with a view to our ships going up there frequently or not. 10

Q. And you saw that the bascule span is southerly of the bridge itself? A. Yes.

Q. You did not do any experimenting so far as depth is concerned yourself? A. No.

Mr. Smith: Thank you, Captain.

(Witness aside.)

THOMAS THOMSON, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

T. Thomson
 Direct.

DIRECT EXAMINATION BY MR. SMITH:

20

Q. You live in Victoria? A. Yes, sir.

Q. And you are a pilot? A. Yes.

Q. How long have you been at sea? A. About thirty years.

Q. How long have you held command at sea? A. A little over seven years.

Q. A little over seven years, did you say? A. Yes.

Q. How long have you been a pilot in B. C. waters? A. Six years and ten months.

Q. And what ships do you usually pilot? A. Well, any ship, for which I happen to be on turn, except, that I handle the Imperial Oil ships specially. 30

Q. Are you familiar with the Second Narrows? A. Yes.

Q. You were familiar with the Second Narrows before the bridge was built? A. Yes.

Q. Had you navigated there previously? A. Yes.

Q. Did you navigate through the Narrows during the construction of the bridge? A. Yes.

Q. And after it was built? A. Yes.

Q. Can you give us an idea of how frequently you have been through the Narrows since the bridge was built, say for any one year, how often have you been through? A. This year I have been through 61 times. 40

Q. What size of ships do you take through? A. Anything up to 16,000 tons, whatever ships come to the Imperial Oil, ships running from 6,000 to 16,000 tons.

Q. So you navigate the biggest ships through the Narrows that come here? A. I believe so.

Q. Is the bridge an interference with navigation? A. It is.

Q. Is it a menace to navigation? A. It certainly is.

Q. You know the bascule span through which deep sea ships must pass? A. Yes.

Q. Is that properly situated or otherwise? A. It is too near the south shore. I do not see why it should not have been in the centre of the channel.

Q. Answer the question first, is it properly situated? A. No.

Q. What things in your view are wrong with it? A. It is too narrow and too close to the south shore.

Q. Is there anything else wrong with it, you think? A. The bascule itself?

Q. Yes, I am dealing with the bascule itself. Yes, well, never mind. You know the shoal near the south end of the bridge? A. Yes.

Q. What effect, if any, has that shoal on navigation? A. Well, a ship coming through, say, from westward has to head on to the edge of that shoal to line the draw up.

Q. You are dealing with a ship going east? A. Yes.

Q. And you say what? A. The ship has to practically head on that shoal to come square through the draw.

The Court: Inward or outward?

Mr. Smith: Inward bound.

Q. You dealt with a ship inward bound? A. Yes.

Q. Just repeat that? A. I say a ship coming through the draw has to be heading too close to the shoal for comfort and safety.

Q. You mean a ship coming through the draw? A. Yes.

Q. Has to head into that shoal too close for what? A. Too close for safety.

Q. What about ships going outward bound? A. You are in the same position turned around, you have to get on top of the shoal to line the ship up to come through on the westward.

Q. Do the piers of the bridge cause any deflection of the currents? A. The piers of the bridge break up what otherwise in my opinion would be a straight flowing current.

Q. What were the tides like before the bridge was built? A. That is rather a difficult question, Mr. Smith. Before the bridge was built I have no recollection of ever being with a ship over where the bascule span is now. We used to carry through approximately where the tug boat is now and my experience was that the tide flowed pretty well with a steady flow through the narrows there.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. Thomson
Direct.

(Contd.)

Q. When I say the tide I mean the current? A. I understand.

Q. Just repeat that, will you. You say before the bridge was built you navigated in midchannel? A. Further out in the channel than we have to do at the present time and my experience was that that part of the Narrows where the bridge is the tide flowed through with a steady flow and further east, east of Berry Point the tide broke up into eddies to some extent.

Q. At that time, before the bridge was built, did you navigate the narrows at all stages of the tide? A. I have no recollection of being delayed by reason of the tide. I don't wish to say I would take heavily tankers through on an extreme spring tide. 10

Q. By that you mean with the tide against you? A. Yes.

Q. With the tide behind you would you have any hesitation? A. I don't think I would have any hesitation taking any ship through that I have handled through the Second Narrows.

The Court: Does he say, Mr. Smith, any stage of the tide?

Mr. Smith: Any stage of the tide except in extreme spring heavy tides against the ship.

The Court: He had better state what he means by what size of ship he speaks about. 20

Mr. Smith: Q. What size of ships do you mean? A. Any ship handled from 6,000 tons up, if loaded.

Q. Up to what? A. Up to 16,000.

Q. Now, that the bridge has been built at what stage of the tide do you take vessels through? A. The Imperial Oil ships, I have instructions only to go through at slack water, high water slack, daylight, and low water slack if the tide is not too low. You understand what I mean by that, on a small run out.

Q. In what way has the building of the bridge interfered with the current? A. Well, there is a northerly set at the bridge now that I never experienced before the bridge was built. 30

Q. And that is caused by what? A. In my opinion, the fill underneath the south end of the bridge. That is the biggest danger, I consider that I have to contend with.

Q. Have you had any accidents at the bridge? A. No, sir.

Q. Have you had any what I might describe as near accidents? A. A great many.

Q. Could you remember one or two now and mention them? A. There were so very many. The first time I was in difficulty was with the "Torontolite" going east at low water. 40

Q. What year and date? A. It was early in 1927. When the ship was about, I should say, 100 to 150 feet of her bow through the bridge she sheered badly to the northward.

Q. You were going east? A. Yes.

Q. Loaded ship? A. Yes.

Q. Drawing how much? A. 28.6. Her general draft.

Q. What stage of the tide? A. Low water, but not particularly low tide.

Q. What happened? A. She sheered to port. We were going slow and we put the helm hard aport and about the time the helm was over went full speed ahead. And before her stern cleared the bridge it almost touched on the south pier, she had sheered off to such an extent that we put the helm hard aport and full ahead. When she straightened up her stern was pointing to the centre of the big span, the tug boat span. We carried the port helm on
 10 her pretty well all the way up to Berry Point.

Q. What caused that sudden sheer to the north? A. Well, the master of the ship and I blamed it on the fill at the south shore, the cross-current. The current was set almost directly north, a general set apparently on the surface to the north pier of the bascule.

Q. Can you remember any other cases? A. Yes, there is a great many cases. I also got into trouble with the same ship west of the bridge about two ship lengths from the bridge. It was high water slack, or was supposed to be high water slack, according to the tide book and we sheered off to the northward again, the
 20 same way. I was going east and had not got through the bridge. We backed at full speed and backed until we had considerable sternway and then came full ahead hard aport and when we came to the draw she went through as nicely as I ever saw her go or any other ship. There was big boils in the water edging up, and when we got to the bridge the surface was still. When we got a couple of lengths from the bridge there was eddies and boils caused, I believe, by the tide running out underneath, while it looked slack on the surface, and the bridge piers were breaking this water up and
 30 causing these boils and accounted for the sheering.

Q. That was immediately west of the bridge? A. Yes.

Q. And this time you were again going to the east? A. Yes.

Q. That is twice with the "Torontolite." Do you remember any others? A. I was in difficulties with the same ship again. This time it did not sheer. I was quite close to the bridge, not more than 500 feet and the ship set bodily to the north. We were too close to the bridge to bring her up by backing. She was generally setting to the north, and by the time we got on the bridge she was
 40 heading for the shore. As soon as we got in the draw we put her hard astarboard and full ahead and as soon as we got in the channel put the helm hard aport. It is a dangerous thing coming through the bridge to give a ship any considerable amount of starboard helm, because they so often sheer to the north. If you catch that sheer, if it catches you with a starboard helm you are very likely to go ashore on the north shore.

Q. After you get through the bridge? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

—
T. Thomson
Direct.

(Contd.)

Q. What is the tonnage of the "Torontolite?" A. She is a handy ship, about 9,000 tons deadweight.

Q. In the three cases you have mentioned you have experienced a set to the north. Do you remember any other ship with which you have had trouble? A. Yes, the "Mina Brae," the handiest ship of the fleet, extremely handy, and also the "Ontariolite."

Q. And have you handled the "Montrealite?" A. Yes, once up and down.

Q. How did she behave? A. We were given a tug to assist us in getting us through and the tug being unable to handle herself made things worse for us with the result that we were twelve minutes late on the tide, according to my figuring, in getting to the bridge, and while the water did not seem to be running out much on the surface it was my impression it was running out a good deal heavier underneath, because there were these big boils west of the bridge and the ship sheered to the north. We sort of staggered through.

Q. The "Montrealite" is one of the biggest ships? A. Yes.

Q. How large? A. 530 feet long overall, 68 foot beam, I think. I was told that the cargo was 16,491 tons. I cannot vouch as to that, but that was my understanding of the cargo.

Q. In your opinion she carried how much cargo? A. 16,490 tons. That is only hearsay.

Q. Did she have twin screws? A. Yes, sir.

Q. Does the "Montrealite" come to Vancouver now? A. No, the policy of the company now is—

Q. You need not go into that, just answer the question? A. No.

Q. Has the "Montrealite" returned to Vancouver since the trip you have just mentioned? A. No.

Q. You mentioned the "Mina Brae"—I omitted to ask you this, what was the stage of the tide when the "Montrealite" came through? A. High water.

Q. And you were going to the east? A. Yes.

Q. I think you said you had one tug to assist you? A. Yes.

Q. You spoke about the "Mina Brae." Have you anything to say about that vessel? A. Just a few days ago, I took the "Mina Brae" up, a loaded ship, bound east, high water.

Q. A few days ago. Can you remember the exact date? A. I can tell you the day. (Refers to notes.) Thursday, last Thursday.

Q. That would be the 22nd. Well, all right, go on. High water, was it? A. High water, supposed to be ten minutes late on the tide. It was foggy coming in and we were a little delayed.

Q. You were going east? A. Yes, before we got to the bridge we had to give her the port helm. She started setting north.

This was close to the bridge, probably 200 feet, and we kept giving her the port helm. The master of the ship seemed to be worried about it pretty hadly and he stood by the helm himself. We went through the bridge with about two-thirds of the helm on her, and by the time the stern was clear of the bridge we had to give her more helm, and never had the starboard helm on her until we were at Berry Point, probably three-quarters of a mile. That was something that I never experienced before with that ship at that stage of the tide and the master was of the same opinion as myself
 10 that that was a condition he had never seen before. He had been on the ship five years.

Q. Never mind what he thought. Had you ever experienced such a set as that at that stage of the tide with any other ship?

A. Not to such an extent.

Q. So that this was a new experience, entirely new? A. A new experience.

Q. What made it new was the fact of the set at that particular stage of the tide? A. Yes.

Q. Ten minutes after high water? A. A set of such an
 20 extent.

Q. And the set you carried with you until you reached where?

A. At least three-quarter of a mile from the bridge, almost north-west almost to the point northwest of Berry Point.

Q. And during that time you were carrying port helm? A. Port helm.

Q. Now, have you had any other experiences you can call to mind just now? A. There are so many experiences it is difficult.

Q. If you do not recall any particular ship can you tabulate the result of your experience there and what you found with regard to current and tide and bridge? A. The best I can say,
 30 Mr. Smith, is that I believe I have carried more ships through the bridge than any other man up to now. I have never had an accident, but I feel that with any ship at this stage of the tide, light or loaded, bound east or west, I am not certain I am going to find any particular condition even at the bridge. I do not know what I am going to find.

Q. Then this northerly set you have mentioned that apparently is not always there? A. Not always, but most of the time it is there to some extent.

Q. All right, even if the northerly set is there, is there a
 40 fluctuation in the extent of it? A. A great fluctuation.

Q. You have described a number of sheers. Immediately when a vessel sheers can you tell me if you can break the sheer by giving her the helm? A. No, you cannot tell. Sometimes a sheer will break out in that northerly sheer and generally, sometimes, in the first case of the "Torontolite" it carried until I thought she was going ashore. We were almost on the beach.

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 T. Thomson
 Direct.
 (Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Direct.

(Contd.)

Q. Do you sometimes experience a condition where you find the surface slack with some sort of a tide running underneath?

A. Yes.

Q. What tide have you experienced with a slack surface and running underneath? A. With a slack surface, high water, the tide running west. Almost any time at high water, especially if there is a big water, by the time the tide gets slack in the bridge unquestionably it is running quite strongly underneath.

Q. About that time are there cross-currents? A. Below the bridge there is. 10

Q. Does that cross-current extend for some distance east and west of the bridge? A. Well, east of the bridge, I always find, not always, but very nearly always some little degree of set north. I have never been set to the south.

Q. But you have described several cases where you carried the set almost as far as where? A. Almost as far as Berry Point.

Q. Is the bridge what one might call a mental hazard to navigators? A. Yes, I consider it to be very much of a mental hazard.

Q. At low water slack what period of time is the water actually slack? A. I would not say that the water was actually slack at any time on a low water. 20

Q. Can you tell from the tide table the period when the water is nearest slack? Or the time when it is nearest slack? A. More or less, but there are so many things; the weather in the Gulf of Georgia will affect the tide time and you cannot pick it exactly.

Q. Have you found the tide table inaccurate? A. I would not say they are inaccurate. I think they are quite accurate, but as I say a heavy westerly in the Gulf of Georgia will bank the water up here and make high water slack later than otherwise if the weather is fine. The tide tables cannot take such a thing as that into account. 30

Q. Was there any difficulty in navigating the narrows at low water before the bridge was built? A. No, sir, not at low water slack.

Q. Is there any way you can fix the time before hand as to when it will be slack water? A. Only by figuring from the tide table.

Q. What is the variation you find if any between tide table time and actual time of slack water? A. Oh, it runs up to easily 40 twenty minutes.

Q. Twenty minutes, yes. In the case of a loaded vessel passing through the bridge from east to west at low water slack, when should she arrive at the bridge? A. If I was handling her she would be at the bridge a few minutes before the time for low water, according to the tide tables.

Q. You would be at the bridge before low water. Why would

you get there early? A. Well, my experience is that the first of the flood comes in on the south shore and circles out and cuts right across the bridge. I would not like to be there with a loaded ship after the flood started even so little.

Q. What in your view is the greater danger in connection with the bridge as it is at present built? A. Well, speaking from my own personal viewpoint I handle oil tankers almost exclusively, and I know that if a ship strikes the bridge and it opens any of the tanks up and she runs ashore and fills Vancouver Harbour
10 full of oil, such an occurrence might lead to disaster if there is fire in connection with it.

Q. That is all.

CROSS-EXAMINATION BY MR. BURNS:

Q. You say, Captain, that east of the bridge you experience some little degree of set north? A. Yes.

Q. Just under what circumstances and on what stage of the tide? A. It does not appear to matter which stage of the tide, sir. I am only there two stages of the tide, high water and low water, and at both those stages of the tide I generally experience a
20 set to the north, not always, but generally.

Q. That is going— A. Either west or east. For your information, my ships are all loaded going east.

Q. And they come back light, going west? A. Yes, in ballast, coming back.

Q. They are not loaded as they are going up? A. No.

Q. What did you mean, you said that you were going up to the bridge from west to east, going through the bridge and then east of the bridge you experienced some little degree of set north?
A. Yes.

Q. I think the context had reference to a voyage east to west,
30 going up. That would be on low water? A. High and low water.

Q. You go up on low water? A. Yes, if it is not too low.

Q. The average low you go up? A. Yes.

Q. So that going eastward, whether it is low water, that is the average low or high water east of the bridge you would experience a set north regardless of whether it was high water or low water?
A. Yes.

Q. At what stage of high water or low water would that be, or could you define that? Would that be at the commencement of
40 high water, you say, or the commencement of low water, or throughout high water and low water right up to the end of either or not? A. I do not quite understand you, sir. The commencement of high water?

Q. Yes? A. High water slack is supposed to be at a certain particular moment. If I am going through at high water slack I generally figure blowing the whistle fifteen minutes before high

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

T. Thomson
Direct.

(Contd.)

T. Thomson
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 T. Thomson
 Cross-exam.
 (Contd.)

water slack. That is about a mile from the bridge, going about four knots, which would take me to the bridge just about the time of high water slack.

Q. You don't always hit on high water at the bascule, not in the middle of high water slack each time? A. At the actual time of high water, no.

Q. This set north you have experienced, whether low water slack or high water slack exists throughout both slack periods? A. To some extent.

Q. That is the answer I want. When is it greater, at the commencement of the slack? A. I cannot tell you after the experiences I have had. I come there sometimes and I find conditions not what I am looking for. 10

Q. What do you mean by to some extent? A. In the case of the "Mina Brae" last week the extent was very great. She is a particularly handy ship and is only a small ship.

Q. That was at the bridge? A. Yes, and east of the bridge and clean up to Berry Point.

Q. The same strength of set east of the bridge? A. The strength was considerable all the way along. 20

Q. At what stage of the tide? A. We were in the bridge ten minutes after high water slack, according to the tide table.

Q. Was that the time that you say the tide was running out underneath although there was slack water on the surface? A. The tide was not slack on the surface that day. The tide was running out past the pier.

Q. We have it there all the way up on the ship you had a set north while the tide was running out, ebbing? A. Yes.

Q. Because before, ten minutes earlier, according to your experience, would you experience the set north? A. Yes, as a general thing. 30

Q. It does not matter whether it is running out or not, you would experience a set north, east of the bridge? A. Yes.

Q. And that would carry to Berry Point? A. Not always that far. As a general thing you can feel it one-quarter of a mile east of the bridge.

Q. That brings it up to that 13, 14 or 1500 feet east of the bridge, that is right?

The Court: Q. Did you say half a mile? A. My lord, as a general thing, it runs from one-quarter to half a mile east of the bridge. 40

Mr. Burns: Q. Regardless of whether the tide is running in or out? A. In my experience, yes.

Q. So that that set north from the south shore is experienced is there all the time? A. All the time.

Q. All the time throughout slack water, whether high slack or average low slack? A. It is exceedingly difficult for me to be

entirely specific in answering your questions the way they are put. I have already stated that I cannot tell after two and one-half years experience in handling Imperial Oil ships exclusively through that bridge. I do not know what I am going to find there.

Q. I am asking about certain things, this set north, east of the bridge? A. Yes.

Q. I understood you to tell me the general rule was that the set north exists whether the tide is running in or out? A. Yes.

Q. Limited to the time or period were there? A. Yes.

10 Q. Which is somewhere around average low slack or high slack? A. Yes.

Q. Wasn't that your evidence? A. Yes.

Q. So we have it in your experience as a general rule, whether the tide is running out or in there is that set north? A. To some extent.

Q. East of the bridge. Now, then, is that set north right across the channel? A. I cannot say whether it is across the channel or not. I know that it carries a ship across the channel. If it was that way or that way (indicating) it would carry the
20 ship across the channel.

Q. Where would your ship be when you would feel it? A. Sometimes west of the bridge.

Q. I don't mean east and west, I mean as regards the channel, across the channel, north and south. This is a set from the south shore? A. Yes.

Q. I want to find out your experience with reference to that, so that I will understand what you are saying. How far from the south shore is that set felt? A. We will assume that we are coming through the bridge going east, then that ship by reason of
30 the bascule span being where it is, that ship is almost ashore on the south side; close over and we have the set there, as the ship sets north we port helm to counteract that and whether the set would carry her to the flats on the north shore I do not know. I never got that far.

Q. You are not answering my question. I am asking if in your experience you are able to say how far north across the channel that set can be felt? A. It can be felt at least in mid-channel.

Q. That is not a responsive answer to my question? A. I am trying to do the best I can. Do not think for a minute that I
40 do not want to answer you.

Q. I want to get the information, and if I am not giving it right you can ask me to repeat it. I think I am clear enough in asking that? A. I am not as clear in understanding.

Q. Let me see if I understand it. You say that the set north can be felt as far north in the channel as mid-channel? A. It will set you in mid-channel at least.

Q. Would you say in mid-channel it still has such a degree

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
T. Thomson
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

—
T. Thomson
Cross-exam.
(Contd.)

of effect? A. I have been in mid-channel and I still carry the port helm going north.

Q. You mean going east? A. Yes. I do not see how that can quite be without a set to the north.

Q. You see, we are talking about a definite thing, about this definite set north from the south shore. You have stated that it is effective for a quarter to half a mile east of the bridge? A. Yes.

Q. What I want to find out, what is the effect in your experience, that is north, across the channel covering that distance?

A. I would say it would set you out to the middle of the channel. 10

Q. Would you say this, if you were in the middle of the channel, not being set out there, would you feel it if you came along the middle of the channel, would you feel that set north? A. I do not know whether I would or not. I know already, being in the middle of the channel that I have to carry a port helm, that the ship has a tendency for the bow to pay off that way. That might be caused by a southerly set on her stern. Wait a minute until I see, it may be by a southerly set on one end, or a northerly set on the other. I could say, because the ship carries port helm, that it is a northerly set. 20

Q. That depends on which way you are going. The thing that I am talking about is a set from the south shore? A. You mean body set?

Q. I mean, you know, a set, I don't care whether it affects the bow or the stern; we are talking about a set from the south shore? A. Yes.

Q. I want to know—you say it is there going east and west, the times you were there. I want to know if you came along mid-channel would you feel that set to the north whether you were in the bow or on the bridge? A. Going up on the "Mina Brae" we had a set on her bow. You must understand if I had a set on her bow for a minute that in that short space her stern would come to where her bow was and I continued to port my helm. 30

Q. You have this set then from the south shore? A. I don't know that I have.

Q. Do you feel it at all? A. The ship, her head has a tendency to pay off to the north.

Q. Because of this set? A. I do not know that it is.

Q. What is the reason for it? A. I don't know what the reason is. 40

Q. Then there may not be this set? A. May not be there.

Q. What is it? A. I don't know. I have to carry a port helm.

Q. You see, Captain, you have said as you were going along east from the bridge that you feel and experience a set from the south shore, a set northerly, for a quarter to half a mile east of the bridge. You said that, that that continues? A. The ship con-

tinues to sheer to the north. That is a different thing from a ship setting to the north bodily.

Q. I am talking about a water set, that is what we are talking about. We are not talking about the set of the ship. We are talking about a set of the water from the south shore affecting the ship. Don't you understand that? A. Yes, I do, but I cannot seem to explain it to you. Let me explain it my way.

Q. All right? A. If there is a set from the south shore continuing right across to the north shore and if that ship stopped
10 there she would eventually get ashore on the north side. I am not prepared to say there.

Q. I know, because you give her port helm? A. The fact of carrying port helm and keeping a ship heading a certain way, that is not to say there is a north set. There might be a starboard set, or a south set on her port quarter.

Q. Do we know from whence the set comes, the north or south? A. I don't know. When coming through the bridge the first movement encountered is the ship's head paying off that way. That is decidedly a set to the north.

Q. You have said before that particular set to the north
20 continued to have effect for a quarter to half a mile east of the bridge? A. Yes, and sometimes further.

Q. You don't know whether that set is from the south or the north, from the south on your stern, or from the north on your stem? A. There is no occasion—

Q. Do you? A. No, I don't

Q. Now, you say that in your experience the water at low water slack, where it is low low water slack, it is never slack at any time? A. No, I don't think I have ever seen it dead slack on
30 the low tide.

Q. What do you mean by low tide, define that? A. We will say a tide anything three feet above zero.

Q. Above that there is some period of slack water? A. Very little.

Q. Well, some. I am not going to carry you further than you want to go, Captain, but below that there never is? A. No, not in my experience.

Q. Now, you said in this case of the surface being slack and the tide running underneath that that is a case of still running out underneath? A. No, it is a case of the ebb tide coming in or
40 starting. When the tide is coming in, when it is starting, the ebb tide is already started running out strongly underneath while there is slack water above.

Q. That is what I said, Captain. I think it would be a good idea if you would listen to my question? A. I am doing the best that I can.

Q. There is no trick about it. That is exactly what I said.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

T. Thomson
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 T. Thomson
 Cross-exam.
 (Contd.)

I just want you to define it, so that I could ask you a question about it. You said that the surface was slack when it was running out underneath? A. Correct.

Q. That is what I said, ebbing. Now, where was that? A. Pardon?

Q. Where was that? A. You will see it from the bridge. a considerable distance to the westward from the bridge. You will see the water welling up all the way from the bridge to four or five ship lengths west of the bridge.

Q. If you stood on the bridge you could see that? A. On 10 the Second Narrows Bridge?

Q. Yes? A. I never stood on it.

Q. You spoke of this from the bridge, you said? A. From the bridge, the ship's bridge.

Q. Where was the ship at that time? A. Anywhere from the bridge to four or five lengths west of the bridge.

Q. For what length from the bridge at any time, from the ship's bridge, can you see the surface slack and the tide ebbing? A. The only way you can tell when the surface is slack is at the bridge, and you can see whether or not the tide is running by 20 the piers.

Q. Yes? A. I have been there a number of times when the tide was absolutely slack at the pier while to the west of the bridge there was sufficient current that these boils were welling up, sufficient to sheer the ship around very heavily.

Q. You went through the bridge one of these times? A. Yes.

Q. Could you see the same thing on the other side of the bridge? A. No, the tide seemed quite smooth, only as a general thing we set away from the south shore. 30

Q. That would be at low slack? A. No, at high slack.

Q. Pardon me, at high slack? A. Yes.

Q. You say that the tide had started to ebb under the surface west of the bridge while it was still smooth at the bridge and east of the bridge? A. That is my opinion, sir.

Q. And the only way that you could tell that it was running underneath was because of these boils coming up and swirls? A. Yes.

Q. And that, you say, occurred in the case of the "Toronto-lite?" A. Yes. 40

Q. Did you ever see that before or since? A. To some extent, yes.

Q. Would you say that it was a regular condition? A. I think it was a regular condition on high tide. The higher the tide the more liable you are to notice it. A high tide starting to run out to a big low water, extreme tides.

Q. Could you give me the exact state of the tide then, according to the tide table? A. According to the tide table the water was slack.

Q. When? Were you right on time when you saw this? A. Yes.

Q. When you were two ship lengths west of the bridge you were at exactly high tide slack water? A. We are generally at the bridge five minutes one way or the other. We don't bother about a matter of five minutes.

10 Q. In that leeway? A. Yes.

Q. The other case of the "Torontolite" you were west of the bridge 500 feet about and you were setting bodily to the north and gave her the starboard helm? A. I gave her the port helm. It would never do to give her starboard helm.

Q. I thought you said that. You were going east? A. Yes.

Q. And were setting bodily to the north? A. Yes.

Q. You were 500 feet from the bridge? A. Yes, about.

Q. Would you say more or less? A. We were not far from the bridge. It is difficult looking from a ship to estimate distance.

20 We were about a ship's length from the bridge.

Q. How long is the "Torontolite?" A. About 430 feet.

Q. Where did that set come from? A. It came from somewhere, I don't know where. I may say that is the only time I ever experienced that particular set to any extent.

Q. You were up to the lip of the bay at that time, 500 feet from the bridge, you must have come out in the open bay? A. There is an open bay below the bridge. We were not right up to the bridge.

Q. It was not a case of the tide coming out with the contour of the bay and coming across? A. I would not say that. There is a circular current forms there and there is a fill under the south end of the bridge and as that water comes in it is certainly not going to come out and double under the bridge.

Q. You were not near enough to say it was affected in any way by the fill? A. I cannot say whether it was or not.

Q. How could you, you were not up there that far. The fill is right at the bridge itself? A. Yes.

Q. It continues the contour of that bight or bay? A. Yes.

Q. How could you reason, Captain, if you can do it right now, I am asking how could you reason that the bight of the bay or the lip of the bay would have any bearing on this set north when you were 500 feet from the bridge? A. The only thing I could tell is what the ship did for me under certain conditions. I don't know—

Q. You cannot say that the fill had anything to do with it? A. In that particular case I am not prepared to say that it did or did not.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseT. Thomson
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Cross-exam.
(Contd.)

Q. Or the contour of the bay. It came from the open bay if it came at all? A. It did come. There is no question about that. I know that of my own personal knowledge.

Q. Let us say that it came from the open mouth of the bay and the lip of the bay? A. I am not prepared to say where it came from.

Q. Now, the "Montrealite," you were again bound east and you were twelve minutes late and used a tug? A. Yes.

Q. That is, you were twelve minutes after high water? A. According to the tide book, yes.

Q. How did you find the tide? A. Running out a little in the bridge, but did not look to be running out so strong but what the ship ought to handle all right. She handled with great difficulty. As a matter of fact, we got through without touching the bridge which was more than I expected.

Q. Did you have much body set north with her? A. When passing the bridge I generally come as close to the south pier as possible, depending on being set to the north.

Q. Don't you do that also to get a proper course east of the bridge? A. My idea is to keep—

Q. Listen, you can answer the question and give me your idea. I am not going to stop you? A. Yes.

Q. Don't you do that for the purpose of getting a proper course through that bridge to carry you on east of the bridge? A. No, sir.

Q. Why not? A. What I do is to carry as close to the pier, that is, have the ship angle a bit that way, but I keep the ship close to the south pier so that as I carry on east as I get through the bridge I won't have to give the ship the starboard helm, because I generally experience a set to the north.

Q. You set a little diagonally going through the bridge to get away from the south shore? A. Yes.

Q. And you put her over as near as you can to the south shore, to do the same thing, in order to keep the course proper? A. No.

Q. Do you mean to say that you could go in the centre of the south span and set the course the way you spoke of? A. Absolutely, I would prefer to.

Q. You would go through the centre and carry through diagonally through the span? A. Yes, I would prefer to do that.

Q. Let us understand this, Captain, you are saying going east? A. Yes.

Q. That you can put your ship mid-channel of the draw and from that position you can give her a diagonal course through the draw in order to keep off the south shoal? A. I can do that. I generally give her a slight angle which is the common practice, and which narrows up the draw, you understand.

Q. Naturally, there is no question about that, but still you can go in there mid-channel of the draw and from that position you can give her an angle north? A. Yes.

Q. In order to help avoid that south shoal east of the bridge? A. Yes.

Q. As a matter of fact, wouldn't it be natural instead of going mid-channel you go south of mid-channel in order to help her more for the same purpose? A. For the purpose of keeping off the shoal?

10 Q. Yes? A. No.

Q. You would not need to do that. You can get enough angle from the ship mid-channel of the draw? A. The nearer to the centre of the draw the more angle you can get. If I am a little bit south or north I can get less angle, you understand that.

Q. No, I don't. You can get more angle if you go to the south, to angle to the north? A. I would like to illustrate or demonstrate that to show you what I mean.

Q. You might demonstrate that? A. We will say that is one pier and that is another pier. It is all out of proportion, but we don't care. Let me have that pen to illustrate with.

Q. Can you draw it? A. I will later. Now, then, do you see what I mean? There is the centre of the draw. If my ship is in the centre of the draw, can't I get more angle if my ship is here?

Q. It is east and west? A. In the centre this way.

Mr. Smith: This way would be north and south.

Mr. Burns: Q. I am speaking of a ship coming up to go through the draw? A. Yes.

Q. I am not placing the ship in the centre, east and west.

30 The Court: You are going east?

Mr. Burns: Yes.

Q. Now, let us see if we do not understand each other. Your ship is coming up to go through the draw? A. Yes.

Q. You have in mind the south shoal east of the bridge? A. Yes.

Q. And you are going to take a course through the bridge which will give you the best chance to handle the south shoal? A. Yes.

Q. If you come up to the centre of the draw, that means the 40 west side? A. Yes.

Q. I am not talking of the centre east and west. You come up to the centre of the draw. My proposition is this you get a greater angle to the north if you come up nearer to the south pier of the draw than the centre, wouldn't you? A. No, sir, I would not.

Q. You would not? A. No, the nearer I am to the centre of the draw.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. Thomson
Cross-exam.
(Contd.)

Q. Put the centre of the draw there? A. We will put the ship half way through the draw.

Q. Never mind putting the ship half way through, I am talking of coming into the draw? A. This ship must pass through.

Q. We are in that far? A. You are not going through.

Q. We are going through I hope. Your ship is coming up to the draw and she is coming up headed on the centre of the draw?

A. Yes.

Q. You understand that? A. Yes.

Q. Now, then, you say you can from that point as you are going through the draw make an angle and go through the draw diagonally sufficiently off the south shoal? A. I don't make an angle there, I make it considerably west of the draw. 10

Q. When do you make it? A. It depends, ships don't run on rails, but generally one or two ship's lengths west of the draw, I have my ship lined clear for Berry Point.

Q. You do make the angle before coming to the draw? A. Absolutely.

Q. If you do that do you come up with your ship pointing to the centre of the draw when making that angle? A. Yes. 20

Q. Then you change? A. No, I come up with my ship pointing to the centre of the draw, but from an angle.

Q. From what angle. You mean this way? A. Yes.

Q. Isn't that right, if you are coming from the south and you have got a ship on that angle as you are approaching the draw wouldn't you be capable of having a better angle if the ship was pointing to the south, the centre of the channel in the draw? A. It makes no difference.

Q. Let us see if we cannot settle this this way: You say you put the stern over to the south at least your helm, in order to meet that set from the north, from the fill? A. Set from the south. 30

Q. From the south, yes. That is what you say? A. I like to have the ship bodily over this way.

Q. To the south? A. Yes.

The Court: What do you mean by that, "over this way?"
A. To the south. I like to have it to the south, because from my experience it sets me north and there is little that a man can do with a long heavy ship in the draw except to get speed on her and get her going. 40

Mr. Burns: Q. You like to have the ship to the south of the centre of the draw? A. Yes.

Q. Doesn't that give you a better angle so far as the south shoal? A. It depends on the way you are heading. I can go quite close and still be heading for the shoal.

Q. But still you can get a better angle? A. No.

(SKETCH PRODUCED MARKED EXHIBIT NO. 25.)

Q. Now, with reference to this shoal, Captain, on the south shore, when you come along to Berry Point you can set a course for the draw without going near that shoal, can't you, and— A. I cannot come from Berry Point down to the draw on one course.

Q. You cannot? A. It is getting too close to the flats on the north shore and getting too close to the north shore. We don't come within a hair's breath of the beach.

Q. Which is it affecting most, the north or south shore in not being able to take a straight course? A. The south shore.

10 Q. You do go a little bit more to the north. If you went a little bit more to the north wouldn't you set a course straight for the draw to go through on an angle? A. Yes, I generally do go through on a slight angle with a light ship, and if I am coming down with a light ship it doesn't matter so much, but with a loaded ship you have not sufficient nerve to do it, because with the least sheer to the south I am on the beach.

Q. How close to the shore? A. I don't know, I know that it is far too close.

20 Q. How close is it? A. That channel is sufficiently narrow and we ought to be handling through the centre of the channel. I cannot answer a question like that.

Q. You have a regular course coming down there, how close do you generally come to the south shore? A. From the south shore, I am quite certain that it is not more than 100 feet and you would often be within 100 feet.

Q. Of the northern edge of the south shoal? A. Yes.

Q. At what stage of the tide? A. Low water slack.

Q. That is this average you speak of? A. Yes.

30 Q. Are you at that time on your course that carries you through the bridge? A. As nearly as I can hold it.

Q. Never mind about that, you are getting that in every time you can. I am discussing this matter as well as I can in spite of your attitude. You are on a course; that is my question, at that time you are on a course that would carry you through? A. Yes.

Q. Now, you said the shoal near the south end of the bridge—what shoal do you mean by that. I took that down? A. The shoal east of the south end of the bridge.

Q. How far east? A. It extends practically from the bridge. It is just a beach making out—

40 Q. Is it the shore you mean? A. Yes, the shore.

Q. You say you have to head on the shoal, that is, on the shore, to go straight through the draw? A. Coming from west to east?

Q. Yes. A. That is the reason I give it that little angle in the draw.

Q. You are not going straight through, but are going through on an angle? A. A slight angle, yes.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseT. Thomson
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 T. Thomson
 Cross-exam.
 (Contd.)

Q. Now, before the bridge was there did I understand you to say you went through on extreme high tide? A. Extreme high tide is the best time to go through.

Q. Extreme? A. Yes.

Q. Did you go through on an extreme low tide? A. Yes.

Q. Any tide? A. Not any tide.

Q. What tide would you not go through on? A. Pardon me, extreme high water slack and extreme low water slack, the two easiest tides.

Q. Let us take a very high tide, would you go through on 10 that? A. Yes, that is the best tide to go through.

Q. This is before the bridge? A. Yes.

Q. Would you go through it any other time besides slack water time? A. Yes, any other tide regardless of whether it was ebbing or flooding, except on extreme slack going through with a loaded ship.

Q. As far as extreme high tide is concerned you would go through any stage? A. You mean an exceedingly strong flood?

Q. Yes? A. Yes, I would run through those narrows any 20 time.

Q. No matter what stage the tide was in you would go in on the flood? A. Yes, fair tide.

Q. Have you done that? A. I don't know that I have.

Q. That is what I was going to ask you, at least, I am asking you now. Have you as a matter of fact before the bridge was built gone through on an extreme flood tide? A. 14 feet of a rise, that is an extremely big tide. I don't know that I have. I wish to say I always felt that if I could handle the First Narrows I could handle the Second Narrows.

Q. Have you gone through an extreme high tide, say, a 10 30 foot tide? A. Probably I have. I cannot recollect it. I could not say. In fact it is not usual to go through.

Q. In the Second Narrows, in a heavy flood at any time? A. It depends a great deal upon the ship.

Q. I am talking of deep sea ships? A. For bucking the tide—

Q. I mean with a fair tide, a high tide? A. I think so.

Q. Have you done it? A. Not to my knowledge, I don't remember going through with the highest tides in the book.

Q. Now, then, what ships have you taken through the Sec- 40 ond Narrows recently westward? A. The "Ontariolite."

Q. I want the date? A. I can give you the dates, too. Yesterday morning the "Los Alamos."

Q. That was yesterday morning? A. Yes.

Q. Going west? A. Yes.

Q. What stage of the tide? A. The tide was almost high.

Q. Just average high slack? A. Yes, she is a small ship, 2,000 tons net register.

- Q. What is her length? A. I could not say, about 300 feet.
- Q. What was the one before that? A. "Mina Brae" out of Ioco, Friday, November 23rd.
- Q. At what stage was the tide then? A. I will have to look up the tide table.
- Q. Give me the time? A. You can do that—
- Q. I thought you could give it from your personal experience? A. Somewhere around 7 o'clock in the morning.
- Q. What was the one before that? A. The "Mina Brae,"
- 10 Saturday, November the 10th.
- Q. Do you know the time, or the stage of the tide? A. No, I could not tell you.
- Q. That was going west? A. Yes.
- Q. The one before that, could you give it? A. The "Mina Brae" October 29th.
- Q. Do you know the stage of the tide or the time? A. No.
- Q. That is still going west? A. Yes, in each case, except the "Los Alamos," I had taken the ship in.
- Q. I want the ones going west? A. "Monto Bella," 23rd
- 20 of October. That is a Union Oil tanker.
- Q. What size? A. 80,000 barrel ship, I think about 10,500 deadweight.
- Q. What length? A. About 430 feet, I should say.
- Q. Give us two or three more following on? A. The "Mina Brae" out of Ioco, Saturday, the 13th of October. Any more?
- Q. Yes? A. "Ontariolite" on the 26th of September.
- Q. That is all.
- Mr. Smith: All right, thank you, Captain.
- (Witness aside.)

30 Mr. Smith: I intend to call out, if your lordship pleases, to see if there is a witness in court whom I am expecting. Captain Stalker? He apparently is not here, my lord.

Mr. Griffin: My lord, you have asked us to proceed in any case, and I would like permission to consider calling Captain Stalker later. We may call him and may not. In the meantime my learned friend would like to go on with Mr. Swan.

Mr. Donaghy: Very good. I will, my lord, Mr. Swan.

ANDREW DON SWAN, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

40 DIRECT EXAMINATION BY MR. DONAGHY:

- Q. Your occupation, Mr. Swan? A. Consulting engineer.
- Q. And where are your headquarters? A. Montreal.
- Q. How long have you followed your profession? A. About thirty-five years.
- Q. Will you give his lordship a short statement regarding

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

T. Thomson
Cross-exam.
(Contd.)

Plaintiff's
Case

A. D. Swan
Direct.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.
(Contd.)

your experience and qualifications as an engineer, just along the lines of what work you have had charge of and in what capacity?

A. The list is very long, my lord, and counsel has it in his hand. Might I read it?

Q. Tell us some of the principal ones. What are you engaged on at present, Mr. Swan? A. At the moment we have; I am consulting engineer for new harbour works in Eastern Canada, at Chicoutimi, for the harbour commissioners there and also a large bridge across the harbour there and the plans were recently approved, and another harbour scheme on the River St. Lawrence going on at present and several other minor schemes. I might say that in my early days I began harbour work on the Burntisland dock works in Scotland and I was there for several years and afterwards I went as resident engineer for the Bristol docks in England with Sir Benjamin Baker. I was in charge of the work there some eight years running into many millions of pounds and towards the end of the work; the work there included dredging and construction of piers, the construction of docks, miles of concrete wall, bridges, roads, streets, lanes, elevators and so on. Then towards the end of those works I was engaged in England by the Dominion Government by Sir Wilfrid Laurier personally and Lord Strathcona to come to Canada to prepare the design and supervise the work for a certain period of years in Montreal Harbour, which I did, and I carried out about \$17,000,000 worth of work in Montreal harbour of all sort, including railway terminals and any number of bridges up until about a year past the time of my official engagement. At that time I was asked to go out by all the railways of South America, on the West Coast of South America to select sites and report, and to prepare designs and estimates for sunk rocks and harbours as I would recommend on the west coast of South America. After that I returned to Montreal. I do not remember if it was just before that, but it was in 1912 that I was first sent out to Vancouver by the Dominion Government to report on the whole harbour situation here which I did and at a later period, 1919, I think it was, I prepared a further report and was appointed consulting engineer to the Vancouver Harbour Commissioners and I designed and carried out under the supervision of my own staff the Ballantyne Pier and what is called the Wallace Drydock and supervise for the contractors as their consulting engineer the Esquimalt Drydock, and about that time I was called in by the Burrard Inlet Tunnel and Bridge Company to advise them on certain proposals that had been submitted by an American company for the construction of a bridge at the Second Narrows.

Q. Now, what position did you hold and discharge the duties of in connection with the present bridge at the Second Narrows in Vancouver? A. I acted as consulting engineer.

Q. I desire to show you exhibit 2 in this matter. I show you exhibit 2 being a plan showing the location or site and general outline of the structure erected, the Second Narrows Bridge. You have seen this plan before and recognize this? A. Yes.

Q. Here are others that I am going to put in. I am now producing some detail drawings. They were referred to in the proceedings and one I was about to put in as exhibit 12. My friend said that he would let us know if he would want them or not.

10 Mr. Griffin: My friend is quite incorrect. No such statement was made by me. The only thing that was reserved was the right to put in or discuss the one referred to in the evidence in the transcript of the previous hearing. That is, the one referred to in the previous hearing.

Mr. Donaghy: No, there were two or three plans put up and your lordship said that they would stand in the meantime.

Mr. Griffin: I have the citation before me and there was only one plan. That is the one referred to as being—

20 The Court: I suppose, however, Mr. Griffin, apart from that if what the witness puts in now is to explain his construction, from that view point you would have no objection.

Mr. Griffin: Yes, I will object to any plan being put in except the one my friend discussed and which your lordship will have to rule on. That one was referred to undoubtedly, but no other leave was reserved to my friend and he closed his case flatly on the material before him except with regard to certain documents which he asked leave to refer to again.

Mr. Donaghy: I will meet my friend on that. I will have to refer to where exhibit 12 was put in and read that and it will take time to get it.

30 Now, my lord, at page 76, Mr. Burns, about line 15: "Mr. Burns: Yes, my lord, and I was suggesting to put one in simply as a sample—"

Then Mr. Griffin objects.

"But I might arrange with my friend—not encumbering the record if my objection is sustained. Those plans are and could only be filed under subsection 2 of section 248 which provides as follows:"

40 Then he reads the section and then goes on: "Now, my lord these have to be presented to the Board of Railway Commissioners with the application. They must precede the application, they must be before the Board before it acts upon them and your lordship has before you the fact that the order of the Board is dated the 31st July, 1923, and the plan that my friend tenders is dated the 2nd August, 1923; therefore, it was not before the Railway Commissioners when they made their order and could not legally be filed afterwards, so that my submission is that it should not be received."

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.

(Contd.)

"The Court: Well, let me see that again, Mr. Registrar. You see, Mr. Griffin, it says these details are to be filed. That is a term in futuro.

"Mr. Griffin: Yes, my lord, I concede the order would indicate filing in futuro, but the statute would not permit such. The order so far as would indicate futurity is without the statute. The Board must have it before them before they make the order of approval. In other words, to put the point another way, the Board are not entitled to give their approval of a general plan unless at the same time they file details before that. 10

The Court: That is what I thought you would come to.

Mr. Griffin: Yes.

The Court: In other words, it is beyond the power of the Board to give an order of this description?

Mr. Griffin: Yes.

The Court: Now, what do you say as to that?

Mr. Burns: I say with reference to that, my lord, that I am submitting this—or tendering these detailed plans as compliance with the order of the Board. Whether that is a proper procedure or not is a matter of argument, that is, it is a part of my case. 20

The Court: Your position is this, the order they had jurisdiction upon—

Mr. Burns: That is what was done.

The Court: You wish to show as a matter of precaution that you conformed to it anyway?

Mr. Burns: Yes, my lord.

The Court: And if they had no power to make it, why, then, of course, it is a thing of no consequence at all, but if they had you are showing you complied with the conditions? 30

Mr. Burns: Yes. In other words, I am really following out de facto procedure to show what we did.

The Court: Well, it seems to me from that point of view, Mr. Griffin, there cannot really be any objection. It is a question as to whether—as you say—really whether the Board's order is simply a nullity; that he was not bound to conform to it is another thing. It will go in for that purpose."

It was marked as exhibit 12. It was put in as a sample. My instructions are, my lord, that following that the solicitor for the plaintiff in this case wrote a letter to my learned friend stating that if he wished any further inspection or any further of these plans produced of which 12 is a sample we would be glad to bring them in and make that statement. 40

Mr. Griffin: That may be true that letter was written, but it was never replied to by my learned friend and I myself or my firm never agreed to anything. I can safely say from memory that

no arrangement was made along the lines he now suggests. If my learned friend is replying on the letter I will produce it, but my friend did not finish the citation of the evidence.

The Court: What is it you are relying on?

Mr. Griffin: At page 78.

“The Court: Well, it seems to me from that point of view, Mr. Griffin, there cannot really be any objection. It is a question as to whether—as you say—really whether the Board’s order is simply a nullity, that he was not bound to conform to it is another thing. It will go in for that purpose.”

10

And the document was put in and marked Exhibit 12.

The document was tendered and marked and went in and that was the end of it. It was put in for greater caution in case my friend could only get the benefit of the Railway Board’s order by filing certain details. He never refers to that again and this is what took place afterwards, and it does not relate to that.

“Mr. Donaghy: My lord, there remains the proof to be brought forward that this bridge has been constructed in accordance with these plans and so on. That, I had proposed to prove by the evidence of Mr. Swan. I shall not attempt to have any other engineer go over it, because it would be a very lengthy and expensive matter, of course, to follow that out and show in a way the detail that has been followed out.

20

“The Court: I understand then what you mean is that—what we will call the evidence, the facts, apart from the actual manner in which the bridge was constructed, is concluded.

“Mr. Donaghy: Yes.

“The Court: Now, you propose to show that you did perform—you did erect this bridge in conformity to the plan.

30

“Mr. Donaghy: Yes, and the engineer is the one who can do that.”

That ends that and my learned friend then says:

“Now, there is one other thing, my lord, that I wish to mention and reserve. I wish to have your lordship’s leave to reserve the bringing of proof of another matter. There is a question as to whether the authority we have produced in the form of an order of the Board of Railway Commissioners authorizing the raising of the bridge five feet is made under the proper section. It says and it is confessed it is made under section 251.”

40

That is the second thing. My learned friend wants to prove the order was made under another section.

Then he goes on:

“There is a further question as to whether or not an order-in-council had been passed authorizing the raising of the bridge five feet. Now, we are having further inquiry made, my lord, in regard to that. That has to be made in the De-

RECORD
British Columbia
Admiralty Dist.

Plaintiff’s
Case

A. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.
(Contd.)

partment at Ottawa, in the Privy Council records. I am asking leave to bring that in if it is found. Neither of these matters will interfere with the course of the evidence for the defence."

Then your lordship speaks of it and my friend proceeds: "I wish to have the opportunity of ascertaining if an order by the Governor-in-Council was made under section 248 authorizing the raising of the bridge five feet."

My lord, that ends it in effect. The balance of this goes on and deals with other matters. My friend did not ask and did not obtain 10 any leave whatever except as indicated on those pages relating to an order-in-council and a certain order which he hopes to show was made under a different section and there is no suggestion that he wants to file further plans and no leave was given to him. I object that the arrangement made, which was a bargain with counsel, which led me to go on with my case. No leave was reserved.

The Court: I do not quite understand what is your objection to what is now proposed. It is clear on page 78 that what remains for Mr. Donaghy to show is that this bridge was constructed in 20 accordance with these plans. I should not assume that the construction of a large plan like that would show that the bridge was constructed in accordance with it. You must show detail.

Mr. Griffin: I submit now if my learned friend can show without additional plans, perhaps he can, but he cannot introduce further exhibits. His case is closed.

The Court: That is not it in the specific statement or a ruling given that he could not put in proof of the fact that it had been constructed in accordance with the main plan produced. There are other subsidiary plans necessary to prove that fact.

Mr. Griffin: My friend distinctly on page 80 closes his case 30 with certain reservation and he is in the same position as any other litigant when he closes his case.

The Court: It all depends on what you mean by closing his case. I think perhaps Mr. Donaghy had better proceed to ask this witness whether it is possible to prove the construction with the big plan. If it is your point is a good one. If it is I shall certainly support your objection, because if we have enough there is no use going into the details. I cannot rule on something I do not know.

Mr. Donaghy: Yes, it is quite clearly left open at page 74, 40 line 17:

"I do not know any reason particularly for filing them and encumbering the record with them, but I state that they are available if required."

The Court: I see, yes.

Mr. Donaghy: Then I reserve with your lordship's permission the right to prove that the bridge was constructed in accordance with these plans.

The Court: You had better proceed and see if it really would be just to Mr. Griffin to include what seems to be a matter of construction detail.

Mr. Donaghy: Q. I show you exhibit 12 which is a sample. Will you look at that?

The Court: What is he doing now?

Mr. Donaghy: Looking at exhibit 12, a sample of the detail.

The Court: He is first looking at exhibit 12.

Mr. Donaghy: Yes.

10 The Court: And this plan that he is looking at, I know. A. I am first looking at 2, my lord.

Mr. Donaghy: We are through looking at 2, that is the general plan.

The Court: Yes, I beg your pardon. 2 is the main one showing the whole works as constructed.

Mr. Donaghy: Yes, the outline of the site.

The Court: What we call the locus.

Mr. Donaghy: Yes.

20 A. Q. Will you look at 12, Mr. Swan, which is one of the details?
A. Yes.

Q. I am getting this material before asking the question. I tender now as an exhibit Privy Council Order 1310 dated August 20th, 1925.

The Court: Yes.

Mr. Griffin: Before your lordship receives that I have certain objections I will make after my learned friend reads it. I suppose he will.

30 Mr. Donaghy: Very good, yes. I made a copy for your lordship and if there is going to be any argument on it perhaps your lordship had better have a copy.

“The Committee of the Privy Council have had before them a Report, dated 5th August, 1925, from the Minister of Marine and Fisheries, submitting that he has had under consideration an application of the Corporation of the Vancouver Harbour Commissioners, for approval under the provisions of their Act of Incorporation, of plans, specifications and estimates, as follows:

SECOND NARROWS BRIDGE (MARINE NO. V-74-25)

40 For the necessary labour and material to raise all spans five feet, also the Lynn Creek approach. Estimated cost \$100,000.

The Supervisor of Harbour Commissions reports he has considered the report of the Board of Consulting Engineers called to consider the best means of altering the bridge so as to lessen the rapidity of the current of the waters of the harbour which pass under the bridge, also the technical descrip-

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.

(Contd.)

tion of the work necessary with the estimate of its cost; that the Corporation have entered into an agreement with the bridge company by which they shall have the right to control traffic over the bridge both railway, vehicular and passenger, and to route their terminal railway thereover; and in consideration of this agreement they have agreed to bear the cost of the raising of the bridge.

This officer considers the proposal a satisfactory one and that the expenditure may be approved as for work authorized in the terms of the legislation providing for advances on loan 10 to the Corporation for the construction of harbour improvements, and he recommends approval of the plans and of the carrying out of the work under them; and also of the appropriation, out of any balance remaining of the total amount authorized for an advance on loan to the Corporation by the legislation referred to, of the estimated cost of this work, amounting to \$100,000, providing the cost of the completed work amounts to this sum. If not, any balance remaining under the total hereby to be approved, to be automatically returned to the balance available for further appropriations; 20 and in these recommendations the Deputy Minister of Marine and Fisheries concurs.

The Minister, therefore, recommends approval of the plans and of the estimate of \$100,000, for the work of raising the spans and approach of the Second Narrows bridge in the harbour of Vancouver, B. C., on the terms and conditions above set out.

The Committee concur in the foregoing recommendation and submit the same for approval."

Approved by the Committee and certified.

Now, I do not know what objection my friend has. I cannot anticipate his argument.

Mr. Griffin: I will make the objection first and discuss the matter afterwards. My first objection is that this document is not one which my learned friend got leave to put in after closing his case. The second is that it is not pleaded what the other alleged authority is and the third is that it is not an order made under the Railway Act and does not on the face of it purport to be and fourth, no order-in-council was made on the plaintiff's application, or for the benefit of the plaintiff, or to give the plaintiff any 40 benefit. It was made after the work referred to was done and therefore is irrelevant and immaterial. Lastly it was not supplemented or alleged to have been supplemented by any order of the Railway Board under section 248 which is essential to its becoming efficacious.

Page 79 of the transcript of the evidence you will find that my friend's request and the leave that he got was a very limited one and it was in the following language, line 12:

“There is a further question as to whether or not an order-in-council had been passed authorizing the raising of the bridge five feet. Now, we are having further enquiry made, my lord, in regard to that. That has to be made in the department at Ottawa, in the Privy Council records. I am asking leave to bring that in if it is found. Neither of these matters will interfere with the course of the evidence for the defence.”

10 Then your lordship makes an observation and my learned friend continues.

“I wish to have the opportunity of ascertaining if an order by the Governor-in-Council was made under section 248 authorizing the raising of the bridge five feet.

The Court: Order No. 248?

Mr. Donaghy: Yes.”

20 So that we find the matter very plainly stated, that the leave was to introduce if found an order-in-council under a certain section of the Railway Act. This one does not purport to have been so made. It purports to have been made under the Harbour Commissioners Act of Incorporation and not otherwise. It is, therefore, not the one my learned friend got leave to introduce later. Now, the fact that it is not pleaded is a matter of course of referring to the pleadings, which is the reply. My learned friend filed a reply which your lordship will have on the record and it sets out with the greatest particularity—I will not read it. It is very long and contains references to orders-in-council, one at least, and many orders of the Railway Board and it contains no reference to this one. That is my second point. Now, then, my lord, thirdly, it was not in fact made under the Railway Act and it is not a substantive point, apart from the leave reserved. It is not an order made under the Railway Act and therefore no one can benefit. It cannot benefit my learned friend’s client in the slightest degree, because what he had to have was one similar to the order-in-council they had before, No. 718, which is exhibit No. 1, the language of which is interesting in comparison to this one and reads as follows:

40 “That the Department of Justice has stated that the application has been properly made under Section 248 of the Railway Act and the plans having been approved, the Minister therefore recommends the approval under Section 248 of the Railway Act the attached plans of bridge proposed to be built across the Second Narrows.”

So that we find the other one, which is the best example there is under section 248 of the Railway Act dealing with navigable waters whereas this one is not so. Then the other question, this one is not an order, is not made in or granting any concession or or permission or approval to these plaintiffs. It is an order-in-council granting permission to a subordinate body of the Govern-

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

ment, or to the Harbour Commissioners giving them an extended power to lend money to the plaintiffs, but it does not purport to consent to or authorize anything to be done by the plaintiff. My next objection, No. 5, is that this order-in-council was made after the work was done. You have it that the work was completed in the month of April, 1925.

Mr. Donaghy: Oh, no, I challenge that. There is not a word of evidence of that.

The Court: I understood one of the witnesses to say November, 1925.

Mr. Griffin: When it was absolutely completed, but the spans were in and all completed in the spring of that year. We have the evidence of many witnesses that the bridge was closed up in June, 1925. I will put in one of the interrogatories of the plaintiff manager to show that the spans were in place in April, 1925, and the witness gave it that it was in place in June, and my learned friend, Mr. Burns, stated yesterday that the bridge was completed in the sense of the constructive features in the month of June, 1925.

Mr. Burns: The piers—

Mr. Griffin: My friend said that the superstructure was in in the month of June, 1925, and the interrogatories of Mr. Ward, No. 22:

“At what date was the 300 foot span which the ‘Eurana’ struck first put in place?

A. The month of April, 1925.

Q. What date was the bridge completed straight across from side to side? A. 8th September, 1925.”

We have it that the superstructure was in for obstructive purposes in June, 1925. This order-in-council was made in August. It is, therefore, necessary to read the Railway Act, section 248, to which reference was made before.

“When the company is desirous of constructing any wharf, bridge, tunnel, pier or other structure or work, in, upon, over, under, through or across any navigable water or canal, or upon the beach, bed or lands covered with the waters thereof, the company shall before the commencement of any such work,—” which is the word I wish to lay stress on. “(a) In the case of navigable water, not a canal, submit to the Minister of Public Works, and in the case of a canal to the Minister for approval by the Governor-in-Council a plan and description of the proposed site for such work, and a general plan of the work to be constructed to the satisfaction of such Minister, and

(b) upon approval by the Governor-in-Council of such site and plan apply to the Board for an order authorizing the construction of the work—”

Paragraph 2:

"No deviation from the site or plans approved by the Governor-in-Council, shall be made without the consent of the Governor-in-Council."

Then the statute goes on that the Board may make such orders in regard to construction as they think fit and make alterations in detail which have been so submitted and if your lordship will drop down to sub-section 4 you will find the final analysis:

10 "Upon such order being granted the company shall be authorized to construct such work in accordance therewith."

Therefore, we see that there is no right to build any work until you have first obtained the order-in-council, supplemented by the order of the Railway Board, and we find the work done in June and an attempt to bolster it up with an order passed in the month of August. To my mind if that is so this objection is sufficient to dispose of it.

The Court: Why do you say the deviation clause by the Governor-in-Council is governed by 3? The application there surely refers to the application to the Board under "B."

20 Mr. Griffin: The words, "Upon any such application the Board may" I take it refer to any application under "B."

The Court: You will have to apply to the Board for an order for the construction and you apply under "B."

Mr. Griffin: Yes.

The Court: Disregarding 2 for the moment, 3.

"Upon any such application the Board may—"

That is not the application in 2, but the application in "B."

30 Mr. Griffin: Certainly, I agree. It is the application for the order authorizing the construction. The order as it results, which my learned friend put in under 3, is exhibit 5, and reads: that it is an order authorizing the construction and that the applicant company is authorized and so forth as shown on the plans filed with the Board. That is in effect the language of it. That shows that you may not get an order of authorization unless you get it before you begin, because the language at the beginning of the opening paragraph shows that. You must get your order-in-council before the commencement of any such work.

Mr. Donaghy: No, we did.

40 Mr. Griffin: That applies not only to orders-in-council inaugurating works, but to orders-in-council authorizing deviation.

The Court: You see, is that so, Mr. Griffin. Let us see the result of that. Look at 4. It says:

"Upon such order being granted the company shall be authorized to construct such work in accordance therewith."

That is, upon the application. Then the construction is authorized. Now, then, as the work proceeds for a year, out of the contemplated three years that they are going to take to do that and

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*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
A. D. Swan
Direct.
(Contd.)

having proceeded with the construction for a year they find it necessary that there be some deviation. That deviation is the one under 2.

Mr. Griffin: Yes.

The Court: What has the Board to do with that?

Mr. Griffin: As much as with the original one.

The Court. You say that comes under the requirements of the statute?

Mr. Griffin: Not only the Board, but the Privy Council, for approval.

10

The Court: Which section?

Mr. Griffin: I submit that the words "upon any such application" under 2 means any application for approval of original as well as subsequent plans. I can strengthen the argument very materially if necessary by showing that my learned friend's application, even when he got the approval of exhibit 2, was itself an approval of an amended plan. In other words, the original plans are not exhibit 2, but the plans filed away back in the year 1912 and they are already in as part of exhibit 1. I have only got a copy. If your lordship will consider the first order-in-council it has no number on it, yes, 713. If you will take the early order-in-council, 1395, that is the one below, you will find there is the order-in-council approving the original plan. Now, my lord, turn to order-in-council, P. C. 771, the first page of the documents, and take the third document:

20

(Reads) "That the Burrard Inlet Bridge & Tunnel Company has submitted for approval . . . across the Second Narrows."

So that we find that is the construction and that which my learned friends have given their support by following.

30

The Court: There is no question that they have to commence that way.

Mr. Griffin: I am endeavoring to show the commencing order-in-council 1395 in the year 1913, that was the original plan and my learned friend got leave to file the original plan from Ottawa and no doubt has it here and is going to put it in, and then, we will have the original plan and then the amended plan, exhibit 2, and then we have the order of the Railway Board, 31st of July, 1923, exhibit 5, approving of it, all of it in exact accordance with the construction of the statute for which I am contending.

40

The Court: Of course the question of deviation had not arisen.

Mr. Griffin: No, but they were filing the plan as a deviation of plan, exhibit 2, which you have before you and which you have been regarding as the inauguration of the proceeding. It is in itself a deviation plan. The original plan is the one referred to in the early order-in-council 1395.

The Court: What is the date of that?

Mr. Griffin: 1913, ten years before that, the original plan, and exhibit 2 was in 1923, and was not filed as a new original scheme but as an amendment of the scheme, a plan of variation under the very sub-section to which your lordship is now directing my attention. I submit there can be no serious doubt the section means what I said, that it requires approval of every variation in the manner indicated.

10 The Court: You see you may have for some reason unknown adopted that course, but now you are faced with a different situation and then, of course, we have to fall back upon the statute and give it its proper consideration, irrespective of the original conception. They now say, "We have gone to the proper person and got under sub-section 2 the approval of the Governor-in-Council."

Q. But what they got was the approval of the Governor-in-Council for work to be done.

The Court: They are going to submit that means deviation, because it says altering the bridge and that means deviation.

20 Mr. Griffin: Yes, but what they got was undoubtedly leave to do a work.

The Court: What is the difference?

Mr. Griffin: The difference is enormous if the statute does not allow it. I want to read the language of the Order-in-Council.

"This Officer—"

The Court: You are now at the one attached to 1310.

Mr. Griffin: Yes, the language bears on what I say.

30 "This Officer considers the proposal a satisfactory one and that the expenditure may be approved as for work authorized in the terms of the legislation providing for advances on loan to the corporation for the construction of harbour improvements, and he recommends approval of the plans and of the carrying out of the work under them."

40 The Privy Council was of the impression that the work had necessarily to be done, whereas the fact was otherwise, but it shows the whole theory and meaning of the statute. My learned friend's conduct all the way through indicates that that was the phrase in the statute on which he was proceeding to make the work, that is the language, shall before the commencement of any such work govern not only the original, but the plans of deviation. Those are the objections that I have to the introduction of those.

Mr. Donaghy: My friend said that we have not made this; my friend said that Privy Council application 1310 had not been made on the application of the Bridge Company. It is quite clear that it was on the application of the Vancouver Harbour Commissioners who were lending money towards the construction of the bridge. I do not know why my friend raises the point, because there is nothing in section 248 which says that a deviation can

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

only be made on the application of the bridge company. Section 248, sub-section 2, says it is quite immaterial who requests it. If the bridge company go ahead and carry it out after the consent is obtained that is all that is needed.

Mr. Griffin: My friend is not quoting the statute correctly.

Mr. Donaghy: Subsection 2 of Section 248.

Mr. Griffin: It says distinctly it is the applicant who is to submit.

Mr. Donaghy: For the original work. I think you submitted that subsection 2 did not come under that. 10

Mr. Griffin: I certainly did not.

Mr. Donaghy: I make the submission that subsection 2 does not come under the clause which my friend read there, that is 248, "The company shall before the commencement of any such work—"

That is the commencement of the main work, the original work. That is quite clear, but as to dealing with deviations, that clause cannot be carried on to say that before any deviation shall be made or any commencement of it this application shall be made. It does not say that. What really happened was that this board 20 of three engineers, a board appointed by the Dominion Government was sent out to enquire into it.

Mr. Griffin: I object to that.

Mr. Donaghy: It is all in the evidence.

Mr. Griffin: No, except that an enquiry was held.

Mr. Donaghy: The evidence of my friend that he brought out in the beginning was that the Board of Inquiry was appointed to find out what changes were necessary and as a result of their recommendation the report stated that it should be raised five feet and this order-in-council which I am submitting here repeats what my friend brought out in his case in chief, that the Board of Engineers were appointed and they recommended that the bridge be raised five feet, and following that a most solemn enquiry was held by a board of competent engineers and the report goes into the Government and following that we have order No. 1310 referring to the report and setting out the recommendation on the deviation and then we have here the most formal approval by the Privy Council of the plan and what this order does is to say that the Minister therefore recommends the approval of the plans and the committee concurs in that recommendation. 40 That is what is concurred in, the approval of the plans and the spending of \$100,000.

The Court: You see, Mr. Griffin, it is apparent, you know, that the bridge company in the face of this are a consenting party and are one who profits by the consent of the Governor-in-Council and therefore in that sense, while it might not be the formal implementing applicant yet nevertheless in the essential and sub-

stantial way of regarding that section it is an applicant in that sense and I find that I cannot take the construction you submit, Mr. Griffin, that the deviation by sub-section 2 is confined to the higher paragraphs (a) and (b) requiring the board—to my mind it is something apart that might be exercised any time in the general public interest.

10 Mr. Griffin: In regard to your first observation you will remember that my friend Mr. Donaghy stated on the first hearing of the case that he was not aware of the existence of the order-in-council and hoped to find one. It can hardly be said that the applicant would have been within the contemplation of the order-in-council.

Mr. Donaghy: I did not have all the knowledge of the bridge company, I was only its counsel.

20 The Court: We learn as we proceed. Now, nobody could hardly look at this order without coming to the conclusion inevitably that the bridge company would not have been anything else but a consenting party thereto. I regard, therefore, this order of deviation which I shall call it, this consent to a deviation being made by the Governor-in-Council as one within the authorization of parliament, in that section.

Mr. Griffin: My objection, of course, is preserved.

The Court: I have your note. The other objections, for that reason, I cannot give effect to them. The order-in-council will be admitted in evidence.

(ORDER-IN-COUNCIL P.C. 1310 MARKED EXHIBIT
NO. 26)

30 Mr. Donaghy: As part of that order I am putting in the plans that are named in there and referred to in their order. These are the certified copies.

(PLAN PRODUCED AND MARKED EXHIBIT NO. 27)

Mr. Donaghy: The second plan under that order will be marked Exhibit 28.

(PLAN PRODUCED AND MARKED EXHIBIT NO. 28)

Mr. Donaghy: And the third plan under that order will be marked Exhibit 29.

(PLAN PRODUCED AND MARKED EXHIBIT NO. 29)

The Court: Possibly it is so near the time that we might adjourn.

40 Mr. Donaghy: Very good, my lord.

The Court: It seems an opportune time.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

The Registrar: Court stands adjourned until 2:15.

(12:55 P.M. COURT WAS THEREUPON ADJOURNED
 UNTIL 2:15 P.M.)

(2:15 P.M. COURT RESUMED PURSUANT TO AD-
 JOURNMENT)

Mr. Donaghy: My lord, I now ask to put in as an exhibit an order of the Board of Railway Commissioners for Canada, No. 36137 of March 6th, 1925.

Mr. Griffin: That is the one that was tendered and rejected before. 10

Mr. Donaghy: I will have to read the record on that and what was done. My friend has challenged my right to put it in. At page 14 of the proceedings, line 16, Mr. Burns tendered this and he said:

"Mr. Burns: 36137.

The Court: That is another order of the Board?

Mr. Burns: Yes, my lord.

The Court: That will be exhibit 6, Mr. Registrar."

However, it did not turn out to be marked. "If my friend will kindly read that then I wish to make an objection." 20

My friend proceeds with his objection which takes up the next page or two and among others there was this that it was not yet in evidence, this Privy Council order which we dealt with this morning and it ends up at page 17. I will not trouble to read all the discussion, but at line 14:

"Mr. Burns: I suggest, my lord, that the exhibit be received subject to the objection of my friend. It is a matter that requires some argument.

The Court: Well, it is a practice I do not like to give effect to, Mr. Burns, unless, of course, there is some really very 30 grave doubt about it. I would prefer, you see not to admit it in at present and give you leave to move to do so afterwards, because unless you can show me now that this is really a matter affecting navigable waters I would say at first blush I can hardly see the relevancy of this order.

Mr. Burns: Well, if your lordship pleases, I would rather follow that course.

The Court: Yes."

The top of the page:

"Then we will not mark this document and this is reserved, 40 Mr. Registrar. It would be together, would it not?"

The Registrar: Yes, my lord, I think there are three plans.

The Court: Yes, do not mark it, that is, the Order of the Board. This stands, you see, for further consideration."

I am now at that place, my lord. I do not know whether my

friend wants to object before going any further.

Mr. Griffin: Yes, certainly. That document was then tendered and objected to, because on its face it is a document which does not purport to be under the section of the Railway Act which alone is of interest or importance. It does not purport to be under section 248, but only under section 157, I think. Yes, it was made under section 251 of the Railway Act which does not deal at all in any way with navigable waters and your lordship ruled it out for that purpose and that objection is still as effective as it was
10 before. My objection will be found at the top of page 15:

“My objection to the introduction of that is one of which there seems to be no reasonable doubt. If your lordship will turn to the Railway Act and look at Section 251 you will find it stated that that section is as follows:”

And then I read the section.

“Now, that relates, and relates solely to those bridges which are either in cities or are over highways. The whole subject of bridges over navigable waters is dealt with in the preceding section 248 which is in more or less, if not identical language.”

20 And then the discussion continues. I need not read that any more. Your lordship ruled it out because it did not purport to be an order relating to navigable waters and that position is not changed now. The order-in-council in August can have no relationship to the Railway Board order of March previous, and therefore the objection then made is as good as it was before. Furthermore, there was no leave reserved at page 79 where the matter was finally concluded, there was no leave in respect of that order-in-council, but only in respect of the present order-in-council and for those reasons I object.

30 The Court: How does it read, does it purport to be under section 251?

Mr. Donaghy: Yes, it does. I have a copy to follow my argument and I am also handing you a copy of the order already in, the first order of the Board approving the plan, and the one submitted now is an order referring to alterations of the plans by the Board. First of all, my lord, a perusal of those two documents shows a patent clerical error on the face, that is, in the heading of the matter, in the second document it refers to Section 251—an obvious clerical error. I think it is correct that Section
40 251 of the Act contemplates trestles and bridges across a street in a city, and that sort of thing. My friend suggests that the Board of Railway Commissioners had that in mind. I submit that could not be the case, because both orders refer to the bridge over the Second Narrows of Burrard Inlet of which, of course, the Railway Commissioners had knowledge that it is navigable water. The one submitted now alone accompanying the plan covered in exhibit 5 which is headed under section 248 is headed quite prop-

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

erly and this one by an obvious clerical error has the wrong section at the head of it. I am quite free to say that it should be headed "section 248."

The Court: Your point really comes to this, that the upper part of the order does not depend upon what you say is an obvious clerical error in the recital?

Mr. Donaghy: Yes.

The Court: And the circumstances are such that it is impossible that it can have any relation to 251?

Mr. Donaghy: Quite right.

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The Court: And that it shows the upper part of the order as applying to a bridge over the Second Narrows which we have no evidence of being within the limits of this town and not crossing any highway and therefore must of necessity apply to an adjudication under section 248.

Mr. Donaghy: Yes, and on the same line both orders refer to the same file number, at the end of the recital, at the top. It refers to file No. so-and-so, and that is the same file number in both orders. Of course, it is the same bridge, the one they had in mind over the navigable waters of Burrard Inlet. I submit that an obvious clerical error in the title of the thing cannot destroy what is the substance and the operative part of this order. That is my answer to my friend's argument.

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The Court: Surely that is so, Mr. Griffin. Surely that must be so if there is an order. Supposing this recital was expunged; supposing this had been left blank, under section 251 there is no doubt at all that the jurisdiction of the court does not depend upon the recital.

Mr. Griffin: It is not the recital, it is the statement in the application made. An application to the Railway Board must under the rules of the Railway Board state the section pursuant to which it is launched.

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Mr. Donaghy: I do not know of any such rule as that.

Mr. Griffin: I am telling my friend.

Mr. Donaghy: I do not accept any such statement as that.

Mr. Griffin: If my friend will look at the rules. In referring to this case before I had the rules of court and I read it when the discussion came up. I read the rule and I can in five minutes send for it again. The rule stated that the section shall be named in the application and then we have the universal practice that you must also invariably state the section in the order. Every single order of the Railway Board states it. So that, what we have here is evidence that the Railway Board thought that what they were dealing with was an application for a highway crossing or some one of the other things which come under section 251 and which they had jurisdiction to entertain under that section alone, and there is no reason to surmise that the Railway Board made

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the mistake in making the statement as to the jurisdiction under which they were acting. The application if produced will be shown to have been made under section 251. If my friend will produce it it will be shown that it was made under 251. That seems to be a complete answer to it. My friend has no right to invite this court to assume that the Railway Board was acting pursuant to jurisdiction other than so stated there. If there had been no statement of the source from which the jurisdiction was drawn this court might be at liberty to give any jurisdiction to support the order, but that does not apply when they have named that jurisdiction. We are dealing with the Board's order of March, 1925. In what way can it be suggested that it has any reference to work authorized in August following. The situation could not possibly be the same.

10 Mr. Donaghy: As a matter of fact the plans are part of the order which your lordship has not got and they show a bridge across navigable waters and the raising of it five feet. There could not be any misapprehension on the part of the Railway Board that they were dealing with the crossing of a street.

20 The Court: There is no doubt about that, we have to deal with the substance of the matter. To my mind it is an untenable position because the Railway Board has made an obvious clerical error in the recital of its own order. As to that there is no doubt whatever and therefore the arbitrary statutory right required by me should be taken away. I regard it the same as if this order in the recital had left the section blank. To my mind it is unarguable that the fact that the Railway Board had not conformed to its own practice and could deprive these people of a statutory right, therefore, I rule the order admissible in evidence.

30 Mr. Griffin: I want you to have before you, that this leave was not reserved.

The Court: It is. I say so at page 18.

"Mr. Registrar, this will be reserved for further consideration."

Mr. Griffin: That means up to the time my learned friend closed his case and not after the discussion on page 79.

40 The Court: I am afraid that is too fine. That is not the idea of that. "Further consideration" means what it says. "Consideration reserved," and we are justified in having the discussion on it now.

Mr. Donaghy: This order of the Railway Board 36137 will be exhibit—

The Registrar: Exhibit 30.

(DOCUMENT REFERRED TO MARKED EXHIBIT NO. 30)

Mr. Griffin: My lord, I should like even at this stage show that the certification on these very plans states them to have been

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.

(Contd.)

approved of under Section 251, the very plans now tendered to you. That may affect your lordship's view.

Mr. Donaghy: An obvious clerical error.

The Court: It is simply a continuation. The order recites the whole file. Beyond question it does not come within Section 251.

Mr. Griffin: My lord, I make the further objection that this is not the original order, but purports to be a copy.

Mr. Donaghy: A certified copy. I think under the statutes that a certified copy—

The Court: Is it certified? 10

Mr. Donaghy: Yes, my friend admits that.

Mr. Griffin: The original order would be evidence.

The Court: The Railway Board is constituted a court of record.

Mr. Griffin: The original will have to be produced.

The Court: Isn't that a certified copy?

Mr. Griffin: Yes.

The Court: Take a look at the Act.

Mr. Donaghy: Yes, get the Canada Evidence Act. 20

The Court: The Evidence Act will settle that. There is no doubt about it, Mr. Griffin. You may proceed.

Mr. Donaghy: Very good. Now, my lord, I would ask to have marked as exhibit 30-A the first plan attached to exhibit 30. The Board of Railway Commissioners' order is attached to the two plans and I ask to have the first one marked 30-A and the second 30-B.

The Court: Very well.

(PLANS REFERRED TO MARKED EXHIBITS 30-A AND 30-B RESPECTIVELY) 30

Mr. Donaghy: There is another one duly certified and I ask to have that marked 30-C, being the third plan referred to in the order.

The Court: Yes.

(PLAN REFERRED TO MARKED EXHIBIT 30-C)

Mr. Griffin: Just the same objection to that, my lord, as to the others.

The Court: The same ruling.

Mr. Donaghy: Yes. Now, my lord, I ask to put in as an exhibit an order of the Railway Board, No. 36996 of the 31st of 40 October, 1925. I find on page 18 on the record of these proceedings that it was placed in the same category as the last order by direction of this court. Page 16 at the foot—page 18, I should say.

The Court: It appears to be the same, the same objection and ruling.

Mr. Donaghy: Yes, in the same category.

Mr. Griffin: Yes, except in that case they quote two sections in that order, Sections 251 and 276, and my submission is the same as before with the exception that they have gone into two sections. I make the same objection, that the discussion on page 18 was limited in the discussion on page 79 and my friend had closed his case and did not obtain leave to put that order in.

10 The Court: The same ruling.

(ORDER NO. 36996 MARKED EXHIBIT NO. 31)

Mr. Donaghy: My friend, Mr. Burns, gave an undertaking in the course of the proceedings, in the initial stage, to produce and put in another plan.

The Court: This you are tendering pursuant to Mr. Burns' undertaking.

Mr. Donaghy: Mr. Burns' undertaking at the request of Mr. Griffin. I will put this in.

(PLAN REFERRED TO MARKED EXHIBIT NO. 32).

20 Mr. Donaghy: It is the old plan of 1913 called popularly the Wolfe Barry plan and really was superseded by the other plan. We will put it in for my friend's convenience.

Mr. Griffin: If my learned friend would put them all in. I think my learned friend had better put in the descriptive specifications referred to in the order-in-council of 20th August, 1925. In other words, if a document goes in it ought to go in complete. I do not withdraw my objection to the order-in-council, only I think it should not be in unless it is complete.

The Court: Do you happen to have those?

30 Mr. Donaghy: Which order are you referring to?

Mr. Griffin: The order-in-council of 20th of August, 1925.

Mr. Donaghy: They are attached to exhibit 30.

Mr. Griffin: All right, I did not know it was in.

Mr. Donaghy: Q. Now, Mr. Swan, I do not know whether you have been able to follow what I have been putting in here in the way of plans and so on. You have not had a chance to see them all? A. I glanced at them and I see they are all my own plans, or plans at all events that I have approved of with the exception, pardon me, the last one which is called the Wolfe-Barry plans. I had nothing to do with them.

40 Q. The old plans? A. Yes.

Q. Now, I am going to call your attention to the plans referred to in the order of the Railway Board numbered 36137 of March 6th, 1925. I think these plans are numbered 27, 28 and 29. Will you

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

take a moment and look at these. I made a mistake, those are the plans referred to in Privy Council order 1310 of August 1925. That is what I am showing you, the plans referred to in Privy Council order 1310? A. Yes.

Q. That is the plan dealing with the raising of the bridge and the order-in-council is on it. You see those three plans? A. Yes.

Q. Just hold them for a moment. Now, I turn to the plans attached to the order of the Board of Railway Commissioners, No. 36137 of March 6th, 1925. They are marked 30-A, 30-B and 30-C. I wish you to look at those as well. A. These are all three plans relating to the raising of the bridge to five feet and all three plans were signed by myself as being approved. 10

Q. Now, the three plans, 27, 28 and 29, do they relate to the same thing, that is, the raising of the bridge five feet? A. Yes.

Q. Those are the plans approved by the Privy Council. Very good. Now, I refer you to exhibit 2, this large plan you see here. Generally speaking, and shortly will you state in what way exhibit 2 has been affected by the other three exhibits, by the plans you have just looked at? A. The general line of the bridge, my lord, is as shown originally on plan No. 2 and it was in accordance with this plan that the general lay out was made, but a great many alterations from time to time were made all of which are covered in the other six plans to which I have just been referring, so that it might be said generally that the work was carried out in accordance with this plan, exhibit 2, and in regard to the details of construction in accordance with the amended other six plans, and such other plans in addition to them as may have been necessary. 20

Q. And what you have been referring to as the other six plans are they in the way of alterations or deviations in some of the particulars of exhibit 2? 30

Mr. Griffin: That appears from the document itself. If that is so it will appear from the documents.

Mr. Donaghy: Q. That appears from the documents, my friend says. Is he correct? A. The plans speak for themselves.

Q. Very good. Now, which exhibit shows the location of the Second Narrows Bridge, the site? A. Exhibit No. 2.

Q. Has the bridge been constructed on that site? A. Yes.

Q. The plans, exhibit 2, and the plans, exhibit 27, 28 and 29 and 30-A and 30-B and 30-C, with relation to this bridge and having those plans in mind, will you say whether or not the bridge has been constructed in accordance with those plans? A. Yes, it has been constructed in accordance with those plans and further detail plans, the detail plans being all embodied in the general plan exhibit No. 27. 40

Q. Will you say whether or not the details of the plan of the bridge as constructed had the approval of the engineer of the Board of Railway Commissioners for Canada?

Mr. Griffin: I submit that the witness cannot be asked whether they had or had not. My friend has to prove if they have or not, but he cannot get it from this witness.

The Court: He may know something of his own knowledge.

Mr. Griffin: My objection is based on his making observations on what the Railway Commissioners have done.

Mr. Donaghy: The engineer of the Board.

Mr. Griffin: That is the same thing.

Mr. Donaghy: I ask him then, has he any means of knowing?

10 The Court: The engineer of the Board? You know this better than I do. I assume, correct me if I am wrong, in the construction of this bridge there would be of course the general authority of the Board, I suppose, I do not know about it, but in the ordinary way there would be engineers of each party concerned who would be watching this.

Mr. Griffin: I do not know whether there were or were not. I have not been instructed. Whether that is so or not, there is no authority remitted to the railway engineers as opposed to the Board. The statute does not give him any power. Therefore, I
20 object.

The Court: Your point is that if it is shown that it is by authority of the Board you need not trouble about the engineer.

Mr. Griffin: Yes. And if he has no authority the engineer will be of no help.

Mr. Donaghy: However, there is an order here in 1923 of the Board. The members of the Board are not technical engineers and they adopt the expedient of having their engineers pass on technical plans.

The Court: Who is going to satisfy them about measure-
30 ments?

Mr. Donaghy: Apparently the engineer.

The Court: If your point is that you are not objecting to what I might call the carrying out of the quantities and that sort of thing—in every work there must be an engineer who has authority to supervise and direct the work. Those things are the practical details of construction which are entirely distinct. Of course, there may be a scheme for the work. I understand you are not objecting to that.

Mr. Griffin: I am in the strongest way.

40 The Court: Then, how are you going to prove it.

Mr. Griffin: I don't think I should. It would not be reasonable that we should be bound by anything any engineer should do unless the statute gives him authority and as the statute does not give authority, therefore, anything he does is irrelevant, and if the Board's authority is obtained the engineer's does not need to be. If it has not been obtained then the engineer's authority is of no moment.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.
(Contd.)

The Court: That is what I want to find out, what you mean. Do you mean that you will have to show that there was, say, a certain measurement of stone work actually put in there? Surely, there would be in the practical carrying out of a scheme like this somebody there on behalf of the Board.

Mr. Griffin: I submit not. There is no suggestion of it in the pleadings, or reference to it any place. It would be an injustice to any litigant that such a statement would be made without previous notice, on either side. We could not meet such a suggestion.

The Court: Is it necessary to prove this, Mr. Donaghy? I do not see what you propose to prove by this in view of your learned friend's objection. I might be able to rule on it more clearly. 10

Mr. Donaghy: I notice in the Railway Board's order 33962 of the 31st of July, 1923, the last part of it refers to the engineer of the Board approving the details.

The Court: Yes, I see.

Mr. Donaghy: That is what had I in mind.

The Court: I suppose your point is to show whether they were right or wrong in placing those piers and you carried it out.

Mr. Donaghy: I submit we carried it out. 20

The Court: It seems to me impossible to say that you are not open to show that. In other words, how can they show their compliance with the order of the Board. I cannot see why you should be prevented from showing that they did carry out that provision in the order which came to the Board. As to whether the Board had knowledge is a different question, so it is a de facto Compliance and on that basis I rule that it is admissable.

Mr. Donaghy: Q. I will put my question formally to you—

The Court: What is the date of the order ?

Mr. Donaghy: The order is dated the 31st of July, 1923, No. 33962 of the Board of Railway Commissioners for Canada. It has a clause at the end saying that the detail plans of the substructure and superstructure must be filed for the approval of the engineer of the Board and I ask whether that was done. 30

Mr. Griffin: I submit the witness cannot be asked to say whether the plans were filed. My lord, he would not be permitted to say so. The proof must come from the Board.

The Court: Supposing he knows.

Mr. Griffin: He cannot, in the sense that the only persons would be the Board themselves. We cannot take oral proof of documents on the file of a tribunal. 40

The Court: I do not see why if the documents have them and the engineer says, "I approve."

Mr. Griffin: These details are to be filed. Why should there be any further discussion.

The Court: In practically all these words somebody has to do it. The Board cannot be on the bridge watching every shovel-

ful of concrete. If this witness knows that is the fact why should he not say so.

Mr. Donaghy: I have asked you whether that was done or not, and if you know? A. I do, my lord. I had innumerable meetings in Ottawa, at a great many different times with the chief engineer of the Board of Railway Commissioners and the assistant chief engineer and discussed with him the plans which I found in their offices had been logged by the company for approval, and later after all these plans had been approved and the bridge was
10 nearing construction—

Q. Approved by whom? A. The Board of Railway Commissioners.

Mr. Griffin: That goes beyond your ruling. The other does not. How can this witness prove that they were approved.

The Court: Ask him through what officer, the secretary, or who was it? A. Pardon me, my lord, I was going to say that after these plans were approved of, a very long time after and the bridge was very nearly completed I myself wrote to the chief engineer.

20 The Court: Never mind about writing.

Mr. Donaghy: Q. Will you tell about interviews with the Chief engineer and the plans in the office—you were telling us about that. What took place then? A. We discussed the plans.

Q. Did he not approve of them and the detail? A. He did.

Mr. Griffin: Wait a minute, give me a chance to make my objection. I submit that he is not permitted to give hearsay testimony, that somebody in the Railway Board's office or somebody else said that it was approved.

The Court: Not somebody.

30 Mr. Donaghy: The engineer.

The Court: We are speaking of the nominated officer in the order of the Railway Board.

Mr. Griffin: Have they approved of it in writing? That would be the meaning.

The Court: I do not see why it should be.

Mr. Donaghy: Q. Did the engineer approve of them or not? A. He approved of them.

Mr. Donaghy: Now, my lord, there is a question of procedure here. My learned friend has not stated that he has closed
40 his case on the defence to the claim and on his proof of the counter-claim. If he will now say that he has I will proceed with the examination of this witness by way of answer to the counter-claim and in reply. If he has not, of course, I will withdraw him from the box after cross-examination and then will bring him in at the proper time.

The Court: What do you say as to that proposal?

Mr. Griffin: I would not accept that proposal at all. I will

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

submit the issue on the claim and the counter-claim will turn out to be exactly the same, but he must exhaust this witness if he has anything from him on any point and having put him in he cannot split the evidence. We have not finished the evidence on the claim or counter-claim. We may not have anybody, but this witness Captain Stalker, but to that extent our evidence on the claim is not closed, and we have other evidence on the counter-claim.

The Court: You would be able to recall him on the counter-claim.

Mr. Donaghy: I take it I would.

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Mr. Griffin: I want to warn my learned friend that I will be opposed to that.

The Court: The situation is very unusual. A good deal of latitude is to be given to all concerned. The object I have in mind is to see no one is prejudiced and that objective I will see is attained. I think you had better proceed with the examination of the witness and then afterwards Mr. Griffin will see what to do. There is one other witness that he intimates he is going to call and I am quite willing to do that, then I can see after the examination of the witness what is in these things and clarify them as well.

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Mr. Donaghy: I will proceed with the examination on the defence to the counter-claim to make myself clear.

The Court: Yes.

Mr. Donaghy: Q. Now, Mr. Swan, you sat here and heard the evidence, I take it, this forenoon, in court, did you? A. I did.

Q. The suggestion has been made that the bascule lift in this bridge is in the wrong place being too close to the south shore. Will you state what if any answer you have to make to that criticism and your reason for it.

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Mr. Griffin: I would like to object to that line of attack for this reason, that is on the issue of navigation, on the question of negligent navigation. My friend on that point has simply closed his case and cannot give evidence in support of it. If your lordship does not call on me I will not read from the testimony, but that no doubt is correct that he closed his case on the issue of navigation. This is clearly a case of trying to support his original case. Leave to call this witness was not reserved to my friend on that point. Leave was confined to the question of the legality of the construction as appears at page 78 of the transcript.

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“There remains the proof to be brought forward that this bridge has been constructed in accordance with these plans and so on. That I had proposed to prove by the evidence of Mr. Swan.”

That is the case on the counter-claim, both of these involve that same point.

“I shall not attempt to have any other engineer go over it.”
 And then at the bottom of the page:

“The Court: You now propose to show that you did perform —you did erect this bridge in conformity to the plan.”

To that Mr. Donaghy replied: “Yes.” Therefore, that issue went. It was to show the legality of the construction and on the counter-claim the same thing exactly, and my learned friend got leave to call Mr. Swan, but he never got leave to call him on the question of navigation. I submit that it is not a proper question.

The Court: What about the counter-claim? I do not know that it is necessary. It might be involved in the same issue. Both
10 depend on exactly the same thing.

Mr. Donaghy: If your lordship will look at paragraph 8 of the statement of defence you will see what I am dealing with.

The Court: The statement of defence?

Mr. Donaghy: Yes, I am endeavouring to meet that.

The Court: Not to reply to the defence on the counter-claim.

Mr. Donaghy: It is there in the defence and I am entitled to meet that. He says in paragraph 8 of the defence.

(Reads paragraph 8 of defence.) That is what I am trying
20 to meet.

The Court: Yes, what has that got to do with navigation?

Mr. Donaghy: Nothing at all.

The Court: He says that he impeded navigation, that the bridge impeded navigation; that this witness is not permitted to be called on that issue. Pleading navigation is not the navigation of the stream. The navigation of the stream is that which a prudent and careful master mariner requires to live up to, which is something different, because he had nothing to do with that.

Mr. Griffin: I agree, the impeding of navigation and navigation are absolutely different, but the issue raised here is an
30 issue which deals with the bridge as an interference of navigable waters, that is dealing with navigation. It comes within the issue of navigation and not the question of legality. The question of whether the bridge is legally constructed is the only thing reserved to call Mr. Swan on, and he now proposes to branch out of that and deal with navigation in the sense that he has now. He had no right to do it.

Mr. Donaghy: I am sorry, but my learned friend has confused my right of examining this witness in reply to his defence, or in answer to his counter-claim. He thinks that I am examining on
40 the case in chief. I wish to remove the misapprehension. I made that clear before.

Mr. Griffin: If my learned friend proposes to bring evidence in reply he cannot do that, because that is splitting his case, having gone into it.

Mr. Donaghy: You will see where my friend is landing himself. I said when I closed the examination, I said, “This finishes my examination of the witness on my case,” and I said, “I will

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

stand him aside and bring him in at the proper time to answer the defence and the counter-claim" and my friend said that he wanted me to do that.

Mr. Griffin: Yes.

Mr. Donaghy: And now he complains of that. I complain bitterly of his attitude.

Mr. Griffin: My friend has already gone into this issue as to the amount of inconvenience this bridge created.

The Court: I must say, Mr. Griffin, I have not understood from the course of this case that this issue had been gone into, and 10 why should he go into it on his case?

Mr. Griffin: He did.

The Court: He incidentally locked it up in the issue of navigation, that you are exonerated from the circumstances of what they say was negligence, because of the undue burden on you as a mariner that you could not overcome.

Mr. Griffin: If my friend is anticipating it—

The Court: If you will kindly show me where it is, because that is something new to me. I never understood that you were doing that at all. 20

Mr. Griffin: Page 44 of the transcript.

The Court: Why should he do that, that is for you to do?

Mr. Griffin: Page 41 is where Mr. Burns first embarked on the topic. It is the line on page 41.

"Q. What do you say as to the "Eurana" passing through that bridge under these circumstances, or in this condition, with safety if properly navigated? A. Well, she had a following tide, and a following tide is not so safe as slack water, or a little tide against you—"

And so on and so forth. He does not answer the question. 30

The Court: That is not on this point.

Mr. Griffin: Carrying on to line 25, page 44:

"Now, you have said if properly navigated in these conditions she could safely pass the bridge."

That is raising the question as to whether that place is navigable with safety.

"A. The opening of the bridge is perfectly safe under proper management at the proper stages of the tide."

He deliberately leads into it and discusses it.

"Then what do you mean by that, Captain? A. If you don't 40 begin at the proper stage of tide of course there is necessarily a little risk attached to it with a large vessel, of course."

And then my learned friend says that he could not get the witness to do what he wanted and then at the bottom of page 45 I see:

"Having in view the evidence of the witness Tennant, the bridge operator, would you say that she was properly navigated."

And then he goes on to get the witness to say she was not and then take page 46, line 8:

“Q. Can you point to any particular in which it was not properly navigated? A. Yes, I noticed that—”

The Court: Is it all navigation? It is for me to say whether it was properly navigated. You have to show, of course, the locus and bring it to the attention of the court and you have to show what the circumstances were, and that is an entirely different thing from saying you have abused a right given by Act of Parli-
10 ment. The leading case on that, the Logan case, was one from the Irish Free States a few months ago. That is the great case on that, the canal case.

Mr. Griffin: The point I am driving at now is at page 44 and there is no doubt the witness was asked to deal with the question of navigating that bridge in its present condition with safety.

The Court: It came in in that way.

Mr. Griffin: I submit that it cannot be said to be incidental. It is bringing up a certain topic by Mr. Burns pressing the witness and not succeeding very well.

20 The Court: You have to regard it as to the course of the trial and the way the case presents itself. It never dawned on me until you suggested it that there was any intention of anything beyond that, so far that there was any attempt made to meet the specific defence put up here that they had negligently carried out their duties as laid down by Parliament. Those are incidental refer-
ences there, that is all they are.

Mr. Griffin: The transcript speaks for itself. My learned friend's intentions were to get it and the questions so show.

The Court: Have you anything else?

30 Mr. Griffin: That is the navigation phase. Now, he is seeking to make out a prima facie case and then come in reply and strengthen it. My submission is that it cannot be done.

The Court: There is no question that if there is an act—I remember having to write a judgment quite recently on an attempt to split a case. If you do that and you really do it—it is a thing that could not be done and it just happens that I wrote the judgment of the Court of Appeal and you may be sure that it is not far from my mind.

40 Mr. Griffin: Then that passage you may be sure that I refer to is a clear case of doing it.

The Court: I haven't any doubt about the rights in this matter. It is not a case of splitting a case in the true sense of the word and it comes as a surprise to me. The suggestion comes as a surprise to me that the alternative defence, that is the defence set up here in paragraph 8, that the company has negligently in the pursuance of its statutory power built a bridge which impedes navi-

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.
(Contd.)

gation. That really—if there has been any attempt to do so, I say I cannot see it and therefore you may proceed.

Mr. Donaghy: Now, my lord, I want to state a change of position that I am obliged to take in view of what my friend has said. He has just said that the question addressed to the witness was one in reply to the defence, or in defence to the counter-claim. I object to it and he having assumed that position I wish now to say that the question will be withdrawn from any part of the record, that it be struck out and as I originally submitted, that I should not pursue anything further along those lines, but call him at the present time. I made that position clear to start with, but I thought that my friend acceded or urged that I should go into the thing, but now he has said that I should not do this and really that is my wish as well and I ask now that I have leave reserved at the proper time when my friend is through with the defence and the counter-claim to call this witness in answer. 10

The Court: The position is really going into the counter-claim, but it is for you to say, Mr. Griffin. I intimated to Mr. Donaghy that I wished him to go on, because I did not wish to be placed in the position that you would be prejudiced by not knowing what this witness had to say and I felt, perhaps I had a little exceeded what was incumbent upon Mr. Donaghy to do when I requested him. Now, you have raised this question and you say that he is splitting his case and therefore is debarred from going into this alternative statutory defence you have set up. It seems to me the matter can only be safely dealt with by rigid adherence to proper procedure and therefore if you still persist in that I will not require Mr. Donaghy to go on, but will call upon you to proceed with your case. 20

Mr. Griffin: Are you going to force me to call my expert witnesses before I hear Mr. Swan's testimony on the whole matter? 30

The Court: Now, we are only discussing one thing.

Mr. Griffin: Yes.

The Court: The one thing we are discussing is this: That the witness here has been asked the question as to whether or not this bridge was constructed, of two things, as to whether it was constructed so as to improperly impede navigation in violation of the statutory right in two respects, that it was placed in the wrong way and that the bascule span was too narrow. That is something different from a question of navigation that we have been considering up to now. Therefore, if you persist in your objection which you are entitled to do if you think it is proper, then, of course, it would not be proper for me to insist on Mr. Donaghy going on and I shall then have to ask you to close your case and get him to proceed with his evidence to meet the allegation as to the infringement of the statute on which you gave a large body of evidence, as distinguished from navigation. 40

Mr. Griffin: On navigation only.

The Court: Witness after witness has been examined and when asked what the trouble was pointed out that the bridge was put in the wrong place and that it was made too narrow and in addition to that, a subsidiary thing that they left that rock fill in the bridge, and that is really only another matter, a question of contraction that comes in with narrowing it. That may be not right. Were they creating further objections affecting the tide, so you have three grounds of complaint and he must be allowed to
 10 meet those. Not one of those are in navigation.

Mr. Griffin: I respectfully take the other view.

Mr. Donaghy: Let that end it. I do not desire to examine Mr. Swan in answer to his engineer. I am at a disadvantage in this course and ask leave to withdraw this witness after he has called his witnesses—

Mr. Griffin: Every witness up to date has been examined on both branches. All the evidence has been on both branches, negligent construction, illegal construction and navigation together.
 20 Every single witness has given testimony on both, in accordance with the regular and proper practice in this court, and the suggestion of dividing it is new and novel in every way, and the issues being the same in the counter-claim, arising out of the same facts as the claim, when a witness is put in the box he must be exhausted and if my learned friend attempts later on to examine this witness on another branch of the case I will repeat my objection and of course your lordship will rule on it.

The Court: I understand what Mr. Donaghy is going to do is to call the witness to answer the claim of improper construction of the bridge.

30 Mr. Griffin: He has no right to do so on anything else.

The Court: He can be called in to show the bridge construction. There is no question about that then, you say.

Mr. Griffin: He cannot call him again.

Mr. Donaghy: He has finished that. Now, it is his opening as to the present objection.

Mr. Griffin: You must remember I am relying that you gave permission to call this witness on only one issue.

The Court: On the one issue then that you are speaking of.

Mr. Donaghy: The Plaintiff's case in chief.

40 Mr. Griffin: We were dealing with the case of the counter-claim. The witness Jones and Tennant and everybody were called on both points and every witness up to that point was called on both points, both were put in and both were dealt with.

The Court: You can go on with this witness or proceed as you please.

Mr. Donaghy: At the proper time when my friend has closed his case.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

The Court: You may stand aside, witness, that is the ruling of the court.

(Witness aside.)

The Court: Now, Mr. Griffin. It is a difficult matter going into the claim and the counter-claim and in the circumstances as I said before to try and do what will not prejudice either party and it is not a course taken that will prejudice you or anything of that kind.

Mr. Griffin: I think I would like to cross-examine Mr. Swan right away now. What I will do after that depends on what I decide on. 10

ANDREW DON SWAN, resumes stand.

A. D. Swan
 Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Mr. Swan, I take it the bridge does not present any difficult problems to a bridge builder, the Second Narrows Bridge does not present a severe problem to a bridge builder? A. I consider the construction of that bridge across the Second Narrows the most difficult engineering feature, particularly No. 2 pier, that I have had anything to do with in my thirty-five years experience.

Q. The construction 500 feet—the bridge itself is not serious? 20
 A. No.

Q. Then the depth, 85 feet is the depth roughly, isn't it? A. That is the depth as I remember it from low water down to the surface of the mud or bottom of the harbour. It may be high water. I know the total height of No. 2 pier was approximately 123 feet or thereabouts.

Q. Just verify that one fact, if you can? A. May I look at this. It is a paper prepared by myself. The total height was 123 feet and the height below high water is approximately 103½ feet, the total height of the pier. 30

Q. The depth of the water is about 85 feet, isn't it, at low water. I think that is correct. Yes. That is correct, isn't it? Is that correct? A. Do you mean the height from the foundation level of the pier to high water?

Q. I mean the depth of the water in which the bridge had to be built was 85 feet at low water? A. At what point?

Q. At its deepest point? A. It would be approximately somewhere thereabouts.

Q. That is correct, isn't it? I have a plan in my mind that was prepared by somebody else, exhibit 18, already in? A. I do not know. Well, let us assume that it is approximately that. 40

Q. Let us get it right if you have any doubt? A. I have the exact level to an inch of the height of No. 2 pier which is near the deepest part of the harbour.

Q. There is exhibit 18. Look at that and verify what I am

trying to get? A. According to this the depth below high water is about 94 feet.

Q. Low water 85 feet, isn't it? It says so, doesn't it?

A. That is the elevation in relation to the datum.

Q. That is not the depth of the water? A. No.

Q. Then you don't know the depth of the water? A. I am telling you approximately.

Q. Do not let us waste your time and mine, the datum shows it plainly, and these measurements are from it? A. Yes, but the
10 datum line is below the bottom of the harbour.

Q. Then the depth of the water is less than 84 feet at low water isn't it? A. Yes.

Q. That is near enough for my point. And that, of course, is deeper than the place where any of the piers are put? A. Slightly.

Q. So far as the depth is concerned it was a matter of no importance in regard to an engineering problem? A. It was of great importance indeed so far as No. 2 pier was concerned.

Q. That was on account of the character of the bottom and
20 not the depth? A. And the depth, because you have to take the pressure of the water.

Q. That presents an engineering problem of an ordinary kind? A. Not in putting a pier into 84 feet of water, or whatever it may be at low water.

Q. That in your view is a serious matter? A. A very serious matter.

Q. The current, so far as the current was concerned was that strong in the centre of it? A. Yes.

Q. It was a difficult work to build a bridge there? A. Yes.

30 Q. And would be therefore from the navigation point of view? A. Yes.

Q. I suppose a number of spans put in a bridge of that kind is a matter of choice of the body building the bridge? A. It is a question of deciding on the number of spans after you have ascertained what the nature of the bottom is and what is going to be the most economical and most efficient span to adopt.

Q. It is a question of engineering advice in the first place? A. Yes, it depends on what you find on the site.

40 Q. In this particular case there was no reason for the number of spans that you had, or one more or one less? A. Pardon?

Q. You could have built this bridge with the number of spans you did adopt or with less or more if you wished? A. It could have been done regardless of cost.

Q. You might have built it cheaper by having a larger number of piers? A. I don't think so.

Q. You could not have made it cheaper? A. No, because that pier was the most extraordinary expensive concrete I have ever known.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

Q. What I am aiming at is this, the character of the bridge built depends upon what the employer wants? A. Not necessarily at all. It depends on what price he has.

Q. I will take them one by one. The width of the open span is dictated by two considerations, cost and engineering possibilities? A. Yes.

Q. And whether you use a bascule lift or a swing span is largely a matter of choice? A. And cost.

Q. Cost is only one element of the choice? A. It is an element of choice. 10

Q. I said it was, but it is only one of the elements of choice? A. Oh, no.

Q. I think that you agree with me. I am not trying to catch you at all. In the consideration that dictates the type of bridge cost is one of the elements? A. Yes.

Q. And there are other elements that go into the question of choice? A. Yes.

Q. Difficulty of construction is one of the elements? A. Yes.

Q. And the needs of the locality is another element in the selection of the type? A. Yes. 20

Q. I take it you were prepared to build any type of bridge you were asked to build if you could build it, any type that would go there? A. I certainly was prepared to try at all events to build any type of bridge if I had been asked to.

Q. That is all I am asking you. If I ask you to build a suspension bridge you would have tackled the proposition? A. I would have looked into it.

Q. And if you found it practical you would have been willing to build it? A. I would have been willing to act as engineer for it. 30

Q. And there is nothing in that particular place that prevented it being built if you had been asked and the money provided? A. I don't suppose so. I have never studied that.

Q. So far as you know there is no reason why it could not have been built? A. I presume not, if you have plenty of money to pay for it.

Q. I take it you would be willing to build a bridge any height your employer asked you to design it for? A. If he laid down any specific height I would have endeavoured to design a bridge accordingly. 40

Q. There is no reason why there should not have been a bridge of greater height than was built? A. It was only a question of cost.

Q. And in the same way the open span could have been put in some other place if the cost had been provided? A. I believe that it could.

Q. You agree with me that the fewer piers a bridge is composed of the less it obstructs ships. I am speaking now of navigable waters? A. Yes, I would say.

Q. And the higher it is the fewer ships it will obstruct going under it? A. If it is sufficiently high.

Q. And the higher you are the larger number of craft can go under? A. Yes.

Q. I suppose you agree with me the shape of the bottom of a narrow channel affects the current therein? A. Yes.

10 Q. And that irregularities in the bottom affect the current that runs therein? A. I should think so.

Q. You were retained in the year 1922, were you not? A. I am not quite sure of the date when I was first retained. It was to advise the Board in regard to a proposition put forward by an American firm of engineers and contractors.

20 Q. Which one was that, do you remember the one? A. I could not say right off. There were two. There was one made a proposition first of all and they would not agree to give any hard and fast price, beyond a certain level down in the bottom of the foundation, and they wanted cost plus for the foundation work and I advised against theirs being accepted.

Q. Was that before the war? A. Oh, no.

Q. That was since 1922? A. Yes, and then following that, probably only a few weeks later another proposition was put forward by another company.

Q. You were retained in 1922. Was your retainer a written one? A. I presume so, it would be contained in writing.

Q. Then you did get a letter from the bridge company in regard to your engagement? A. Certainly.

30 Q. And your duty and your retainer and what you were to get? A. I presume so.

Q. Is that your memory? A. Yes.

Q. Have you got them with you? A. I think they are among my papers.

Q. Then you were retained when you were in Montreal? A. No, I was out here staying for several months at that time.

Q. When you were engaged you were here? A. Yes.

Q. Then you must have been engaged by somebody, who engaged you? A. The Board of the Tunnel and Bridge Company.

40 Q. Then you went to the Board meeting? A. The first meeting I was at was in North Vancouver, at the City Hall there, and we met the American contractors and discussed their proposal.

Q. Then you did go to one or more board meetings? A. I did.

Q. Were minutes taken? A. I could not tell you.

Q. Was the secretary there? A. I could not tell you.

Q. You were then acquainted with the Narrows? A. I was.

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Q. You knew it anyway? A. I had been there many times.

Q. Had you been given copies of previous plans prepared at earlier dates? A. I was.

Q. In particular you were given one drawing, I believe the first one, by Messrs. Waddell and Harrington? A. Not to my knowledge.

Q. Did you ever see it at all? A. I have no recollection.

Q. Did you know they had prepared one? A. No.

Q. You know that firm, Waddell and Harrington? A. Yes.

Q. Dr. Waddell was the man who designed the bridge across the Fraser at Westminster? A. No. 10

Q. I notice a pamphlet or circular in connection with the bridge in October, 1910, that Waddell and Harrington well known engineers, prepared the new proposed plans for the bridge and that they recommended the lift span type of structure. Did you ever see those? A. No.

Q. I am going to show you this.

Mr. Donaghy: Well—

Mr. Griffin: Does my learned friend want to object to this? 20

Mr. Burns: Let us have a look at them?

Mr. Griffin: Q. I just show you a plan of the Second Narrows Bridge purporting to have been made by Waddell and Harrington. See if you have ever seen that before? A. Not to my knowledge.

Q. Just glance at them and tell me? A. I have no recollection of having seen them.

Q. Are you familiar with the type of bridge there depicted?

A. To a certain extent.

Q. You have seen bridges of that type before? A. Yes.

Q. They are in common use in several parts of the world? 30

A. I presume so.

Q. And there is nothing in the character of the Second Narrows to prevent that being adopted? A. Except the enormous cost.

Q. This shows a lift span and not a bascule, and has a breadth of 400 feet? A. Yes, 400 feet.

Q. And is built on two piers, both of which are in water vastly less deep than your No. 2 pier, aren't they? A. Yes.

Q. And therefore piers which should entail far less serious engineering features? A. I don't agree with you at all. One pier on this side is shown to stop on what I know and can vouch for is very soft material and following the contour of the rock. They would have admittedly found a very great height above the solid rock foundation and in order to get the necessary footing they would have to build a very large pier right in the middle of the harbour. 40

Q. But Waddell and Harrington are gentlemen of very good reputation as engineers? A. I presume so.

Q. You know of them? A. I know the name.

Q. And you know of them as people of repute and experience? A. Oh, certainly.

Q. There is no reason to take it that the bridge could not been built in accordance with their plan? A. Only with regard to the question of the foundation of that particular pier and regardless of cost.

10 Mr. Griffin: I will tender that plan, my lord, as an alternative suggestion.

Mr. Donaghy: It can be marked for identification. It is not of any information to us.

The Court: It would seem admissible to this extent, that I can see no objection to this so far, that is to say, it is not put forward as a type of bridge that in certain circumstances the witness says is one that is practical, that is, if you have the proper foundation and if you have no regard to cost.

(PLAN PRODUCED AND MARKED EXHIBIT NO. 33.)

20 Mr. Griffin: Q. You are unable to tell me now what a bridge designed like that would cost? A. Not the slightest idea.

Q. Were you shown the Sir John Wolfe-Barry plan? A. I was.

Q. Those are in evidence and you have seen them since you have been here? A. Yes.

Q. They show a double swing span of 250 or 249. Exhibit 32 is a copy of it. You were shown that, were you? A. Yes.

Q. That shows two swing spans.

30 The Court: Is this the 1913 plan, Mr. Griffin, the Wolfe-Barry.

Mr. Griffin: Yes, my lord.

Q. I think they were prepared in conjunction with Cleveland and Hammond and Sir John Wolfe-Barry? A. Yes.

Q. It shows two spans of 239 and 249 feet respectively in breadth? A. 239 is from centre to centre of that pier.

Q. Give the width for practical purposes between piers? A. 219.

Q. And the other one? A. 249.

40 Q. 249 and 219 between piers. And it shows a central pier. It shows a very heavy pier right in the lowest point of the current? A. Yes.

Q. And another one over on the far side? A. Yes.

Q. A footing in the same gravel bank in which you have doubts about the solidity? A. No, it is not there at all. I myself mounted my pier on that gravel span. In fact, quite a number of them.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

- Q. Then there would be no objection to that course? A. No.
- Q. Then it also shows the central span in at right angles to the bridge? A. Yes.
- Q. In other words, it shows a bridge pier laid off at an angle to the line of construction of the bridge, does it not? A. Do you refer to this?
- Q. That sort of central pier on which the swing span rests when open? A. Yes.
- Q. And that is laid off in line with the current? A. Yes. 10
- Q. And in an angular position to the bridge itself? A. Yes.
- Q. And, of course, shows the swing span very much further to the north than the bascule span and the bridge as constructed? A. No, what I would call the pivot pier in the Wolfe-Barry bridge, it is in practically the same position as the bascule as constructed and that is practically the same position as shown on both the American engineers schemes as well.
- Q. You are going beyond the question and volunteering something. The north channel as shown by Sir John Wolfe-Barry is further to the north of the bascule span? A. The great bulk is not. 20
- Q. But a large portion is? A. A certain portion because it is wider.
- Q. A ship going out in that channel goes in what is now the 300 foot span of your bridge? A. No.
- Q. It does in part? A. Only a little bit. That is not sufficiently wide enough to allow a ship to go through.
- Q. Which is? A. The middle part, the middle.
- Q. You are arguing. The span here is 219 feet, I think you said; 249 feet centre? A. Yes, and the south side of that span is practically in exactly the same position as the south side of our span. 30
- Q. We will scale those off in a minute. Were you shown the Dominion Bridge Company's original plan; before leaving Sir John Wolfe-Barry's, it shows a height of 45 feet above high water, that is correct? A. I don't know.
- Q. Just verify it? A. Yes, 45.
- Q. That scheme was perfectly feasible, was it not? A. Yes, if they had money to pay for it.
- Q. You know the money required for that was 2½ millions? A. I was told what the amount was. 40
- Q. Were you told 2½ millions? A. I don't think so.
- Q. I have a lot of information about it and I will read it in a few minutes and I will come back to that. Did you see the Dominion Bridge Company's plan? A. Not so far as I recollect.
- Q. Were you told of it? A. Not so far as I recollect.
- Q. Were you shown their amended plan or altered design?

A. I never heard they had even submitted a scheme, so far as my memory serves me.

Q. That is the Dominion Bridge Company? A. No.

Q. Were you shown the Canadian Bridge Company's plan?

A. I had no knowledge that they had ever submitted a plan at all. Pardon me, am I right in assuming these firms you referred to submitted alternative schemes of their own when tendering on the Wolfe-Barry—

Q. Yes? A. Then, I did not see them.

10 Q. Then what you are referring to are tenders on the Wolfe-Barry Plan? A. I never saw their tenders. I was told that the lowest tender—

Mr. Donaghy: Never mind what you were told.

Mr. Griffin: Q. Were you informed that the Dominion Bridge Company's tender was \$2,550,000? A. I have no recollection.

Mr. Donaghy: That is an improper question to ask what he was told or heard.

20 Mr. Griffin: I want to get into these figures. You were told by the Bridge Company's directors, weren't you? A. I have no recollection.

Q. You don't remember? A. No.

Q. Were you told about the Canadian Bridge Company's tender? A. No, I never knew until this moment that they made a tender.

Q. Did you hear of a tender by the Provincial Government by Mr. Campbell? A. Not to my recollection.

Q. The only one you know of is Sir John Wolfe-Barry? A. And the two American ones.

30 Q. Who were they? A. I don't remember their names at the moment.

Q. Were you given any written data? A. Not so far as I remember. I was to make my own investigations and I did so, occupying two months with a big staff of engineers.

Q. You were not given any by the Bridge Company? A. Not so far as I remember.

Q. Were you advised that the bridge company had a charter that debarred them from impeding navigation? A. Not to my recollection.

40 Q. You were at that time acting for the Harbour Commission? A. I think so.

Q. Were you also acting for the Public Works Department?

A. I don't think so, except on special occasions from time to time.

Q. Were you told that the Public Works Department had insisted on a span 250 feet with a 45 foot clearance? A. Never heard of it.

Q. I am referring to an article in the North Shore Press of

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

the 13th of November, 1925, where it states that the government require a clear height of 45 feet above the water?

Mr. Donaghy: Why should my friend read newspaper extracts?

The Court: He said he heard nothing about it, Mr. Griffin.

Mr. Griffin: Probably if he heard nothing about it, it would be of no special importance.

Q. Were you advised in 1915; I think that is the year that the directors of the Bridge Company had arranged to—I do not say had accepted, but they had desired to accept the plans of the Canadian Bridge Company at \$1,800,000? A. I never heard of it until this morning. 10

Q. You were not informed that somebody on behalf of the Bridge Company had accepted some American plan? A. I was advised that they had the American plans under consideration and I was retained in the first instance to advise them on the plan.

Q. Were you not advised that there was some form of acceptance perhaps conditional of the offer of the American concern? A. I know that had to deal with this offer.

Q. Were you not informed to a certain extent that the directors had committed themselves to that design? A. No, they retained me for the purpose of advising on the matter. 20

Q. Were you not informed that some of them already had accepted that tender? A. No, certainly not.

Q. What was the figure they were proposing to pay for these plans they were considering, the price? A. Do you mean to pay for the contract, for the construction?

Q. Yes? A. \$1,250,000 to begin with. That is what we worked on for a long time.

Q. Did that scheme involve a lift span? A. In the first instance we had a swing span. 30

Q. I am speaking of the American offer, was that for a lift. The Americans were proposing to build the bridge the directors advised on? A. To the best of my recollection it was a lift of the bascule type.

Mr. Donaghy: I doubt if the witness understood my friend when he said the cost was \$1,250,000? A. I understood you were referring to the cost of the present structure.

Mr. Griffin: I was asking what the price was and what you understood the price was to be paid to the American Company if their plans were accepted? A. I remember that very well. 40

Q. What was it? A. They asked \$1,000,000 and ultimately \$650,000, but only that was to cover the foundation down to the depth shown on their plans, which we knew very well was not a proper depth to mount on and they wanted to be paid additional.

Q. You are going beyond my question?

Mr. Donaghy: No, you asked the price.

Mr. Griffin: My friend should not interrupt. I am not going beyond my authority.

The Court: The question is whether or not that is a full reply to your question.

Mr. Griffin: My question is what was the figure quoted.

The Court: Quoted for what?

Mr. Griffin: Building of the bridge.

The Court: In what circumstances?

Mr. Griffin: I did not ask that. I am entitled to ask what the
10 quoted price was.

The Court: Your learned friend can bring that out.

Mr. Griffin: I do not think so. I will not deal with it any further.

The Court: Your question was what was the figure quoted? Then immediately the question comes what for, what kind of a bridge, without any foundation, or without superstructure or with superstructure. He said that they had the foundation which was no foundation, being in soft material and therefore seriously he could not consider it.

20 Mr. Griffin: Q. This American proposal had a lift span, you said? A. I think a bascule, I think.

Q. What with? A. I would not like to say.

Q. Am I right in saying I think it was 185 feet? A. I would not like to say.

Q. You would not like to say? A. I do not know.

Q. Was it wider than the one you provided? A. I don't know.

Q. You were the man who negotiated with the Northern Construction Company for this very bridge afterwards built? A.
30 I do not know whether you would call it negotiating. We prepared the original plans, sort of in conjunction. I supposed all the engineering assistance.

Q. I asked you a short question, did you negotiate with them with a view to their accepting or making an offer to build? Did you or did you not? A. I don't think you could say I did. The negotiations were done by the bridge company with my advice.

Q. You were not asked by them to approach the construction company yourself? A. I may have been.

Q. Isn't it a fact, I have a note of it here, that you yourself
40 were the man who went and saw the Northern Construction Company? A. No, the Northern Construction Company's directors met the Bridge Company at North Vancouver so far as I remember and discussed the terms on which they would begin to look into the question with a view of seeing if they could construct a bridge at all for the sum of money that was available.

Q. I am instructed otherwise, but I will give you an opportunity. My instructions are this way that you were asked by some-

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

body in the plaintiff company to open and institute negotiations with the Northern Construction Company. Is that true? A. I do not think that is true. I have no specific recollection.

Q. You did get in touch with their directors? A. Unquestionably.

Q. What plan then was the basis of the discussion? A. No plan at all. We were to begin a survey of the conditions and find out and then prepare plans.

Q. The plans were not in question? A. Not with the Northern Construction, not for months afterwards. 10

Q. Did you communicate with the Public Works Department and ascertain what they were willing to agree to? A. In regard to what?

Q. In regard to this bridge that you were proceeding with? A. I have no recollection of having done so. They had no jurisdiction.

Q. Then finally who did you discuss the matter with in the Northern Construction, what person? A. The directors.

Q. Who? A. Mr. Mann, Mr. Cummings, General Stewart, Mr. Mercer, in fact all the directors were present, and Mr. Smail, 20 the chief engineer.

Q. When did their project crystallize into anything in writing? A. I could not give you the date.

Q. Can you remember the occasion? What was the document? A. I could not tell you.

Q. Was there a letter or offer or contract or what? A. I presume it would be a letter addressed to the Bridge Company and not to me at all.

Q. Did you ever see the present contract? A. Certainly.

Q. Am I right in thinking it was on the date of the 26th of 30 September, 1922? A. I have no idea.

Q. Do you remember the document? A. All the documents passing between the contractors and the company practically passed through my hands.

Q. There was a contract, was there? A. Unquestionably.

Mr. Griffin: I would ask my learned friend to produce it and let me see it. It was not introduced in the affidavit of documents. My learned friend made two affidavits.

Mr. Burns: I never thought the contract as to the building of the bridge had any bearing on the issue. Had I thought so I 40 would have had it in the affidavit. I am willing to give my learned friend anything that will help him in the trial, but I submit, and I cannot see where the contract for the building of the bridge has any bearing on the matters in question in this action.

Mr. Griffin: I want to see what kind of a bridge the contract called for.

The Court: How is that going to help you?

Mr. Griffin: To show me what kind of a bridge the contract called for. This is the preliminary one and it was afterwards amended. I at least have the right to assure myself that it contains nothing helpful.

The Court: Is there any objection?

Mr. Burns: No objection except the one based upon the proper conduct of the case. The only question involved is what kind of a bridge is there. We have them here, long contracts and long documents.

10 Mr. Griffin: I will have my learned friend produce it in the morning.

The Court: I cannot see the relevancy of it. Do I understand you to say that there was a contract that was not effectuated.

Mr. Griffin: It was. I am giving the effect of my instructions. There was a preliminary contract and then a final contract. I want to see what the contract was on which they agreed to build the bridge.

The Court: What the preliminary contract was.

20 Mr. Griffin: Both. There was two affidavits of documents made and they were not produced and yet we hear the witness giving figures of all sorts on bridges and prices.

The Court: I must say that it is not clear to me in what respect it is relevant.

Mr. Griffin: The description of the bridge in the contract would be relevant, it might be.

The Court: It is not a case of what might have been done, but a case of what they did.

Mr. Griffin: I can only ascertain by reading it.

30 The Court: Not what they did not do, but actually what they did. It is the result of that. You give particulars in the defence and counter-claim and say what the result of this was and set out your grounds there. Really you are not complaining on that head. Now, what has the actual contract got to do with that? It cannot help the question of whether or not the bridge was wrongly placed or whether the draw or span was too narrow. How does that depend on the contract?

Mr. Griffin: The contract may contain something helpful.

40 Mr. Burns: If my friend is serious in desiring to see the contract I might say that the notes that the company made up are in the different municipalities bordering Burrard Inlet and are in their offices and are public documents, and the contract connected with the bridge and it seems to me that if my learned friend will give a real reason and help the case along I have no objection, but I have objections to cumbering up the records in the case for no purpose. My learned friend no doubt has had access to these documents.

Mr. Griffin: I will assure my friend that I have not.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Mr. Burns: He never went to the city clerk's office.

The Court: I really think, strictly speaking, it is not relevant, but your learned friend, as I understand, has these contracts, or one of them at least, and if you think there is anything that will help your case in it you can speak to it tomorrow. Can you do that?

Mr. Burns: Yes.

Mr. Griffin: We do take the view that production was not made of it and there are many instances that I will show you.

The Court: I understand that, but I think as at present advised, at least, really it is not relevant. Your learned friend is going to show it to you and you will see it during the intermission. 10

Mr. Griffin: I have to go on examining the documents as I have to so often.

Mr. Burns: I object to a statement like that.

Mr. Griffin: Q. Did that contract to the best of your recollection provide for somebody making a sketch of the proposed bridge? A. Yes, I should think so.

Q. That is your best recollection? A. Yes.

Q. Did someone prepare a sketch of the bridge? A. They 20 did.

Q. Who was the man? A. The chief engineer of the Northern Construction Company.

Q. That is Mr. Smail? A. Yes.

Mr. Donaghy: In view of the complaint that my learned friend has made which I do not appreciate, I hand him these contracts.

Mr. Griffin: We will get them and read them overnight.

Mr. Donaghy: Very good. Now, here is one, and here is still another. You will have a pleasant evening. 30

Mr. Griffin: Q. Where is the original sketch? A. I could not tell you.

Q. Where did you last see it? A. I could not say, I have no idea.

Q. Was it shown to the directors of the Bridge Company? A. I am not trying to hedge, but their first proposal practically after going into things at considerable length is really shown on exhibit 2 and there it is.

Q. I am asking about something else. There was one before that? A. I could not tell you. Very probably there was a dozen. 40

Q. I don't mean of the same? A. No, but there were quite a number of schemes and sketches discussed before arriving at eventually what they were going to put forward.

Q. Wasn't the first one put forward a double swing span? A. I could not tell you.

Q. Was any proposal put forward showing a swing span? A. There was a certain proposed swing span in a plan that went before Ottawa.

- Q. That is what I am trying to find out. There was a swing span plan made and sent to Ottawa? A. Yes.
- Q. And it was prepared by Mr. Smail? A. I presume so.
- Q. Not by you? A. No, but it would be approved by me.
- Q. Did you approve of it? A. I did.
- Q. Was it a double swing span? A. I am not altogether sure what you mean?
- Q. I mean a swing span with a span on either side of it? A. Yes, a pivot pier.
- 10 Q. Do you remember what the cost of that was to be? A. No recollection.
- Q. Was a cost figure of it supplied, even if you cannot remember it? A. It would be later when there was a question of substituting the bascule span for it.
- Q. What? A. It would be gone into as an item by itself, when it came to the question of submitting the bascule for it.
- Q. Now, what I want to get at is this, did you send that to Ottawa for approval yourself? A. I should think so.
- 20 Q. Do you recollect? A. No.
- Q. Did you communicate with Ottawa yourself? A. With the Board of Railway Commissioners.
- Q. And also the Department of Public Works? A. I have no recollection of the Public Works.
- Q. But you do recollect writing the Board of Railway Commissioners? A. Any number of times.
- Q. On this one topic, this first swing span bridge? A. I have no recollection of that.
- Q. With whom did you communicate with in Ottawa. You said you did? A. I communicated with the Board of Railway
- 30 Commissioners, but not necessarily in connection with this swing span.
- Q. What is your recollection of what was done with this one. It was prepared by Mr. Smail and turned over to the Bridge Company for your approval and sent to Ottawa? A. Yes.
- Q. Did you then support that bridge in Ottawa by your personal communication, written or verbal? A. I have no recollection whatever.
- Q. Now, then, what happened to it, what was done with it? A. I do not know.
- 40 Q. You don't know what happened to that proposal? A. I know that someone suggested that a bascule should be provided instead of a swing.
- Q. Would it be fair to say that the Government insisted on having a bascule instead of a swing? A. They wanted a bascule anyway, and it was pointed out that the bascule would cost more money than the swing and that we did not have more to pay for it. The Government themselves put up the additional cost.

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Q. Is this a correct statement, I am reading out of this article in the North Shore Press, on December 6th, 1922:

"The chief engineer of the construction company submitted a sketch plan to the Board of Directors stating that a copy of the plan was then in the possession of A. D. Swan, consulting engineer of the Bridge Company who was then in Montreal,"

Q. Is that true? A. I do not know. I presume it is.
 "The Board instructed the secretary to communicate with Mr. Swan instructing him to proceed at once to submit the plan to the Department and to wire the Board should any final change become necessary." 10

Q. Did that happen? A. I presume so, I have no recollection.

Q. You have no recollection of communicating with the Government in the face of that? A. I have no recollection whatever of what was happening in regard to these final matters in 1922. I have been thousands of times in Ottawa in connection with matters that I have been discussing with all the different departments and if they say that is so in the paper I unhesitatingly accept it and presume that it is correct. 20

Q. Whom did you see in Ottawa? A. I do not know. I do not recollect.

Q. Then I take it you are not prepared to say that your memory of these things is very good then? A. Apparently not.

Q. I point out to you that the initial plan, the first proposal of the bridge company had received the seal of your approval?

A. I quite agree with you.

Q. So your real advice to this bridge company was to build a swing span? A. Yes. 30

Q. And a double swing span? A. Yes.

Q. With a combined breadth shown in the sketch before us? A. Yes.

Q. And which the bridge company had to have? A. I do not know what they had to have.

Q. At least, it should be in their possession? A. It would be lodged with them.

Mr. Griffin: I ask my learned friend to produce that.

Q. Can you recollect how wide the swings were? A. I have no idea. 40

Q. This swing span bridge of your own made very little impression on your memory. You do not know how wide the span was or whether you went down to Ottawa about it? A. No, I don't remember the plan. When it is produced it will show how wide it was.

Q. Did you get that telegram the North Shore Press says you got? A. I could not tell you.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

Q. You have your file here with you, the correspondence?

A. Part of the file.

Q. Is this a correct statement:

"That on the 23rd of February 1923 a telegram was received from Mr. Swan advising the Board that the Department Engineer at Ottawa required that the plan be amended to show a clear span of 75 feet with 25 feet headroom at high tide and the further suggestion that a bascule span be substituted for a swing span?"

10 Did you send that? A. I presume so.

Q. A swing span 75 feet must be an error? A. I don't remember.

Q. You would hardly be suggesting a span 75 feet wide?

A. No, I do not think so. If that paper says so it must be so. I think that is a mistake.

Q. Isn't what is meant 175 feet? A. I don't know.

Q. Isn't that your memory? A. I have no recollection.

Q. If you sent that telegram the directors of the Bridge Company would have it? A. I presume so.

20 Q. I ask my learned friend to produce that. What action did the Board take on that? A. I don't remember. At all events the contractors presumably prepared new plans in conjunction with my staff and they would be eventually submitted, and I think this was the plan, the first one really showing the bascule, so far as my memory serves me.

The Court: By this you mean exhibit 2. A. Exhibit 2, my lord.

Mr. Griffin: Q. Are you saying that as a matter of memory or merely in the way of presuming it? A. I think there is no
30 doubt that was so because I have no recollection of any other plan than this one which showed the bascule in the preliminary stage.

Q. You have evidently forgotten an important matter:

"The Board appointed Mr. Jack Loutet a delegate to proceed to Ottawa to take up this matter with the Department."

Did you forget that? A. I had nothing to do with it.

Q. Did you ever hear of him? A. I have no knowledge of what he was doing. If I remember I think Mr. Loutet came to my office in Montreal.

40 so. Q. And you went to Ottawa with him? A. I may have done

Q. Isn't that your recollection? A. I may have done so.

Q. You have no recollection of seeing the Department about it? A. Not the Public Works Department.

Q. Or the Board of Railway Commissioners? A. I don't know when I first saw the Board of Railway Commissioners.

Q. You have got to remember you gave very graphic evidence

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

about your interviews with the chief engineer when advising about the plans? A. I cannot give dates.

Q. Those interviews are as big as these in your memory?

A. I know what happened, but as to dates I cannot tell you.

Q. But you have not been able to tell about this very much more important interview, and you won't admit that it took place?

A. About what?

Q. About getting the important change and beating down the Department in the requirements with the assistance of Mr. Loutet?

A. I have no recollection of trying to beat down the Department. 10

Q. Isn't it a fact that the delegates in the most part succeeded? A. In what?

Q. In getting the Department at Ottawa to modify what they had asked for? A. I don't know what they asked.

Q. You did then? A. I presume I did.

Q. And you cannot remember now? A. No.

Q. It is apparent that they asked that the bridge be a bascule one and have 25 feet headroom and a span with a breadth—you cannot remember? A. Yes.

Q. And Mr. Loutet went down to get them to modify that? 20
 A. He may have.

Q. You remember him being there? A. A. Certainly, I said so.

Q. What else was he there for? A. He might have been there for his health.

Q. You went to Ottawa with him? A. I don't know.

Q. I think you are prepared to admit that it is your memory that you did go? A. No, I have no recollection of going to Ottawa with Mr. Loutet.

Q. Can you identify this, "Upon his return from Ottawa 30 towards the end of April Mr. Loutet reported that the Department waived all alterations with the exception of the bascule." Is that true, that did happen? A. I presume so.

Q. You were informed of that? A. I would certainly be informed of it.

Q. Did you get a letter about it from the Bridge Company?
 A. I don't know.

Q. Have you looked in the files for letters? A. No, but I will be delighted to do so.

Q. Isn't it a fact a new amended plan was prepared by Mr. 40
 Smail which was either exhibit 2 or something to the same effect?

A. I think that is right.

Q. The original design was merely Mr. Smail's, wasn't it?

A. Yes, in conjunction with my staff and myself.

Q. But the originator of this plan was Mr. Smail? A. Yes, because they had to submit a plan showing what they could do for a certain sum of money if they were going to do it at all.

Q. Now, after that was done wasn't there another contract signed later than the previous one referred to. We have these here. A. There were several contracts, my lord.

The Court: We will not trouble you just now.

(4:30 P.M. COURT ADJOURNED UNTIL 10:30 A.M.
NOVEMBER 30TH, 1928)

Friday, November 30th, 1928, 10:30 a.m.

COURT RESUMED PURSUANT TO ADJOURNMENT

ANDREW DON SWAN, resumed the stand.

10 CROSS EXAMINATION CONTINUED BY MR. GRIFFIN:

Q. Mr. Swan, since the adjournment of the Court, have you searched in your file of correspondence? A. I have.

Q. Did you find any letters between yourself and the Plaintiff? A. Yes.

Q. Did you find any between yourself and the Public Works Department, or between the Plaintiff and the Public Works Department? A. No, I have no recollection.

Q. I say did you find any in this file? A. No, not—not with the Public Works Department, I don't think. I have looked
20 out for what you asked for yesterday, and that was all.

Q. Have you discovered any letters between yourself and the Railway Board? A. Oh, I have quite a number of them.

Q. You have, in regard to this bridge? A. Yes, sir.

Q. Written on behalf of the Plaintiff Company? A. Yes.

Q. Did the Plaintiff Company send word to you for the purpose of this case to ask you to supply them with copies of the correspondence you had that existed, with the Railway Board and any other people in regard to the bridge? A. No.

Mr. Griffin: I submit, my lord, that it is quite palpable that
30 we have not had a proper opportunity in that respect. I am going to supplement this later on. It is quite apparent that a proper opportunity to inspect documents has not been provided or that a thorough search for them has been made. It would be impossible for me at this stage to discuss with this witness letters that he may have received. This morning I served my friend with further notice to produce, based upon what the witness had said yesterday, and I now ask my friends to produce the bridge plan of the Northern Construction Company, which was shown to be a signed plan and to which the witness referred yesterday.

40 Mr. Burns: I haven't got it.

Mr. Griffin: Any correspondence between the Plaintiff and or their solicitors.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Mr. Burns: To make it short, my lord, with reference to all the items in this notice to produce, we are not producing them.

The Court: You cannot produce them?

Mr. Burns: No, I am not producing them. That is to say, upon the ground that they are absolutely irrelevant to the case, then my friend will have to take his course.

The Court: A little louder, please.

Mr. Burns: On the ground, my lord, that they are absolutely irrelevant to the issues in this case.

The Court: Yes.

10

Mr. Griffin: Well, I hope I shall be able to show that they are not, and for that purpose I will file the notice to produce. I now tender, my lord, notice to produce dated 11th September, 1928; notice to produce dated 26th November, 1928, and notice to produce dated 30th November, 1928. Shall they be filed, my lord, as one exhibit or three.

The Court: Oh, one, I think, but you do not file them as exhibits. They are papers in the case.

Mr. Griffin: They are not proceedings, my lord. The practice is not to file them, my lord, and therefore they are not in the case in the sense of on the record. I think they ought to be filed so as to show notice. Anyway, I tender them for that glasses, otherwise there would be no record.

20

The Court: They are not exhibits, you may refer to them, they are in in this case, every one of them.

Mr. Griffin: Yes, my lord.

The Court: Well, they are not exhibits. Exhibits are only relating to evidence or to procedure to obtain evidence.

Mr. Griffin: Very well. Then I will deal first of all with the last one. My submission is—before I go into that, my friend handed me for perusal yesterday contracts said to have been made between the Plaintiff Company and the contractors. Amongst these is a contract of the 26th September, 1922, and a subsequent one of the 25th July, 1923 and one of 5th March, 1924, which, in its turn recites one described as the supplemental agreement number 1 of the 1st February, 1923, which my friend did not produce to me, and I now ask it to be produced.

30

The Court: You see, his point is that they are all immaterial and therefore you had better just state to me so that I will be able to rule on the matter after you have had an opportunity, definitely as to what you propose to do with these, whether they are evidence in any event.

40

Mr. Griffin: I only wish then, in the cross-examination of this witness, they contain descriptions of the bridge to be built and the character of the work. For instance the ones I have got already indicate the character of the work to be made, and this one, as recollect it, the witness specified—as to the tender of the

Bridge Company, and therefore will show the kind of bridge which at that time was to be built. This will enable me to tell your lordship what kind of bridge was then in contemplation in 1923.

10 The Court: You see their point is, that has nothing to do with the case. They say that it is not what sort of bridge they may have contemplated, whether they were contemplating one or fifty different kinds, the point is that, in answer to your objection that this is an obstruction to navigation, which you have set out on page 11—there are others, I suppose, that it makes no difference what they contemplated or what their intention was, but the test of the matter is what they did.

Mr. Griffin: It seems to me my answer to that is, that as alternative forms of bridge construction are clearly relevant as showing what other forms might have been built which would impede less, if they can be shown to be so, I am entitled to have before this court all of these; and it is not a case of whether a document can be used in evidence, but whether it is one I am entitled to see, to decide really on the matters in question and in
20 view of the issue of the case, one to which my friend himself referred, that the bridge has been built which impedes navigation more than it need, that clearly is relevant, and therefore I ask to have the documents produced for my inspection.

The Court: In what way can it be material. You see I have it here, but you do not point out.

Mr. Griffin: Well, my lord, I must see—

The Court: Suppose they contemplated building, we will say regardless of expense, one enormous bridge there which would not interfere with the natural contour of the land at all,—the
30 natural conditions, and then they finally abandoned that, and in fact built what they did, what bearing has that on the case?

Mr. Griffin: It might have a great bearing depending upon the view that your lordship took of the Statute—the Act which the company was operating under. My friend will argue many things under that statute, and I have a right to forestall these arguments with the evidence in regard to what was available on matters of construction. Suppose I could show that there was available a design costing no more than the bridge that was built, but less of an impediment, I would be entitled to show that out
40 of the mouth of these plaintiffs; and my submission is that I am entitled to this production of these documents, I am entitled to see them, if only for the purpose of seeing what they are. I submit that I have not been given an opportunity to properly inspect the record. Take some others of these, my lord, the building contract itself refers to a plan which has not been put in evidence, and as I will show in a few moments from the witness, the building contract itself calls for a bridge to be built ac-

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

According to a plan different from any of these. Well, I want to see that. Then I want to press it still further, my friend has produced to me the contract under which the amendments or variations were made, and I find on looking at it it is only a draft or copy, and not the original contents in a sense, and I can't be sure it was ever signed. My submission therefore is that these documents ought to be produced.

The Court: Well, what do you say, Mr. Burns? From any point of view, are you prepared to admit, as your learned friend makes his request, that it is a document in the case, that is a matter of great importance. 10

Mr. Burns: Yes, my lord, I understand—

The Court: You see it would be unfortunate if by any oversight, so to speak, any material evidence were omitted. I must say that the ground advanced by Mr. Griffin does not seem to me to be very strong, but is it worth your while really to resist it?

Mr. Burns: Well, it really has a basis on the keynote of this case so far as we are concerned. That is to say, our position is, put briefly, that no matter what was considered, no matter what kind of bridge—we are free to confess that a better bridge might have been built, and built upon certain conditions, and those conditions were so as not to interfere with navigation; but in our charter we get our tribunal who decided that, and that is the Railway Board, and that tribunal has decided that question. Now, in this case if your lordship would have to go into all the different projects in connection with the bridging of the Second Narrows and come to a conclusion which would involve an engineering proposition, assessors and everything, that in order to come to some kind of conclusion like that—in order to exhaust it, if my friend is endeavouring to get that here, it would take a very long time, I submit, and it is for that reason that we resist it, and that reason only. In other words we have nothing that we would not be willing to give as a matter of information, but so far as the bounds of this case are concerned, it is entirely without them, I would assume, and we are ready to stand on that position, and it would be, under these circumstances, a useless proceeding to encumber the court's record and take up the Court's time and the business of the Court to go into all these matters. 20 30

The Court: There is just one distinction, Mr. Burns. Look at page 11, you see in the alternative he sets up this: (Reading paragraph). Now he is endeavouring to show that it would be quite possible for them to build another bridge which would have fulfilled those conditions. 40

Mr. Burns: Well, on what ground, on the understanding that there was so much money to be paid—

The Court: Well, you see, of course, that is his difficulty.

Mr. Burns: Yes, it would be.

The Court: But you see at the same time, would that warrant the exclusion of it. It is cross-examination, you see, and the case made for it, I may say, is very slight, and I must also say that if I had received this notice to produce that you have, I should not have concluded, as apparently you have concluded, that it necessitated the production of these documents. It would not have occurred to me as being something—I do not think I would have considered it necessary to have produced them.

10 Mr. Burns: Well, I went that far yesterday in turning over these contracts which I happened to have in court.

The Court: Yes.

Mr. Burns: But for my friend's information merely, it was not a case of producing them to go into this case. But the point really is, my lord, as I see it—as we see it, that here we are building a bridge that we have been permitted to build by the tribunal that the Statute says is the one to decide on it. Now, if we are wrong in that, of course the investigation that the court would have to enter upon is one that is without limit practically—or at least there are limits to it, but it would cover an immense field
20 and take an awfully long time to exhaust properly. Under these circumstances we deem it our duty in this instance to take the position now, so that my friend can understand that, and so that it can be perfectly understood by your lordship.

The Court: I think it safer in view of the allegation at page 3 to admit this evidence. I might say that I do not see the real importance of it, to attach that weight to it that Mr. Griffin has, but that is his responsibility, and he is perfectly entitled to view the matter in accordance with his professional opinion, which must be treated with proper respect. Therefore you may proceed, Mr.
30 Griffin.

Mr. Griffin: I cannot proceed, my lord, without the documents.

The Court: No, but you may proceed and if they have the documents, you had better produce them.

Mr. Griffin: I have got a list—there is the list, my lord, I have written it out and I handed it to my friend in the notice to produce.

Mr. Donaghy: My lord, we haven't the documents in Court.

The Court: I beg pardon?

40 Mr. Donaghy: We haven't the documents in Court.

The Court: No.

Mr. Donaghy: And the notice to produce does not produce the documents. My friend knows how to produce a document. Notice to produce does not do it, and that is all I have to say on that.

The Court: That is true.

Mr. Donaghy: He has a certain remedy.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

Mr. Griffin: My lord, I may compel the party to produce what he has, if they are in the possession of the party.

The Court: You cannot wait until the very last moment and spring a thing on him like this.

Mr. Griffin: No, my lord, that is not quite fair. I only heard of this yesterday.

The Court: Yes, I understand that.

Mr. Griffin: I am not springing anything on him. In other words I argue and submit it has been sprung on me. The witness goes into the witness box and discloses for the first time the existence of these documents and gives testimony about them, which your lordship has ruled I am entitled to. 10

The Court: Yes, I know I have ruled on the matter of production, but I think it is of no use to you whatever.

Mr. Griffin: It may not be, my lord, all I am asking is an opportunity to inspect it, and if it be of no effect I may never have to ask any of these questions—the point might never have come up; but I have been deprived of a proper inspection—

The Court: I do not think you have been deprived of anything at all, Mr. Griffin. 20

Mr. Griffin: Very well, my lord.

The Court: Yes, your experience will show that, and I say without the slightest reserve that you are not deprived of anything at all. You take the extreme view, and it is quite open to you, and I do not say it has any effect, I give every effect to it, you are taking the extreme view as to the introduction of a lot of evidence here, something, as I say again, that your learned friends could not have contemplated that would have been necessary or material in this case.

Mr. Griffin: Well, my lord, what are we to do. What is your lordship's direction in the matter? 30

The Court: What do you wish to do?

Mr. Griffin: I want now to read it and then perhaps have any questions on it.

The Court: Well, what do you wish to do now.

Mr. Griffin: I wish the documents to be produced, and if necessary I am perfectly willing to have the matter stand over until they are. It won't take an hour.

The Court: Just say exactly what documents you want—specify them. 40

Mr. Griffin: I have, my lord, in the notice to produce.

The Court: Well, you cannot go—will you hand me up that, Mr. Registrar—I wish to say you cannot go into the affairs of this company *ad lib.*, so to speak.—correspondence between them and the Railway Board at Ottawa, of course that is something you might have.

Mr. Griffin: Well, it is one, my lord, that is the last one—the one at the bottom.

The Court: That is the 30th. Well, take the 26th, because that is since the action, of course. Of course, you are not entitled to that.

Mr. Griffin: Yes, my lord, I am entitled to that. My friends have accepted my view on that and have produced several.

The Court: I know they have, but that is not what you are troubled about.

10 Mr. Griffin: No.

The Court: Then as to the notice of the 26th November, there is nothing in that that you want—two contracts relating to the construction of the bridge, you have got that?

Mr. Griffin: No, my lord, I have not.

The Court: What is it, you want?

Mr. Griffin: I have not got the contracts.

The Court: Well, tell me which one it is that you want?

Mr. Griffin: My lord, I can only say that the ones that I want are the ones that I have discovered here since, that have been
20 produced—I did not complete the statements of the contracts. It is shown that there are two missing.

The Court: What do you suggest that you have got from this witness which would show that there were others which are material?

Mr. Griffin: From the one that has been produced, it recites another one not produced.

The Court: Well, which one is it. Let me see it.

(Document handed to Court by counsel).

The Court: Now, which one is it in this that you wish to see.

30 Mr. Griffin: The one that is referred to there as the supplemental agreement Number 1 of February 1923.

The Court: Have you that, Mr. Burns?

Mr. Burns: No, my lord, I was going to say with reference to that, we had looked for that, but we didn't find it in the office. I had a look for it this morning, as a matter of fact, knowing that I had passed over the other contracts, I thought all of them yesterday—I didn't look for that for my friend yesterday, and he asked for this one this morning—that particular one, I had looked for in the office, and we don't apparently have it. Now, I don't
40 know whether our clients have got it, I don't know anything more about it than that. I have no objection to getting it some way and turning it over to my friend, because I gave these others to him only for that reason.

The Court: Well, Mr. Burns agrees that if he can find it—he is going to look for it.

Mr. Griffin: Now, then, take this one, my lord, here is one

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

undoubtedly prepared and undoubtedly signed but that is only a draft of it.

Mr. Burns: We will check anything so far as these contracts are concerned, my lord.

The Court: That is simply a draft, is it not?

Mr. Griffin: Now, my lord, undoubtedly the original does exist in accordance with that.

The Court: I am not prepared to say so. What does Mr. Burns say about it.

Mr. Burns: I don't know, my lord, but if there is such an original, that I will follow the same course as with reference to the contracts, I will find that if I can. 10

The Court: Now, then, turning to the notice to produce of this morning.

Mr. Burns: So far as the rest are concerned, my lord, we are not producing anything.

The Court: I beg pardon?

Mr. Burns: So far as the rest of these other matters—all these other matters are concerned which are covered in these different notices we haven't them here, and we feel that we should not hand them over. 20

The Court: Now, we will begin here, the 30th November, the first thing that is asked for in this description of the documents, bridge plan of Northern Construction Company showing signed plan. What about that.

Mr. Burns: I don't know anything about it, my lord.

The Court: You do not know anything about it?

Mr. Burns: I don't know anything about it.

Mr. Griffin: The witness described it—gave a full account of it yesterday. 30

Mr. Burns: The witness is not my witness.

Mr. Griffin: Certainly he is my friend's witness.

Mr. Burns: He was our consulting engineer at a time.

Mr. Griffin: The plans that came into his possession are your plans.

The Court: Q. What do you wish, witness, the court to understand about that? A. I haven't the slightest recollection, my lord, what happened to that plan. I presume it will be in the records somewhere or other. I was never asked anything about it, never asked to produce any document in any shape or form, I had no correspondence with the lawyers in this case, only had telegrams asking me to come here—three telegrams. 40

The Court: Q. When did you learn of that plan of the Northern Construction, showing signed plan? A. It would be at the time it was prepared, about 1922.

Q. You cannot say? A. No, I should say the last time very likely I was here it would be in Ottawa, because it was in Ottawa

it was decided to substitute the bascule for the swing, my lord.

Q. Yes, I remember you told us that yesterday? A. Yes.

Q. Would there be a copy of that plan in the Department of Public Works, for instance or the Railway Board? A. I question very much, because if it was decided against it was no longer any use, it was a scrap plan. It was probably just simply thrown aside.

The Court: All correspondence between the Plaintiff and their solicitors and A. D. Swan and the Department of Public Works and the Railway Board with the engineer at Ottawa in regard to centre span. What use is that, Mr. Griffin?

Mr. Griffin: My suggestion is it would be of great use showing the original suggestion of Mr. Smaill of the Northern Construction as to the proper bridge to be built.

The Court: In view of what the witness said, I think it is irrelevant, and the objection to that evidence will be sustained.

Supplemental agreement "C," Number 1, between the Plaintiff and the Northern Construction Company.

Mr. Griffin: That is one, we have that already, my lord.

The Court: There is no trouble about that. "D," tender of the Northern Construction Company referred to in the agreement of the 25th November. What use is that?

Mr. Griffin: I want to see that tender, what that tender is about.

The Court: This was after it was carried into an agreement is it not?

Mr. Griffin: Yes, and it recites that.

The Court: Objection sustained in regard to that then. Plan "C," 185 and 547 referred to in the agreement of the 25th July, 1923. What are these.

Mr. Griffin: These are building plans on which the bridge was built.

The Court: What?

Mr. Griffin: Building plans on which the bridge was built.

The Court: Are those here?

Mr. Burns: I don't know, my lord, I don't know anything about them, my lord.

The Court: Q. Do you know anything about these, witness?

A. I don't know. It doesn't say what the title is. I don't know what the numbers refer to, my lord.

The Court: Where did you get that, Mr. Griffin?

Mr. Griffin: Out of the agreement, my lord, out of the building contract.

The Court: Where is it?

Mr. Griffin: Right here.

The Court: Let me see it.

Mr. Griffin: I planned to cross-examine the witness on it.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

The Court: Yes, just let me see it and see if you know anything about that. It is not for cross-examination, but simply to enable me to rule on this question. It is a very serious matter to postpone this case again.

Mr. Griffin: My lord, I will be perfectly willing—my lord, I don't want to adjourn needlessly for anything, I will be perfectly willing to go on with the cross-examination of this witness, if my friend will institute a search—make a real effort to get the documents and give me a chance to see them during the noon hour. I don't want to adjourn the trial needlessly.

10

The Court: Just look at that, Mr. Griffin, please, and show me where they are—which place you get that from, Plans "C" 118 and 547.

Mr. Griffin: Yes, they are referred to in the General Conditions at the back—right at the top, the first paragraph of the description, my lord. (Handing document to court).

The Court: Q. If you would look at that, witness, you see there steel spans will be carried to concrete piers, and the locations of the bridge and piers are shown on two plans. Location plans of the bridge and piers—two location plans, you see, of the bridge and piers. Just look at that carefully? A. Plans 1815—isn't that 1815?

20

The Registrar: That is Exhibit 2.

The Witness: Yes, but is it not plan 1815. There is one of the plans there, my lord.

The Court: That is in, yes, and what does that mean, 547? A. I don't know which plan that might be, we certainly have them, there shouldn't be any trouble at all in producing it, my lord.

The Court: Yes, so if they are not there—because these are location plans of the pier and either that plan or something of a similar kind must be before you and must be here.

30

Mr. Burns: I think possibly we can find that one at noon, my lord.

The Court: I think so, because it is quite apparent now that that plan must be here?

Mr. Burns: Yes.

The Court: Because it is one of the working plans upon which the contract was carried out. Well, we will have no trouble about that, Mr. Griffin.

Mr. Burns: I think, as a matter of fact it was here yesterday, and was objected to by my friend, by what I am informed now, but however—

40

The Court: Well, you will be able to identify that, because there can be no trouble about that. It is quite apparent that particular plan 1815 is the one before us.

The Witness: Yes, my lord.

The Court: Yes. Now, then "F," original agreement be-

tween the plaintiff and the Northern Construction Company of 20th February, 1925. What about that. Have you that, Mr. Griffin.

Mr. Griffin: What is that, my lord.

The Court: What is that. You see, your notice to produce, Number "F."

Mr. Griffin: The document which I have here forming that draft, which I showed your lordship, because I took it that it could not be really a draft, but I understand instead of—it has been
10 covered already, my lord. I will look that up.

The Court: Yes, that disposes of that difficulty and the remaining one is the original tender of the Dominion Bridge Company, etc. That is clearly objectionable. I will sustain the objection to it. So now we are ready; you may proceed, Mr. Griffin.

Mr. Griffin: Q. Now, then, I was asking you, witness, whether you had found correspondence between yourself and the Plaintiff relating to the bridge and you said you had? A. Yes.

Q. Can you show it to Mr. Burns? A. No, I haven't.

Q. Will you show it to him so that I can ask him to produce
20 it for my inspection.

The Court: A little nearer this way, witness. A. It consists of a few telegrams.

Mr. Griffin: Q. All I want you to do for the moment is to hand them to Mr. Burns: in order that he may look at them and decide whether he is going to produce them for my inspection.

Mr. Burns: My lord, we have no objection to producing anything we have; our only objection is based on the matter of going afield in this case. I don't know what this correspondence is, if your lordship feels that my friend should have this in the matter,
30 why—

The Court: What is the general purport of it, Mr. Griffin.

Mr. Griffin: I don't know, my lord, I want to see it.

The Court: Show it to Mr. Griffin, and he can see it.

Mr. Griffin: I can't do it, my lord, on my feet, it will have to wait now. I want to have a chance to speak of it. If my friend will give me an opportunity to read it or let my friend read it—it may be of no importance.

The Court: Yes, give it to Mr. Smith, let Mr. Smith see it.

Mr. Griffin: Q. Now, did you find any—I don't remember
40 whether you answered me, did you find any with the Railway Board? A. I have certain correspondence I wasn't asked for. I will be delighted to produce it.

Q. You were asked for it yesterday most distinctly, and repeatedly, and you haven't brought it? A. I have not.

Q. Did you find any with Mr. Loutet? A. Yes.

Q. Although I don't remember asking for them, because I didn't expect you had any, you knew I wanted it if you did have it? A. I produce it now.

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Q. Now, did you, having read this over, did you meet Mr. Loutet in Ottawa? A. Presumably I did, because I find a telegram from him asking me to go to Ottawa.

Q. Have you any recollection of going there? A. Yes, I do.

Q. Who did you go and see when you were there? A. The engineer—the Chief Engineer of the Public Works Department and Dr. King.

Q. So you saw the minister and the Chief Engineer of the Department? A. Yes.

Q. And the purpose of your going was to induce them to give up or abandon the requirements which they had theretofore laid down for this bridge, was it not? A. To the best of my memory, we went there to find out what arrangement was going to be made in regard to the bascule span, which the Department had intimated they wished to be substituted for a swing span.

Q. But they did mention more than that, they had insisted on a bascule span at that time, hadn't they, as far as it was then final? A. Yes, but arrangements had not been made in regard to advancing—

Q. No, no, I was trying to get out of you, if you will give it to me frankly, that the stand which the Department then were taking and which you went to deal with and as I understand, the stand they were taking was a bridge 45 feet high with a bascule span, is that right? A. I don't remember about the height, my lord, at all.

Q. Very well—what? A. I don't remember any question about the height.

Q. I will read this off, because this is where I got the information—this is from this North Shore Press again.

Mr. Donaghy: Yes, all right.

Mr. Griffin: "Government required that the bridge have a clear height of 45 feet above water with an opening span of not less than 250 feet wide"—it doesn't say there, but it is apparently there some place, clear, that they also require a bascule span. That is correct is it not? A. They certainly required a bascule instead of a swing.

Q. And did they require an opening of 250 feet? A. I have no recollection of anything—of any controversy whatever about the width of the opening.

Q. Isn't it a fact that you went there to get the Government to minimize or withdraw some of their requirements if possible? A. To the best of my recollection I went there to discuss the question of the bascule span and find out if they were to pay for the additional cost of the bascule span, because if they were not, then the whole thing would be dropped, if they would not approve of the swing span and were not prepared to put up the money of the additional cost, the job couldn't go on.

- Q. Was the swing span very much cheaper? A. Yes.
- Q. And was it your original recommendation? A. Yes.
- Q. Because you had a limit of cost? A. Yes.
- Q. And that limit was what? A. \$1,250,000.00.
- Q. I see; and if you could get more money you preferred a bascule yourself? A. I don't know.
- Q. Well, which did you prefer; I don't know? A. I prefer the swing span myself.
- Q. You preferred a swing, which Mr. Smail concurred with
10 you in thinking, did he? A. Yes.
- Q. So that really the bascule was imposed upon you by a superior force? A. To a certain extent.
- Q. Well, entirely? A. They stated that they wanted a bascule.
- Q. That is what I call a superior force fairly enough, is it not? A. I presume so.
- Q. And therefore you were overruled in regard to the type of bridge by the Department? A. Quite correct.
- Q. And am I right in thinking that they did have other re-
20 quirements, the nature of which you apparently now can't remember? A. From your statement, but I have no recollection of anything further.
- Q. Mr. Swan, tell me, am I not justified in assuming that probably the article in the North Shore paper of the 13th November, 1925, giving the history of this bridge was giving it in the main accurately? A. I don't know.
- Q. Wouldn't you think I was fair in assuming so? A. I have no idea who is responsible for the North Shore, or where they get their information from.
- Q. Wouldn't you take it for granted the information came
30 from the Bridge Company? A. I don't know where they got it from.
- Q. I know we don't know positively, but wouldn't you take the same view I do, that a supplement specially got out for the Bridge Company with beautiful photographs and this article had been gotten out with their consent and approval? A. I would naturally think so.
- Q. Well, that is what I did too. And therefore I take it that I was justified in saying that the Government had made the
40 requirements which this paper publicly says that it made, is that fair? A. As to that I don't know. That is an assumption.
- Q. It is an assumption, but it is a fair assumption, is it not? A. I should think so.
- Q. Well, then, tell me this, were you successful in Ottawa? A. At a later date— I don't say that I was successful, but the Bridge Company was successful in getting the Public Works De-

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

partment to agree to pay the additional cost of the bascule and the amended plans were then prepared showing it.

Q. Wait a minute, go slowly. And the other requirements of the Government, what happened to them? A. I don't know what the other requirements were that you refer to.

Q. So far as you know, that was due to the efforts of yourself and Mr. Loutet, was it not? A. You mean in regard to the financing?

Q. No, the successful achievement of this mission to Ottawa, so far as you know? A. There was nothing decided at that meet- 10
 ing that Mr. Loutet was at. It was after Mr. Loutet had come back to North Vancouver that it was decided, and I wired to him the fact that the Department had agreed to what we were trying to get, and this is the telegram.

Q. What I am trying to get at is, was it you—were you the motive force to go on—to achieve that result, as far as you know?

A. Yes.

Q. Now, I ask you if it was not a fact that you started negotiations with the Northern Construction. Have you thought that over. Have you thought that over? A. What happened in 20
 connection with the—

Q. Is it not a fact that you were asked by the Bridge Company to open negotiations with the Northern Construction Company. That is a simple fact? A. No, I was asked by the Bridge Company after the McClintic, Marshall Company—which I found was the name of the people—after they withdrew from the negotiations and said they were not prepared to go on, at that same meeting I was then asked by the Bridge Company to approach the Northern and see if they could be induced to look into the matter.

Q. Well, is this a fair statement from this same article, 30
 speaking of that same McClintic, Marshall meeting when they withdrew, it says in the paper:

“Within a few hours after the adjournment of the above meeting, however, it was privately intimated to the president of Burrard Inlet Tunnel and Bridge Company, Mr. Morden, that there was good reason to believe that Northern Construction Company Limited and J. W. Stewart would accept the contract to build the bridge on the basis just rejected by the McClintic, Marshall Products Company.”

Now was that the way, do you know, that they put it through? 40
 A. They were asking him to look into the matter.

Q. No, but was it privately intimated to the president by somebody that the Northern Construction were prepared to take over the McClintic, Marshall plans? A. I haven't the slightest idea of what was intimated to the president.

Q. Unless you were told. Well, were you told? A. No, it was months afterwards before the Northern and J. W. Stewart

decided to go into the thing. They said they would investigate it.

Q. Oh, yes, but not months after you went into it because this is what the paper says— A. I know they began investigating it right there and then.

Q. You see,

10 “Mr. Morden immediately got in touch with Mr. Swan, consulting engineer of the Bridge Company, and requested him to accept instructions then and there to open negotiations with the Northern Construction Company for the construction of the bridge. Mr. Swan agreed to undertake the commission, and within a few hours he telephoned Mr. Morden and said that the company was prepared to take the contract.”

Is that true?

20 Mr. Donaghy: Now, my lord, I desire to interpose an objection to the line of cross-examination and submit it has gone far enough. It is quite apparent that it is entirely irrelevant to the points raised here as to why this bridge is a menace to navigation. I think it is quite immaterial I submit, my lord, as to who opened up the negotiations with the Northern Construction Company, unless my friend is trying to discredit the witness in some way. Outside of that I submit that it is entirely irrelevant to the issues here. We are not concerned with who opened up negotiations with the contractor. It could not affect the case.

The Court: I think there is much in your submission, Mr. Donaghy, but at the same time I have very much reluctance in interfering with counsel in cross-examination, and I feel it would be better to let Mr. Griffin—and I feel sure he will not abuse it from his point of view.

Mr. Griffin: No, my lord.

30 The Court: Mr. Griffin, you seem to place a great deal of reliance upon that newspaper record.

Mr. Griffin: I know, because it contains a detailed summary of the transactions.

The Court: Well, I have been misrepresented systematically by the newspapers for over 30 years, but it does not do you any harm if you continue to do your duty.

Mr. Griffin: Oh, I am perfectly willing—if this witness would agree to these facts here, that they are correct, then I will be satisfied.

40 The Witness: My lord, I was doing the very utmost to get the Northern Construction Company to take on this work and go on with it after they had made an investigation.

Q. Yes, but what I want to get at—

The Court: I am sure you have, witness, but I will leave it to Mr. Griffin.

Mr. Griffin: It is very short.

Q. What I am trying to get at is this, did you go to the Nor-

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

thern Construction Company and ask them to take on, as the newspaper says, the McClintic, Marshall project? A. To the best of my recollection I even telephoned them from North Vancouver to say that the McClintic, Marshall plans had moved out of the picture, and would they be prepared to consider investigating it.

Q. On the lines of their project? A. I don't know of any particular line, they were to look into the whole thing.

Q. What? A. I don't know what I said to him over the telephone.

Q. But I don't mean necessarily on the phone, don't let us be niggling. Did you then or thereafter ever bring them these McClintic, Marshall plans? A. I couldn't tell you, I would naturally assume that I would, because I had discussed them.

Q. Listen now to a point of substance. That was the basis upon which negotiations with them were inaugurated? A. I don't think that because they were very very clear that they were to thoroughly investigate the whole of the conditions themselves before even they would say definitely whether they would go on or not.

Q. I am not denying that, but I say the only thing in the shape of a plan that was before them was this American plan of the McClintic, Marshall? A. It may have been, very likely was.

Q. It is all you know anyway. Wasn't it the only one you know of? A. There was that and the other one which had been only tentatively produced before.

Q. Whose was that? A. Although I could not remember the name of it, and I don't remember the name of it even yet.

Q. Was it Mr. Turner's. I got a name myself out of that something— A. It was my first retainer.

Mr. Griffin: If your lordship will show me that notice to produce.

The Witness: —at that time, to examine the McClintic, Marshall plan.

Q. We have got past the McClintic, Marshall. Was there one called American Iron Products? A. Yes, that was the other one.

Q. All right. Then that is the two that you discussed with the Northern Construction? A. Oh, no.

Q. Do you mean to tell me that you didn't— A. I wasn't discussing those with the Northern Construction.

Q. Didn't you refer to the fact that those two plans had been already submitted? A. Yes, certainly at that time—a least I am not sure about that—that they were mentioned just yet, the Products, as to what plans.

Q. The American Iron Products Company? A. I don't think that I dealt with them at all, because—

Q. I am asking you a very simple question, Mr. Swan: Did

you tell them of the existence of those two plans? A. I have no idea.

Q. Well, how would they know of them then if you didn't tell them? A. I don't know that they did know of them.

Q. And you are leaving it to this court that you went and inaugurated negotiations with this new company—new contractors without giving them the proposition that was before the Board of the Bridge Company, do you say that? A. I don't say that.

10 Q. What do you say then? A. I say that I have no recollection of having given them any plans, but in all probability and most likely I would tell them all about the McClintic, Marshall proposition, which company had backed out and said that they didn't want to go on with it.

Q. Now, I find anyway—I now find the provisional contract with the Northern Construction Company, and in order to avoid encumbering the record with these lengthy documents, and as very little of it matters, I will just show it to you and get you to verify one or two short facts in this and then we can proceed very rapidly.

Mr. Donaghy: Just a moment.

20 Mr. Griffin: That is the one you gave me yesterday.

Q. I produce to you agreement dated 26th September, 1922 between the Plaintiff Company and the Northern Construction Company providing for investigations into a bridge. Now, I ask you to look at two things, to verify the fact that that calls for a clearance of 15 feet? A. In the bridge?

Q. I don't know—I mean you knew of it? A. Oh, yes, I know that,—speaking from memory anyway, that was correct.

30 Q. But just verify this from somewhere? A. And we found in actual construction we were able to increase that, to, I think, 17.2.

Q. Just verify the short fact, that the contractor shall give a clearance of 15 feet, is it? A. Yes.

Q. On the proposed mile and a quarter? A. Yes.

Q. The plans give certain borings and soundings—the contractors to make certain borings and soundings? A. Yes, that was so.

40 Q. Now, the detail—and the contract provides, I think it is approximately given—they are to go to the plans for their record of borings and soundings? A. Yes, if I—again speaking from memory—if they decided that they were not to go on with the proposition they were to hand over free of cost the information that we had jointly collected.

Q. Well, I will have to correct you there. Paragraph 2 says, "Within 60 days from the date hereof, the contractors will submit to the company without charge, all information and data secured as a result of the carrying out of said borings and soundings, together with said general plans."

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

That is plain to you, is it not? A. That is so, and I am quite sure that there is a reservation somewhere.

Q. Now, there is a provision that if they do not go on they can escape by turning over their borings and soundings without further liability? A. Yes.

Q. Never mind, just verify for the present, was the Plaintiff Company given the result of the borings and soundings? A. I presume so.

Q. Did you ever see them? A. Oh, yes, they were taken under the guidance of one of the assistants, anyway, of my staff 10 of engineers.

Mr. Griffin: Yes, I would like my friend to produce these borings and soundings, because they will enable me to discuss with the engineers the question of the engineering questions involved. Will my friends produce them?

Mr. Burns: I don't know anything about them, my lord.

Mr. Griffin: Will my friends produce them.

Mr. Burns: I don't know anything about them.

Mr. Griffin: All right, we have got one traced into your possession now. 20

Mr. Donaghy: You have not.

Mr. Griffin: I think so.

Q. Where did you see them, Mr. Swan? A. The others—they were more or less sketch plans which accompanied a very elaborate report dealing with the fact of them trying to drive 24 inch square piles and so on.

Q. I was asking to see what is in it, because if I don't see it it is not worth much? A. Well, it was a very long report dealing with the matter.

Q. I asked you a very simple question, where did you see it? 30

A. In my office.

Q. And you were then acting for the Bridge Company? A. Yes.

Mr. Griffin: Now, if I had that supplementary contract I could discuss that; but I can't.

Q. Did you see the Bridge Company's tender? A. I presume that I had.

Q. Do you remember it? A. No.

Q. Then you don't know what the general plan was which they submitted with it? A. It refers to it in the agreement as 40 being that plan there.

Q. No, that is wrong—you are quite wrong; but still you don't remember it, do you? A. I remember that plan.

Q. I know, but do you remember that that was the one? A. Why I don't remember the particular plan that was ready at the time.

Q. Subsequently anyway a building contract was made,

which for the sake of shortness I will now hand you and avoid putting it in, in the same way. (Handing document to witness.) That is dated 25th July, 1923. Do you recognize that document?

A. Yes.

Q. I just want to ask you a couple of questions out of it. In page 2 it says that whereas since the tender—that is the Northern Construction Company's tender—was submitted, the parties hereto have agreed upon certain structural improvements in the said bridge. What was the agreement in which they dealt with these structural improvements? A. Agreement? I don't know that there was any agreement.

Q. As far as you know that is not a correct statement, then?

A. It does'nt say that there was an agreement, it says that we have agreed.

Q. "The parties hereto have agreed upon certain structural improvements," that would be in writing, of course? A. Not necessarily at all.

Q. Oh, it might be verbal? A. Oh, most decidedly. We did all our discussions orally.

Q. I see. On page 3 it speaks of additional work called for by the Government. What was the additional work called for by the Government? A. Presumably the bascule span.

Q. It provides in paragraph 7 as follows:

"In the event of the Company desiring to substitute—"

The Court: What page is that?

Mr. Griffin: The agreement, my lord, it is page 6 paragraph

7.

The Court: What is the date of that agreement?

Mr. Griffin: The date of the agreement, 25th July, 1923.

The Court: Yes.

Mr. Griffin: It is only a very short paragraph, so it is easier to put it in the notes than to put it in—

Mr. Burns: Pardon me, my lord, but I notice in this agreement, which is an original document, under-scoring in lead pencil, and I produce this—

Mr. Griffin: I didn't do that, I did that other.

Mr. Burns: I would suggest that counsel don't underscore it—these original documents at all.

Mr. Griffin: No, I believe I did that one, but I haven't done any others, if there are any more. They were done so that the witness could find it.

Mr. Burns: I know, but it is confusing to get some under-scoring there that we don't want.

Mr. Griffin: Well, I don't think you will find that in any of the others.

Q. "In the event of the company desiring to substitute a steel span for part of the timber trestle immediately north of

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

the 300 foot span as mentioned in the said specifications, the contractors shall carry out and do such alterations—” then the rest of it—that refers to the new span afterwards put in, doesn't it? A. To one of the new spans afterwards put in.

Q. Afterwards put in.

The Court: Let me see that, Mr. Griffin.

Mr. Griffin: I have not quite finished, my lord.

The Court: Oh, I beg your pardon, yes.

Mr. Griffin: One more reference and then I am through.

Q. It also provides in paragraph 13—which I will para- 10
 phrase the effect of—that if the Government of British Columbia
 does not authorize a certain subsidy, then the span south of pier 4
 is to be eliminated and the trestle re-introduced. Just look at that?

A. Yes.

Q. I think that is a correct statement. That is correct, is it not? A. Yes.

Q. Just verify that? A. Yes, I remember all about that.

Q. It is therefore evident from your statement that the plans therein referred to, namely C. 1815 and number 547 did provide for a 150 foot span south of pier four. A. I can only tell you 20
 by looking at the plan.

Q. No, but I mean it would be apparent at least from that paragraph in the agreement that that is so, wouldn't it. Look at it, if you want to? A. By looking at the plan I can tell in a second.

Q. Please answer my question. I say that clause in the agreement, and you will see now—13? A. Yes, that is quite clear that there was to be a substitution of wooden trestle south of the bascule.

Q. Now, if you would listen to the question I put to you: It is therefore apparent that plans “C”1815 and 547 to which the 30
 bridge was to be built in accordance with that agreement, did contain that provision for that south 150 foot span? A. I don't know, because I remember telegraphing from Ottawa suggesting that the plans should be submitted as they were, and that alterations could be made from time to time and get them approved as required.

Q. Witness, I don't think you are being quite frank with me about that. We use this agreement as a basis, and we know that it provides for building according to these two new plans, and finding it contains a provision that in a certain event one member shown in 40
 these plans is not to be built, it is apparent that that member must be shown on the plans otherwise the provision for its elimination would not be in order, would it? A. The document is quite clear.

Q. In your mind. It is clear the way I put it too, is it not? A. The document is absolutely clear—speaks for itself.

Q. And you agree that it means what I say it means? A. No.

Q. Well, then, if so, it is not clear? A. Because there might be minor alterations on the plan which were not shown, but that may be very clear in the document.

Q. But you haven't got my point. If a thing is in a certain event to be eliminated, it must be there so as to be a basis of elimination, is that not true? A. No, the information must be there.

Mr. Burns: These plans will show that.

Mr. Griffin: It is a provision that has to be gone into, because the plans referred to in the contract are not here.

10 Mr. Burns: What difference would it make, my lord, for the witness' opinion to be given to this court?

The Court: I do not see that it would.

Mr. Burns: I can't follow it.

Mr. Griffin: It is quite palpable, and the witness absolutely understanding my question should at once concede it.

Mr. Burns: Well, that is a matter of opinion.

The Court: He can say what he did, he cannot place a construction on it, and he is not entitled to do any more than that.

20 Mr. Burns: Plan number 547 has just been handed me, my lord. Has been brought in.

The Court: That is not an exhibit yet, Mr. Burns.

Mr. Burns: I don't know—no, I think not. It was attempted to be produced earlier in the trial.

Mr. Griffin: I haven't had an opportunity of seeing it before the discussion arises.

The Court: Yes, hand it to him.

Mr. Griffin: My friend has not given us an opportunity to see this.

30 The Witness: My lord, could I supplement my last answer. This plan clearly shows a steel span to be in there.

The Court: Q. What do you mean by this plan—547? A. Yes, my lord.

Q. That confirms the statement you say that you made before you saw it? A. Yes, my lord.

Mr. Griffin: I submit, my lord, it shows—the statement of the witness was entirely wrong on that.

The Court: Well, you must take what he says.

Mr. Griffin: Well, I just put it to him now.

Q. Doesn't that show that I was right in saying—

40 The Court: It must go in as an Exhibit now.

Mr. Griffin: Certainly, my lord, I would be very glad to have it in.

The Court: Exhibit 34.

(DOCUMENT MARKED EXHIBIT NO. 34.)

Mr. Griffin: Q. Doesn't that show that I was right, that the

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

plan referred to in the agreement did call for a 150 foot south span? A. Yes.

Q. That is what I asked you before? A. And if the money was not available a timber trestle was to be substituted for it.

Q. Yes, and you denied that a few minutes ago?

Mr. Burns: No.

A. No, I didn't.

Mr. Griffin: Q. Well, I think you did. Now, then, just one word more and I am through with this agreement. It increases the price to \$1,450,000, doesn't it? Do you want to see that, or is your recollection sufficient? A. No, I don't remember the figure.

Q. Paragraph "C" there. A. That is quite correct.

Q. That is all I need on that thing? A. That was to cover the additional work, but I don't know what the additional work was.

Q. Now then, we have—

Mr. Donaghy: Just a moment. I don't like having summaries of this paper, it should be read, the whole paragraph, into the record, for a proper intimation of it.

Mr. Griffin: I will be glad to do that:

"The contract price mentioned in the prior agreement shall be increased to \$1,450,000.00 to cover additional work called for by the Dominion Government."

The balance only relates to the method of payment.

Q. Now, I show you a subsequent agreement produced by my friend dated 5th March, 1924.

The Court: Let me see that contract—the one you have just finished with.

Mr. Burns: Is that a signed copy?

Mr. Griffin: No.

Mr. Burns: Well—

Mr. Griffin: Oh, yes, it shows signatures.

The Court: Where are you reading from?

Mr. Griffin: My lord, I was reading from various places amongst others page 2, page 3 and paragraph 13—those that I remember.

The Court: Yes.

Mr. Burns: This contract—is this copy not signed by the Northern Construction Company but signed by J. W. Stewart? I think it is a copy of the original, but if it proves not to be I propose then to prove the original.

Mr. Griffin: My friends gave it to me.

Mr. Burns: Well, I just gave you what I had here yesterday to save worry.

Mr. Griffin: Well, the witness will know anyway.

Mr Burns: I don't know—perhaps I know more about it than he does.

Mr. Griffin: Perhaps you do.

Q. Well, here is a contract of 5th March, 1924, with the contractors providing for a change in the roadway.

The Court: Between what persons is this?

Mr. Griffin: Between the Plaintiff and the contractors.

The Court: The Northern Construction Company?

Mr. Griffin: Yes, my lord.

The Court: Oh, yes, it is here.

Mr. Griffin: Q. Providing for a change in the roadway so
10 as to allow 15 ton trucks instead of ten. You remember that? A.
Yes.

Q. And, to shorten it up, providing for an increased price of \$18,306.00, is that correct? A. I don't remember the amount, but I remember very well the fact.

Q. You might just verify the amount—\$18,306.00? A. That is correct, according to the document.

The Registrar: That will be Exhibit 35.

(DOCUMENT MARKED EXHIBIT NO. 35.)

Mr. Griffin: Q. Finally we have the agreement of the 20th
20 day of February, 1925, which also is not signed, but it has your signature, Mr. Swan, which you can refer to on the bottom of that. (Handing document to witness.) It is that supplemental agreement. Part 1 provides for the extra height of five feet, and for two north spans north of Pier 1. Just verify that, will you?

Mr. Burns: This again is a copy, my lord, and while one might naturally assume that it is a true copy, at the same time it is not the original and I wish to deal with it later if it proves not to be a true copy.

The Court: Yes.

Mr. Griffin: Yes, if it turns out not to be a correct copy, that
30 will be quite fair enough.

Q. You remember the contract? A. Yes.

Q. And that is your signature at the back, is it not? A.
Yes.

Q. And, shortly put, it provides for an increased price of \$86,405.00 for this extra height? A. And for the substitution of two 150's.

Q. Yes, and that is correct, is it, as far as it goes? A. Yes.

Q. And also it provides for \$163,400.00 for the two extra
40 north spans? A. Yes.

Q. Making a total price to date of \$1,718,111.00? A. Yes.

Q. With Lynn Creek alterations still to be provided and paid
for? A. I don't see that.

Q. Oh, no, it is not in the agreement? A. Oh.

Q. I know—they didn't provide for the Lynn Creek so they
had to provide it somewhere else, didn't they? A. Oh, yes, they

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

provided originally for Lynn Creek according to a certain scheme, and then that scheme was entirely altered.

Q. I am not asking you about that, I am only asking that the price for the Lynn Creek valley is to be in addition to that?

A. No, that is not correct, it was only partly in addition.

Q. Well, it is partly in addition, that is all I mean? A. Yes.

Q. Then how much were you going to add to this \$1,718,000.00 for the Lynn Creek change? A. I couldn't tell you.

Q. Well, haven't you any idea of how much? A. Not the slightest.

Q. Was it substantially the same? A. It will be in the document.

Q. I am asking you about it? A. Honestly I have no recollection of it.

Q. Was it a substantial sum? A. I have no idea.

Q. I see. You know the nature of the work. It was the introduction of a 150 foot steel span for 260 foot spans, was it not? A. Yes, I think so.

Q. Well, that would cost a substantial sum of money? A. Certainly, yes.

Q. So if I am right, or if it turns out to be the fact and is proved that the plans of the Canadian Bridge Company on the modified Wolfe-Barry principle were only \$1,846,000.00, we have come then—you come within a very short distance of that, don't you? A. Yes—

Q. Answer that question yes or no: Don't you? A. The—

Q. Will you answer the question, please? A. No, I decline to answer yes or no, because the Canadian Bridge Company's tender was made many many years before pre-war prices and the time that this matter was being negotiated prices had been increased tremendously—probably nearly 100 percent.

Q. I think I am entitled, even as a matter of politeness to your statement, that these figures now approach very closely together? A. They don't bear any comparison.

Q. They do on their face at least? A. I don't know anything about their face, but practically they bear no comparison whatever.

Q. Don't you think, witness, that you are beginning to argue? A. No, I am making a statement of fact.

Q. I know, but you are making a statement of fact in a very argumentative form. Now, as I say—

Mr. Donaghy: My lord, I ask for the protection of the witness on that. I think he is entitled to explain the difference between prewar and after war prices without being criticized so severely for it.

The Court: Oh, yes, the witness is doing very well.

Mr. Griffin: Q. Now, if there had been money available

as you have already said, you would have originally designed—
I think you said you preferred swing spans anyway, didn't you?

A. I was rather inclined to the swing span there.

Q. Swing spans anyway. Would you, if you had had more money available, have made any changes in the general design?

A. Oh, we would have made a very much better job if we had had more money.

Q. Yes, what you were doing was economizing really? A. We had to cut according to the money provided just as best we could.

Q. But if you had had two millions in hand you would have made it very much better? A. Oh, we would have given a very much better job.

Q. And would this be a fair statement, if the facts are true, of course, had the offer of the Canadian Bridge Company to build a thoroughly reliable high-level bridge, bridge structure 58 feet wide, for \$1,846,000 been accepted, there was plenty of money then available to defray all the expenses and to construct the necessary approaches, which were estimated to cost about \$300,000.00. Now, if it is a fact that there was plenty of money available, wasn't the Canadian Bridge Company's design, as it shows on its face a thoroughly reliable high level bridge? A. I have never seen their design, but it didn't include the approaches which you refer to, again I emphasize the fact that it has not any comparison whatever with ours, because ours included nearly a mile of railway approaches on one side and the guiding approaches on the other.

Q. Look at this plan of the Canadian Bridge Company, Exhibit 20. That calls for a double swing span similar to the lines of the Wolfe-Barry plans, does it not? A. It appears to.

Q. But for a wider span, because the width of this span from these centres to these centres—no between piers.—that is between piers? A. 225.

Q. 225 on one side, and how much on the other? A. It is given parallel to the bridge, on the other side, 292.

Q. One side then 292 and the other 225—correct? A. Yes.

Q. They are a reliable concern, aren't they? A. I think so.

Q. Yes, here, this is the best way to get it. Above is the better place to get it, the width here, 292 on one and 257 on the other between piers, aren't they? A. It says 225 clear opening.

Q. I don't see the difference between that and this—what is the difference—not that it makes much difference, but on the profile it gives one figure and on the plan the other.

Mr. Burns: Can you make out the date of that plan. Can you read the date there? A. 1914.

Q. No—May 12th, is it? A. May.

Q. May 12th, 1914? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

Mr. Griffin: Q. Would that, in your opinion, be a perfectly proper bridge to build if the money was available? A. I wouldn't give an opinion of an engineering nature on a big scheme like that after seeing a plan for about half a moment.

Q. Yes, but I am simply asking you, that the Canadian Bridge Company project would be one which could be safely relied upon if they were behind it, would it not. A. It looks a very elaborate and well thought out scheme.

Q. You have also agreed that Sir John Wolfe-Barry's plan was a perfectly well thought out and effective and available scheme, haven't you? A. Oh, yes. 10

Q. As that is almost the same, with a very slight change in the centre pier and slightly increased width, your recommendation of his plan apparently applies also to this? A. I should think so, I should think that that was a first class scheme by glancing at it. By glancing at it I would say it was a first class scheme.

Q. Then from your point of view there was no possible good reason why the bridge should not have been built according to these plans in the year 1914, if it is true the money was then available? A. I don't know what the reason was. 20

Q. No, but as far as you can see, there was no good reason? A. I don't know. They must have had a reason or they would have built it.

Q. Now, I don't know that I misunderstood you, but I want to be sure that I didn't. You don't suggest, I take it, that gravel is not a good foundation for the bridge. You don't make that statement, do you? A. On certain occasions it is.

Q. But speaking generally, gravel is not a bad foundation for a bridge? A. It would all depend; gravel is very liable to scour. 30

Q. But if it is in a place where it does not scour, then there isn't any serious objection to it, is there? A. No, I shouldn't think so. We would have to form an opinion in each individual case. I have founded piers—several of them, for the Second Narrows bridge on gravel.

Q. So that shows at that place you were quite satisfied with it? A. Yes.

Q. Now, I think there was some mis-understanding between us—I think we had better have before you the Waddell plan, exhibit 33, if you can get room for it, and I will just show you for convenience Exhibit 27—one of the bridge as constructed. Would you put the plan in front of you so that you can compare them. Now, see if you can compare these? A. Are they the same scale. 40

Q. I think they are, just verify that yourself? A. Yes, they are the same scale.

Q. They are the same scale, so they are comparable. Now, I take it that the bottom of the channel on these two plans could,

for all purposes of calculation in this case, be taken to be a common point, couldn't it? A. I don't know. I have no idea where they get their soundings from at all.

Q. Well, better get it there. I am saying, for the purposes of any importance in this case, would it not be safe to take the bottom of that channel as being a common point? A. I don't know.

Q. Can you see any reason why it should not, for the purpose of a short discussion be so taken? A. I do know that this plan is wrong.

10 Mr. Burns: Meaning what?

Mr. Griffin: Please don't go beyond what the question calls for. I only want to discuss a few matters and I ask you if you could not take the bottom of the sea—the bottom of the channel as a reasonably common point? A. They are not the same.

Q. Well, they are substantially the same, of course they are?
A. Oh, no.

Q. I see, well I will go ahead and try it again. Is it not a fact, can you tell from the drawings on these two plans?

The Court: Just say what the plans are, Mr. Griffin, because I don't know.

Mr. Griffin: These are exhibits 20—

The Court: You are looking at Exhibit what?

Mr. Griffin: 27, and the other is exhibit 33.

The Court: You are looking at exhibit 27 and also exhibit 33?

Mr. Griffin: Yes.

Mr. Griffin: Yes. A. Well, there is a big difference there. Let us see what it is.

Q. I am not speaking of the depth, Mr. Swan, I was only trying to get the piers—the piers and their position? A. You are talking of the bottom of the channel?

Q. Yes. A. Well, there is a very big difference between the two.

Q. Yes, but these piers, that is what I am trying to get at. Can you scale off, for example, for the purpose of this case, sufficiently well the position of the southerly pier of Mr. Waddell's plan and see where it compares with that Number 3.

The Court: Now, the southerly pier is Pier Number 5, is that what you refer to, Mr. Griffin?

40 Mr. Griffin: Pardon me, my lord.

The Court: The southerly pier.

Mr. Griffin: The southerly pier of Mr. Waddell's lift span.

The Court: No, give the number because we have had.

Mr. Griffin: It has no number. He doesn't number them,

Mr. Burns: In Exhibit 33, my lord.

The Court: Well, that is number 5, as a matter of fact, because we had it all through the evidence.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
A. D. Swan
Cross-exam.
(Contd.)

Mr. Griffin: My lord, Mr. Waddell's plan does not have numbers on them.

The Court: I know, I understand it does not.

The Witness: Yes.

Mr. Griffin: Q. Are they substantially the same. A. The depth shows—

Q. Yes? A. On the comparison between the depth of this pier on Waddell's plan, it is practically the same depth as either Number 3 pier—

Q. Then that is a common point, that is quite all right. Now, I will put that question for his lordship's help. 10

The Court: Waddell's plan has the same location—

Mr. Griffin: The south pier.

The Court: I beg your pardon—the south pier has the same location substantially as the pier on profile plan 33.

Mr. Griffin: It may be the same.

The Witness: It is the depth of the pier that I am saying; the depth of the harbour is quite different.

The Court: Just look at that, you see, because otherwise it is useless, if you are looking at Waddell's southern pier, look at Waddell's plan and his south pier. 20

Mr. Griffin: No, it is the southerly pier—there is where we are speaking of, not the southerly pier of the bridge.

The Court: Well, you had better start on the profile.

Mr. Griffin: All right, my lord.

The Court: Exhibit 33, is it not?

Mr. Griffin: He is doing it now, my lord.

The Witness: The foundation level of Waddell's southern pier is approximately apparently the same as the foundation level of our Number 3 pier. 30

The Court: Q. As shown on profile plan number 33? A. Yes.

Mr. Griffin: Q. Yes? A. But the depth of the bottom of the harbour on Waddell's plan is very different from ours, and he does not show the sinking piece of the pier below the surface of the ground at all, whereas we went down a great many feet so as to prevent any scour.

The Court: Now, the number of Waddell's plan is what?

Mr. Griffin: Q. I didn't ask you anything about that at all? 40

A. Yes, you did—

The Court: Yes, but let us understand, what is the number of Waddell's plan.

Mr. Burns: 33, my lord.

The Court: 33, and the profile is what?

Mr. Griffin: 27.

The Court: Now, there is some mistake there. It cannot be.

Mr. Griffin: There are two, my lord.

The Court: It is one of these handed down from the bench.

Mr. Griffin: Yes, 27, my lord.

The Court: No, that is wrong. Hand it to the Registrar. It is not that I am referring to at all. Hand me that other one. This is 34.

Mr. Griffin: Yes, my lord, that one is, and this is 27, and they are checked in substantially.

The Court: The footings established then on 27 and 34 are the same?

10 Mr. Griffin: No, the only question that I was checking that for was for the purpose of my questions so that your lordship can get a proper understanding of them. I don't say they are exactly checked, but I am trying to get these positions laterally on this pier.

Q. I am trying to see if you agree that for the purpose of horizontal distance from either shore, that the Waddell pier on the south side of his lift span is in substantially the same position as your number 3? A. No, Waddell's is very much farther out into the channel. There are marks on the shore, you see—measuring
20 from there. Get where the low water mark expression is there, there is low water mark—it would be a point somewhere there, about.

Mr. Burns: It is only approximate anyway.

The Witness: You can't compare them very well—particularly.

Mr. Griffin: I will have to have that done carefully before I pursue that.

The Court: Do I understand the witness to day now, Mr. Griffin, that they are not substantially the same?

30 Mr. Griffin: He says not.

The Court: Yes, not substantially the same.

Mr. Burns: Obviously they are not.

Mr. Griffin: I will go after that more carefully and consider before I pursue it. The northerly pier of Mr. Waddell's plan is in the water far less than your pier number 2, is it not? A. Yes, according to his plan.

Q. That is it, according to his plan, of course. So that so far as the mere difficulty of construction is concerned, that pier does not represent as difficult a job as the one you undertook—

40 A. But I know that his bottom is not correct.

Q. Please answer my question, Mr. Swan, if you please?

A. Yes.

Q. You are becoming an advocate and I want you to be a witness.

The Court: Mr. Griffin, that is an answer, you see. You asked him was it the same, and he says no, because the bottom is not the same. That is also a part of the pier, you know—that pier,

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

you do not begin in the air, you begin at the foundation. It is not what it looks like on the top. It is what it is below that counts in a pier.

Mr. Griffin: Q. I want you now to take and compare Exhibit number 32, which is Sr. John Wolfe-Barry's plan, and I want you to measure from low water, marking Sir John Wolfe-Barry's plan and tell me how many feet to the north is the north end of his swing span? A. About 540 feet.

Q. 540 feet. Now, measure from low water mark on Exhibit Number 27 and find where it is. Run that line out? A. About 10 385 feet.

Q. And the other one was 540, was it not? A. Yes.

Q. The difference, therefore, is 105 feet? A. Yes.

Q. And you told me yesterday the difference was 50 feet, How do you reconcile that? A. Well—I am quite unaware, my lord of ever having made such a statement. I may have done so.

Mr. Griffin: Well, I will leave it to my friend.

Mr. Donaghy: I have no recollection of it.

Mr. Griffin: Well, the transcript then will show.

Q. Now, did you give the Harbour Board any advice on any 20 of these plans? A. Which plans.

Q. Any of the bridge plans that were made? A. Not to my recollection. I may have done so.

Q. I am producing a plan, which was produced here today by Mr. D. W. Baker, an official of the Land Registry office here, under subpoena in this case. Would you just look at that. (Handing document to witness). This purports to have been filed by Messrs. Burns & Walkem on behalf of the Burrard Inlet Tunnel & Bridge Company on the 24th day of January, 1923, under the Navigable Waters Protection—it doesn't say Act, but it means 30 Protection Act. Do you recognize that plan? A. I think I do, as being the plan, my lord, that shows the first swing span.

Q. Are you sure even of that? A. Yes.

Q. You are sure? A. It does show a swing span.

Q. And it was made by the Northern Construction Company? A. Evidently.

Q. And bears Mr. Smail's signature? A. Yes.

Q. And it is a swing span? A. Yes.

Q. Is there any doubt that is the one that was the original recommendation of Mr. Smail? A. I don't think there is any 40 doubt.

Q. And that it obtained your approval? A. Well, that particular plan is not signed by me, but I don't think there is any doubt about that either.

Q. I observe that it provides for a double swing span of 150 feet on each side clear. Is that correct? A. Yes.

Mr. Griffin: I am going to put that in, my lord. I can't

under the Land Registry Act, ask them to leave it. With your lordship's permission, I will obtain, if I can, another blueprint and put it in.

The Court: Yes.

Mr. Griffin: Perhaps my friends will assist me in that. The number on it is E-1800.

The Court: Exhibit 36.

RECORD
British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

(DOCUMENT TO BE MARKED EXHIBIT NUMBER 36).

The Witness: My lord, may I make a correction—I am sorry
10 —in making these measurements a little ago, the two plans are on
different scales. I thought they were both the same, my lord.

Q. What is the difference? A. It would alter the measurements.

Mr. Griffin: Q. Well, you have a perfect right to amend
your evidence on a point like that. You can re-scale it over? A.
540 feet on one. That remains the same.

Q. Then the measurement on Exhibit 32 stands at 540. Shall
I make a mark here?

Mr. Burns: Now, wait a minute.

20 Mr. Griffin: I want to wait until the witness says so, of course.

A. Yes, that is right.

Mr. Griffin: All right. (Indicating.)

Mr. Burns: Now, check that.

Mr. Griffin: Very well, you may.

Mr. Burns: He is a better draughtsman than you are, I think.

Mr. Griffin: Q. Do it yourself? A. I measured that—

Q. What is it? A. The measurement is 463.

Q. And the difference between 463 and 540 is 77, so you
amend the statement of the 105 to 77? A. Yes.

30 Q. That is correct, all right. Now, Mr. Swan, it seems to
me that you have very little to be responsible for in this bridge, as
I understand it? The original suggestion—the author of this
bridge is Mr. Smail. Is that correct? A. He prepared the plans
and submitted them to me.

Q. Well, then, you might have answered my question by say-
ing that he was the author of the plan originally? A. Yes.

Q. And the Government changed the type entirely by chang-
ing it from a swing to a bascule? A. Quite correct.

Q. And the Government also changed its height by five feet?
40 A. Yes.

Q. And the number of spans was originally 2, and it was in-
creased to five, was it not? A. Yes.

Q. As a matter of fact, though we haven't dealt with it yet,
the kind of piers except 2, 3 and 4, that were dealt with, were six
different piers? A. Entirely.

Q. Now, then, would you mind telling his lordship what fea-

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

ture of this bridge or which features you claim as your own, if any?
 A. I had the supervision of it, and I had the approval of it, and I prepared the specifications showing how the work was to be carried out, and I certified for all the payments to the contractors.

Q. I take it then that you have answered my question by saying that the supervision—that you supervised the construction and the plan was prepared in the manner that I have indicated?

A. Many of the plans—

Q. No, the plan? A. —were altered entirely, and redesigned possibly.

Q. Well, those are the details. Now, I want you to cast your eye over this Exhibit 2, again. (Handing document to witness.) Answer me this simple question, that no bridge in exact accordance with that was ever built? A. No.

Q. And I am going to detail to you the difference between the bridge as built and Exhibit 2 and see if you agree. In the first place the height is different? A. Yes.

Q. The bridge as built has three more spans than Exhibit 2 indicates? A. Yes.

Q. It has one more pier, to wit, number 4-A—

The Court: You say the original design had three more spans to be constructed?

Mr. Griffin. No, my lord, the bridge as built has three more spans than were approved of under that Order-in-Council.

Q. Thirdly the bridge as built has one more pier than shown on Exhibit 2, to wit, number 4-A? A. The bridge as built has 1, 2—3 additional piers more than are shown on this plan.

Q. Yes, I agree, but the other two are involved in the new spans? A. Yes.

Q. So that therefore for the purpose—I don't want to give duplicate criticisms—it has one more pier entirely—apart entirely from the new plans—4-A? A. Yes.

Q. And the piers 2, 3 and 4 are not in any way the same as built as they are shown on Exhibit 2? A. No.

Q. The difference is this, just shortly put, that Exhibit 2 calls for clusters of cylinder piers? A. Yes.

Q. And the bridge as constructed has three solid masses—piers en masse, has it not? A. Yes.

Q. Solid piers. Fifthly. There is a fill at the south end—actually there? A. Yes.

Q. Which is not on Exhibit 2? A. No, I beg your pardon, it is—not very clearly shown, though, my lord but there it is. There is the line showing the edge of it.

Q. But, Mr. Swan, you would not suggest for a moment that that—that any fill is shown on that trestle? A. I am sure, my lord, that it is the intention of that line to show a solid fill.

Q. Why it is not in the position where the fill is even? A.

It is in the position that was intended in accordance with that plan.

Q. That fill is a long way from that line? A. Well, it is not.

Q. It certainly is? A. It extends away back there.

The Court: Let me see that, Mr. Registrar.

The Witness: It is not very clear, my lord, but there is a line giving the slope—the edge of the fill there.

Q. Now, there is a red lead pencil, just show me what you are speaking about. The learned counsel was asking you about the solid rock fill? A. That line there is supposed to show the edge of the rock fill.

Q. Now, you draw it in red lead pencil. It shows the edge of the rocky fill, that is the fill that is being complained of so much as affecting the currents. That is the one you understand it to be? A. Yes.

The Court: Yes, that is it, thank you.

The Witness: And it is shown on the plan, around there.

Q. What? A. It is shown on the plan above the line there.

Q. Shown on the plan, that is the one—mark that first one—put 1 there and the second one put 2. One within a circle. Now put 2 in the circle? A. (Indicating)

The Court: Yes, now put it back again.

Mr. Griffin: Q. Mr. Swan, you put the figure 2 on this plan opposite the red line which you have introduced on it? A. Yes.

Q. Is that the line—the white line parallel to which you have put the red line, the line of roadway? A. It is both.

Q. It is stated on the plan to be the roadway, is it not? A. No.

Q. It says there the word “roadway” right there, doesn’t it? A. That is not where my line is.

Q. But it is within a quarter of an inch? A. This road—this is the roadway.

Q. Certainly? A. And the edge showed the edge of the embankment as again indicated on the section.

Mr. Burns: Q. Under number 1? A. Under number 1.

Mr. Griffin: Q. I submit to you that it has nothing whatever to do with the place, it is merely on a bit of timber? A. I beg to differ. There is no earthly reason for putting a bit of timber in there.

Q. I say there is a vast difference between that and Exhibit 27. There is a strange difference between that and the bottom as shown on Exhibit 27, isn’t there. (Handing plan to witness.)

The Court: Now, take the red lead pencil.

Mr. Griffin: It doesn’t need a red pencil there.

The Court: Take the red lead pencil and mark that number

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff’s
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

1 where you mean the same place to be on the rock fill, as you marked number 1 on plan 2. You have got it on plan 2, you have got Number 1 marked on it and it shows the slope of the rock fill. Put 2 within a circle and then mark on 27 so we will know exactly the spot that you are speaking of? A. That is the one in comparison with this one.

The Court: Now, that is very useful in trying to get to one thing on these two plans.

Mr. Burns: Are those plans to the same scale.

The Court: Well, make sure, you see.

10

The Witness: 50, 50.

The Court: Just take your time and just get that right.

Mr. Griffin: Q. Are you finished. Have you finished? A. I want to make a comparison now.

Q. There is no question before you that I know of.

Mr. Burns: He says there is a considerable difference.

Q. Isn't there? A. You say there is a considerable difference.

Mr. Burns: Your last question.

Mr. Griffin: Yes.

20

The Witness: There is only a slight difference.

Q. What is the difference then? A. There is roughly 50 feet of difference. In the first place on Exhibit 2, the toe of the slope is shown at low water; and on Exhibit 27 the toe of the slope is shown approximately about 50 feet north of low water.

The Court: Q. About 50 feet or 60 feet you say? A. 50 feet north.

The Court: Yes.

Mr. Griffin: Q. In the bascule system of bridges you could have a wider bascule than 185 feet, couldn't you? A. I should think so.

Q. Have you ever built one? A. No.

Q. When Exhibit 2 was prepared, was it your intention to build the bridge according to it? A. Oh, yes.

Q. And did you advise that such bridge be built? A. No.

Q. What did you advise? A. I advised that they should put in another steel span north of the 300 foot one if we could get the money, and also put in another steel span south of the bascule.

Q. So that that plan as presented to the Privy Council didn't meet with your approval? A. It did at the time, but I was asking right then to try and get more money.

40

Q. In other words it only agreed with your opinion at the price that you had got? A. Yes, it was the best we could do for the money.

Q. Now, why was the change made on these piers 2, 3 and 4, from cylinders to solid piers? A. Because I was never quite satisfied with the cylinder piers carrying the bascule, particular-

ly I spent a great deal of time on it, went into it minutely and employed a number of consulting engineers to check me up and gave a great deal of consideration to the whole matter, and eventually we were able to get the contractors to, at their own cost, without any additional—extra, I mean to the Bridge Company, to substitute—

Q. Now, I didn't ask any of that? A. —the mass—the gassoon type of bridge instead.

Q. Who decided that, you or they? A. They. They de-
10 cided on it.

Q. It was their suggestion then? A. Oh, no, we suggested it.

Q. When was the suggestion made? A. I couldn't tell you.

Q. Do you know the year? A. No, I couldn't tell you that.

Q. Do you say that you made the suggestion or that they did? A. We were studying these piers all the time.

Q. Please answer? A. Every time—

Q. Just say whether you know. It is an absolutely fair question, if you can answer? A. I couldn't tell you.

Q. Did you try sinking cylinders? A. We did actually sink
20 quite a number of cylinders on the north—

Q. Don't you know hundreds of them that were never used?
A. No.

Q. Aren't they lying over in North Vancouver now? A. They are not lying at North Vancouver, but I certainly didn't make cylinders we made no use of.

Q. Isn't it a fact that you tried to use them and you couldn't use them? A. No, we never tried to sink cylinders, to the best of my recollection, at these places.

Q. Pier 2 and Pier 3 have got nothing to do with the bascule, have they? A. 2 had everything to do with it, it takes the casting
30 weight of the bascule.

Q. I know, but that is comparatively trifling, is it not? A. If you say so.

Q. Well, I am asking you a question, really? A. No, it is one of the most important features of the whole scheme.

Q. I know, but I am asking— A. Number 3 works with this bascule.

Q. 2 and 4 carry the weight of the bascule? A. Yes, 3 and 4 together.

Q. Well, was it in consequence of the weight of the bascule that you decided it? A. No, it was the difficulty really of trying to hold any staging from which cylinders could be sunk.

Q. That is what I asked you at the beginning? A. That was one of the reasons, and a certain question of stability.

Q. Wasn't the real reason that you found it was difficult to sink the cylinders? A. We didn't find that, we assumed that.

Q. You decided that would happen? A. Yes.

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Q. So it was because you found out that the cylinders were going to be hard to introduce that you dropped them and changed the kind of construction? A. To a certain extent, but I never liked the design of cylinders in this particular place if we could get something better.

Q. Well, the bridge then was in that sense thoroughly unsatisfactory, in that respect? A. No, it was not thoroughly unsatisfactory.

Q. Well, then, what you have said, that you always wanted to change into solid piers, have you not? A. Yes. 10

Q. If you could find the money? A. Yes.

Q. And you did? A. We got them changed without any more money.

Q. Therefore you made a change— A. The contractors bore the cost themselves.

Q. You made a change you always wanted? A. Yes.

Q. Yes, you were never in favour of cylinder piers? A. Well, I was to a certain extent.

Q. What am I to draw from that, what extent were you— A. I would have accepted cylinder piers if we could get the 20 money for it.

Q. You did accept them? A. Yes.

Q. And approved of them? A. But we never built them.

Q. You said you built some? A. Not there. We are talking of 2, 3 and 4.

Q. Yes, and you built this Number 1 as a cylinder? A. Yes.

Q. And the real trouble was you couldn't get the cylinders down at 2, 3 and 4, was it not? A. We never tried.

Q. Yes, and you can still answer my question, I think the 30 substance of it, that you decided you could not? A. That it would be a very very difficult job.

Q. The same thing as not being able to, is it not? Now, I want to get some dates from you if you can. You can tell me when the various piers were put in, can you?—near enough for the purpose? A. No, I could not.

Q. You were here? A. Only a portion of the time.

Q. Well, just in generalities, am I right, then, substantially, pier number 1, can you give me the month and the year when that was finished? A. No, I could not. 40

Q. Have you got a record of it? A. Not here.

Q. Where? A. It will be in the office files, I suppose if they haven't been destroyed.

Q. Has Mr. James got it? A. I don't know. He might, if we have it; he certainly provided it.

Q. Should there be a record of that kind? A. Yes, certainly.

Q. For instance, I just want to fix roughly the dates, I have

got them and it would be a very simple matter to fix them if you will assist me. Take for example this booklet of North Vancouver, is that a fair representation, this photograph on page 12, is that a fair representation of the state of construction on the 27th of February, 1925. (Handing document to witness.) A. I presume so; it is a photograph.

Q. But does that accord with your memory? A. Why I don't know, it is—

Q. What? A. I don't remember dates.

10 Q. You can't remember even the year? A. As to the progress of the different piers. I have been sinking miles of cylinders just before that.

Q. I show you page 18, showing the state of construction in April, 1925? A. I would be prepared to accept every one of these as being correct.

Mr. Griffin: Well, that is all I want to get at. Then I will put that in.

Mr. Donaghy: Just a moment, my lord—

20 The Court: It is not put in; he says he knows nothing about it. It cannot be put in unless he says it is correct. You can keep it and you can identify certain dates that he does not dispute.

Mr. Griffin: We will leave it until we get another witness who can fix it exactly.

Q. Now, you were speaking in your opening statement of other bridges built by you. Have you built a bridge of any size since you built the Second Narrows one? A. I have not built that.

Q. Well, I mean building, of course? A. I have designed one.

30 Q. Designed one? A. Larger than this.

Q. That was built—one that was built? A. We hope to start on it in a month or two.

Q. That is the Chicoutimi one you spoke of? A. Yes.

Q. Except for that one that you mentioned, have you designed a single one which has been built? A. Since this?

Q. Yes? A. No.

Q. Had you ever designed a big bridge before this one? A. I have had a good deal—

40 Q. Which was built? A. I have had a good deal to do with other big bridges, but in my previous evidence a few minutes ago it was Mr. Smaill designed this bridge.

Q. Oh, yes, you concurred in that. Then I am now asking you about bridges you designed before this and you have not told me one? A. Well, I have designed 16 small bridges for Montreal Harbour—

Q. I don't want to travel far afield unless you think it is valuable. Did you do one comparable to this in any way? A. No. nothing like that.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

Q. So that really, to come down to meat and kernel of this, this is your sole connection with big bridge building? A. No.

Q. Well, tell me another one, except the Chicoutimi which is not started yet? A. I just mentioned 16 bridges for Montreal Harbour, they were small—

Q. They are small bridges? A. Very small bridges.

Q. Yes? A. Well, a fairly big bridge—

Q. But I am asking— A. A fairly big bridge, double deck swing across the river Avon in England, I was associated in the construction of it many years ago. 10

Q. With whom? A. When I was employed by Sir Benjamin Baker.

Q. He was the designer of that? A. No, he was not.

Q. Well, who was? A. Bristol Docks.

Q. Well, that doesn't seem to carry us any further? A. I was on the construction.

Q. Oh, yes, granted. What I am asking you is, and I think you have answered it once— A. Not designing, supervising construction of a big—fairly big swing bridge at Avonmouth.

Q. Was it comparable to this one in any sense. A. It was 20 a swing span.

Q. Was it comparable, now will you— A. No, it had no comparison with this.

Q. So really if you come down to it, to give you another chance, you will agree—I think I am being frank with you, this is your sole example of building a big bridge, the sole case where you ever did it yourself and designed it—or took part in it? A. I was particular about these matters of designing it—

Q. I had better put the question better— A. This is the biggest bridge that I have had to deal with in the capacity in 30 which I was employed.

Q. I see. Your real specialty is harbour work, is it not? A. Yes, sir.

Mr. Griffin: That is all. No more questions, my lord.

Mr. Donaghy: My lord, as my questions to this witness were addressed entirely to my case in chief—although my friend has seen fit to take him into lines which would seem to anticipate capabilities of defence and also a defence to his counter claim—I do not choose to follow him into that in the case in chief, because that is all this witness is on now. When he is in later on, at the proper 40 period I will pursue that.

Mr. Griffin: Well, I didn't take him anywhere beyond one topic—I have not in any way encroached upon the other topic at all. I dealt entirely with the question of legality of construction and alternative modes of construction.

The Court: When the time comes for having it tendered, I shall rule upon it.

Mr. Donaghy: Yes, very good, my lord.

The Court: That is all, Mr. Swan.

(Witness aside.)

Mr. Griffin: I should like, my lord, to have my friend now definitely close his case so there will be no mis-understanding about it now.

The Court: Well, Mr. Griffin, if you wish—Mr. Smith intimated that there was another witness, I understood, that he might possibly wish to be called, in addition to the other witnesses that he called before.

Mr. Griffin: That would be our case, but we now want to be sure that my friend has closed his.

The Court: Oh no, I mentioned in regard to the other witnesses that Mr. Smith—very largely, very well, if I might say so—examined in regard to the navigation question. Did I understand you that there was one still remaining?

Mr. Griffin: Yes, my lord, we intend to call, but we would like to have my friend, since he has closed his case, to make that statement so we will know exactly where we are without any confusion at the finish.

Mr. Donaghy: Yes, I did, when I finished my examination in chief of Mr. Swan.

The Court: Yes.

Mr. Donaghy: I thought that was clearly understood.

Mr. Smith: Captain Stalker.

JOHN DOUGLAS STALKER, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SMITH:

- Q. You live in Vancouver? A. I do.
- 30 Q. You will have to speak as loudly as you can. A. Yes.
- Q. Because I am quite some way from you. You are the manager of the Harbour Navigation Company? A. Yes.
- Q. And you have been in the employment of that Company for how long? A. Very nearly 12 years.
- Q. And at that you have been ten years as manager? A. Yes.
- Q. And previous to that you were running up and down the Second Narrows in boats? A. I was for two years as mate.
- Q. Two years, yes; subsequent to that, that is during the time
- 40 that you have been manager, have you been taking trips up the Second Narrows also as relieving Captain or otherwise? A. Yes, I have, usually about once a week.
- Q. About once a week; how many vessels have the Harbour Navigation Company? A. We have four at the present time. We had up until recently six—smaller vessels.

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

Defendant's
Case

J. D. Stalker
Direct.

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseJ. D. Stalker
Direct.

(Contd.)

Q. Yes? A. Passenger vessels.

Q. Yes. You operate, I understand, a passenger service up the Second Narrows? A. Entirely, practically, passengers and mail.

Q. Entirely passengers—passengers and mail you say? A. Yes.

Q. And the vessels which you operate are small vessels? A. Yes.

Q. Give his lordship an idea of their size? A. Oh, they would average—well, a little under 100 feet in length, and approximately 17 or 18 feet in beam, perhaps about eight or nine feet in draught, tonnage probably would be from 40 to 100 tons. 10

Q. That is the tonnage? A. Yes.

Q. And those vessels for the last several years have been engaged in daily service, have they, through the Narrows? A. Yes, some several times a day.

Q. Yes. Now, before the Bridge was built did your vessels operate at all stages of the tide? A. Oh yes.

Q. Just speak a little louder? A. Yes.

Q. Yes, and had they any difficulty in navigating at that time? A. No. 20

Q. Since the bridge has been built have they found any difference in navigation from the point of view of difficulty? A. Yes.

Q. Well, just how, will you say? A. Well, there is difficulty in—on account of the tides, that is when we are going eastward through the span, or through the bridge, if we are bucking the tide, that is an ebb tide, it is difficult going through the southerly span which is on the proper side of the fairway—sometimes it is impossible to go through that span. The southerly span in low water is not safe to go through because there is evidently, from our experience, shoal water just easterly of that span. With one of the boats it did slight damage to the railing. And with the tide running out why you stay over against that pier just to the northward of that south span. And then again in flood tide, if you are holding that side of the channel there is a tendency to set you to the north shore—considerable tendency that way. If you don't stay out fairly well in the current it is quite difficult, even with those smaller boats, to line your boat for whatever pier you are going through—whatever span you are going through, rather. 30

Q. All right. Now then, in your opinion is the bridge an interference with navigation? A. Yes.

Q. And is it a menace to navigation? A. Yes.

Q. Before the bridge was built how did the current flow through the Narrows? A. Well, there was a fairly direct current flowing through the Narrows either way. 40

Q. Did it follow more or less the contour of the shoreline?
A. Exactly.

Q. Since the bridge has been built how has that current been affected? A. Well, instead of the current following the line of the shore, which was, I would say, the natural line for the current to take, the fill on the south shore has made a sort of—something of a dam there, and set the current considerably to the northward.

10 Q. Before the bridge was built did your vessels occasionally hug the south shore on going east? A. Yes, we do that in bucking the ebb tide.

The Court: Q. Speak louder you know. A. We do that in bucking the ebb tide.

Mr. Smith: Q. Well, when you have the ebb tide against you you would go into the south shore to lose some of the force of it? A. Yes.

Q. And at these times how close to the south shore would you navigate? A. Well, we would come probably within fifty feet of the south shore.

20 The Court: Q. What is that you say? A. Approximately 50 feet.

Q. At all the stages? In which direction, east or west, going— A. Going easterly.

Mr. Smith: Q. And at what stage of the tide would you do that—what stage of the tide? A. We would go any time, that is, we were hugging the shore bucking the tide of course.

Q. Yes, and now that the bridge has been built can you go so close to that shore? A. No, we can't many times.

The Court: What stages.

30 Mr. Smith: Q. At what stage? A. We can go through the south span there, if it is practically high water slack, with any of the boats, but not any other time with some of them.

Q. Now, by the south span you mean the span to the southward of the bascule—the most southerly span of all? A. Yes.

Q. Yes?

The Court: I am glad you mentioned that, I did not understand that.

Mr. Smith: Yes, my lord, these entirely small vessels.

40 The Court: I suppose as the vessels are so small that he has no need to resort to the bascule?

Mr. Smith: No, my lord; he can go through the span to the south of the bascule.

The Court: Yes, thank you.

Mr. Smith: I am just dealing with that.

The Court: That is the same width, 150 feet.

Mr. Smith: Yes, 150.

Q. Now, just see that I get you clear, witness, I understand

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. D. Stalker
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 J. D. Stalker
 Direct.
 (Contd.)

with your vessels—you told me at high water slack—use the 150-foot fixed span to the south of the bascule draw?

The Court: Yes, now, just to keep that clear, the other is the bascule span; now, you call this the south span?

Mr. Smith: Yes.

The Court: So we will know exactly what you mean.

Mr. Smith: Q: Now, you have got that span in your mind's eye, have you, that I am speaking of? A. Yes.

Q. South of the bascule? A. Yes.

Q. And I understand you that at high water slack your vessels use that span? A. More convenient to go that way. 10

Q. More convenient. Now, why do they not use that span at any other stage, other than high water slack? A. Well, I just mentioned one reason, we can't, if it is very low water, because we are in danger of hitting the bottom to the south of that span, and naturally we are going through that span on an ebb tide and the tide will carry you—force you in an offset towards the north—when the tide is apt to carry you over to that pier that the bascule rests on.

Q. I see. A. Which is not a very safe proposition when you have passengers on board. 20

Q. I see. So then at low water you fear that there is not sufficient water there for your vessels? A. For some of them there is not.

Q. For some of them? A. And it is not—it is not a safe proposition if the tide is running out very strong for the smaller ones there, if it is very low water.

Q. Yes, and that is because of what, witness? That is not because there is not sufficient water but for some other reason that you have already given? A. Well, the tide is running out. 30

Q. The tide is running out, and it is running in what direction? A. It has a tendency to set towards the northward.

Q. Yes, and that is the reason then why you can't use the south span when there is any tide running? A. Yes.

Q. Yes.

The Court: Do we understand him to say then, Mr. Smith—I did not get it quite clear—what are the principles then that you can use the south span, let us settle that?

Mr. Smith: What are the times, my lord?

The Court: Yes, I understood him to tell you that there were certain stages of the tide at which he would not venture using—it was dangerous to use the south span? 40

Mr. Smith: Yes.

The Court: Did I understand him to tell you that there was sometime when he still could do so?

Mr. Smith: Yes, my lord, he can always use the south span at high water slack.

The Court: Yes, all his vessels?

Mr. Smith: Yes, all his vessels I think.

Q. With all your vessels? A. Yes, at high water slack.

Q. At high water slack? A. Yes.

Mr. Smith: Then he can't use the south span at low water slack because there is not enough water there and he says that he can't use it when there is any current running because the current deflects to the north—is deflected by the rock fill to the north.

Q. That is as I understand your evidence? A. Yes.

10 Q. Yes. Now, when you say—

The Court: Just one moment, until I see that I have it. What about half tides, he has not quite covered that I see.

Mr. Smith: Q. Yes, what about half tides there? A. My lord, from nearly the top of high water slack until a little after it would be all right until there gets to be considerable current in that span.

Q. Now, when you don't use the south span, what span do your vessels use? A. We go over to the 300-foot span, which you are supposed to use.

20 Q. Well, you can go under that span, too? A. I beg your pardon?

Q. You can go under the other fixed span also? A. Not at all tides, not—with some of the boats, yes, and with some of them not.

Q. What boat cannot pass under the span? A. That "Harbour Princess" can't go under the bridge at high water.

Q. So that with the "Harbour Princess" you go where—through the bascule span at high water? A. At high water we blow for the span—just to open.

30 Q. That is the only boat, I might make that clear, and I might just as well lead on it—that with one exception all your boats can go under the fixed span, that exception is the "Harbour Princess," and at high water she must go through the bascule draw and have it opened for her? A. Yes.

Q. That is correct, is it not? A. Yes.

Q. Now, in order to protect all your vessels going under the fixed span did you have their masts hinged? A. Three of the boats were hinged.

40 Q. Yes, and the other boats would go anyway, could they? A. We cut the mast down so that they could pass under the bridge.

Q. Now, in which cases were—in the other cases you cut the masts down? Is it an objectionable feature to have your mast on a hinge? A. I think so, to a certain extent.

Q. Why? A. Well, our masthead light is on the mast the is hinged, and we have to lower that from sometime above the

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

J. D. Stalker
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 J. D. Stalker
 Direct.
 (Contd.)

bridge to sometime below it. I never thought it was a very good idea.

Q. In your opinion, is the current stronger now than it was before the bridge was built, or otherwise? A. Stronger now.

Q. In what different respects do you feel that the bridge is an interference with navigation? A. Well, there is one just that you have mentioned now, is the piers—the fill on the south shore, and the piers that naturally dam the water to a considerable extent, made the water run a great deal faster through the Narrows than it did previously; and the fill on the south shore has—sets a considerable current off towards the northward. Besides that, those piers, after the water has struck them, makes a very great difference in the swirls and eddies that you have on the other side of the bridge from which the current is coming. With the smaller boats it makes considerable difference. 10

Q. Did you ever find the condition of things at the bridge where you have possibly slack water on the surface and a bit of tide running underneath. Have you ever experienced that? A. I don't know that that would affect these smaller boats materially. I have noticed the currents, as you say, but I don't know that it affects us until the tide has passed the slack considerably. 20

Q. Yes, it doesn't affect you. What is the duration of slack water high water at its slackest—at low water slack on a long run out? A. Oh, there is practically nothing to it at all. There is just a tide one way or the other almost instantly.

Mr. Smith: I think that is all.

The Witness: Speaking further on the bridge, as far as it affects us materially, when carrying passengers—what I have never been able to understand is the putting of an obstruction in a navigable channel such as those piers without any protection. We have got to go through that bridge at all times, foggy weather and so on, and that is the difficulty that we find, that before that bridge was there we had nothing to interfere with us at all. Now, the difficulty is to find those piers. We had notice not to go through that channel except when it was clear weather, but then our business requires that we go through it at all times. If we didn't go through, well then, we wouldn't be carrying on any business; and the difficulty is to find those piers. There is a number of them and I often wonder that we don't hit them. There is nothing to mark them in anyway. If it was an obstruction to the channel, I believe the law is there would be a bell or fog horn of some sort on it. 30 40

Mr. Smith: All right, thank you.

Mr. Burns: I will be sometime, my lord.

The Court: Yes, thank you, Mr. Burns.

Mr. Burns: At least I will be longer than this.

The Court: Oh, yes, you have to take more time.

(COURT ADJOURNED AT 1 O'CLOCK UNTIL 2:15 P.M. OF
THE SAME DAY.)

2:15 P.M.

(COURT MET PURSUANT TO ADJOURNMENT.)

JOHN DOUGLAS STALKER, resumed the stand.

CROSS-EXAMINATION BY MR. BURNS:

- Q. How long have you been with the Harbour Navigation Company, Captain? A. Nearly 12 years.
- Q. You are now Harbour Captain, are you, or Port Captain?
10 A. I am manager of the company.
- Q. Manager of the company? A. Yes.
- Q. How long since you have been manager? A. Nearly ten years.
- Q. Well then, did you take command or go in your vessels yourself? A. Occasionally I go out.
- Q. But very occasionally I understand? A. Probably an average of once a week.
- Q. Whenever occasion requires you would take a vessel out yourself? A. Yes, sometimes it is necessary and I like to go once
20 in a while.
- Q. Yes. Would you say that for the last three or four years you have made an average—
- The Court: Excuse me, Mr. Burns, did I understand this man to say that he was a Master Mariner himself?
- Witness: I have an Inland waters certificate, my lord.
- The Court: Q. What? A. Inland Water certificate, Master Mariner's certificate.
- Q. Inland waters? A. Yes.
- Mr. Burns: Q. Would you say that in the last three or four
30 years you have averaged once a week? A. Yes.
- Q. That would be not on the daily boats, would it? A. I beg your pardon?
- Q. You have some boats I understand running daily—regularly? A. Yes.
- Q. Others that run intermittently? A. Well, you see our business to a great extent is seasonal, it is summertime—
- Q. I know, but take the season of your business. You have some boats that are on regular runs, I understand, what is it—“Lo Olbee” and “Fort Langley?” A. Yes, they run every day.
- 40 Q. Yes; well, those are the boats that take the daily runs, aren't they? A. Yes.
- Q. The other boats that you have take intermittent runs, that is when the traffic is heavy, or some special excursions or something of that kind; isn't that so? A. Not exactly, when the season is on they run every day.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
J. D. Stalker
Cross-exam.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

Q. Every day? A. Perhaps two or three times a day.

Q. Which ones of these? A. All of them.

Q. Which are they? A. The "Harbour Princess," the "Scenic," the "Lo Olbee" and the "Fort Langley."

Q. Well, the "Harbour Princess" and "Scenic," apart from the two that you mentioned? A. Yes.

Q. And the "Scenic" and the "Harbour Princess" only run when the business warrants it, isn't that so? A. No, our summer season.

Q. Well, do they run every day in your summer season throughout? A. Yes, practically every day. 10

Q. Then you have the whole four boats running every day during your summer season, is that right? A. It would average that way I think, running.

Q. It is not a matter of average, every day I understood you all during the season? A. Yes, there are some days they might not all run.

Q. Well, there would be quite a number of days I am instructed? A. No, not—very seldom in the summertime that they are not all running. 20

Q. And as far as you are concerned, since the bridge has been constructed you have only taken a trip up here and there—once a week you say as an average? A. Yes.

Q. Do you know anything about the accidents that occurred to any of your ships owing to fog going through the Second Narrows before the bridge was constructed? A. No.

Q. Running aground in fog? A. No.

Q. Are you in a position to say that because you don't know that it didn't occur? A. I don't know of any occasion of any of our boats going aground in foggy weather before the bridge was there. 30

Q. Are you in a position to say that because you don't know that that didn't occur? A. Yes.

Q. So that you say that none of your boats ran aground in the Second Narrows before the bridge was constructed; is that your answer? A. I am safe in saying that, yes.

Q. On account of fog in the Second Narrows? A. Yes.

Q. Now, one of your boats going up—as a matter of fact we will cover this, the "Harbour Princess" is the only one that takes the Bascule span, that is, has the bascule span open for her? A. Yes, at the present time. 40

Q. Yes. With the bascule span shut do they run through, that is the other boats, other than the "Harbor Princess"? A. At the present time, yes.

Q. They run through the bascule span? A. I beg your pardon?

Q. Well, you see, just to test your opinion of the 300-foot span, the bascule span and the south span? A. Yes.

Q. Now, do any of your boats, outside of the "Harbor Princess," use the bascule span when it is shut? A. Oh, yes, quite occasionally.

Q. Yes, more often use the 300-foot span? A. Well, we have been asked to do that as far as possible.

Q. Well, never mind what you are asked, but as a matter of fact you more often use the 300-foot span? A. Yes.

10 Q. Yes, I understand you to say the 300-foot span is lower, gives you less clearance than the south span? A. That the lower—

Q. That the 300-foot span gives you less clearance?

The Court: Call that one the north span, then there is the north, the bascule and south.

Mr. Burns: Very well, my lord.

Q. Then you know the 300-foot span? A. Yes.

Q. Now, I will speak of it as the north span? A. Yes.

20 Q. And the bascule in the middle, and the south span? A. Yes.

Q. Now, do I understand you to say in your evidence-in-chief that the north span gives less clearance than the south span? A. No.

Q. It is the same, is it not? A. The same, as I understand.

Q. Now, your boats, when it is a fair tide, will take the 300-foot span—mid-stream, both ways? Don't they? A. Not always.

30 Q. Well, explain it then. A. Well, the majority of the time in a fair tide either way we go that way, but there might be other reasons for us taking the south span or perhaps the bascule span.

Q. Well, but generally speaking they go up and down when they are on a fair tide through the north span—or with exceptions, is that right? A. We do, with exceptions, yes.

Q. Yes, all right. Then when you are bucking the current, going east for instance, bucking the ebb tide, you go up the south span? A. Yes.

Q. Go through the south span. Which you did before the bridge was built? A. We hugged that shore, yes.

40 Q. Now, you say that in going through the south span that there is a certain set to the north when you are taking the ebb tide coming out? A. At certain times, yes, there is quite a decided—

Q. Well, will you explain what times that there is a set to the north? A. Well, when you have nearly slack water of course there is very little current in the Narrows.

Q. All right. A. If there is very—

Q. But I mean bucking an ebb tide, you say at certain times,

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseJ. D. Stalker
Cross-exam.
(Contd.)

now, what do you mean by certain times? A. Well, if your tide is nearly slack you will not have very much under current and therefore there is not much set to the tide.

Q. If you are not bucking—we are not interested in that, but bucking the ebb tide you go up the south span, and you say that there is a set to the north. Now, you have told me that it occurred at certain times. I want you to explain that. A. It occurs between the high water slack and the low water slack, the worst of it.

Q. The greater strength at the time when the tide is strongest? A. Yes. 10

Q. That would naturally follow. In other words, the start of an ebb tide, it would be very little, it would gradually get up on the strength of the tide and then gradually subside? A. Yes.

Q. Is that right? A. Yes.

Q. Now then, do you say that that current comes from—what—that set north, what is the cause of it? A. I would say that the set of the current there is from the tide hitting against the fill that is there and setting off towards the north.

Q. That is to say, the ebb tide you say causes a set to the north? A. Yes. 20

Q. What was the name—you spoke of one vessel that hit the piers—ran against the pier? A. No.

Q. Didn't you? I thought you said something about a vessel that ran against the pier. What did you say with reference to that? A. I said that we found that there was a shoal on the south of that—of the south span—to the east of the south span.

Q. Yes? A. By one of the boats hitting there.

Q. Oh, there was no boat of yours went against the pier? A. No.

Q. Now, how far east of the bridge is that shoal that you speak of? A. It would be 100 to 200 feet east of the bridge. 30

Q. East of the bridge? A. Yes.

Q. That is, east of the eastern side of the bridge? A. East of the—yes.

Q. Yes.

The Court: Q. That is east—of course I suppose he means of the south span? A. Yes.

Mr. Burns: Q. Yes, of course I am speaking of the shoal on the south shore.

The Court: I had the profile plan here. 40

Mr. Burns: Q. What boat was that? A. The "Harbor Princess."

The Court: Just a moment.

Mr. Burns: Oh, pardon me, my lord.

Q. What was the name of that boat? A. "The Harbour Princess."

The Court: Just one moment, if you please, Mr. Burns.

Q. Just look at 34, witness, and point out—you see, the learned counsel was asking you. That shows, counting that south pier there as Number 5, which is the south end of the opening for the south span. Now, you have said that that shoal is 100 to 200 feet east of the bridge. Did you mean that? A. Just east of this span.

Q. Now, don't say "this"— A. Of the south span.

Q. The south span, yes. Now, you are looking at pier Number 5. Look at the number, is that it? Can you see the Number 5 immediately there? A. Yes, my lord.

10 Q. You are looking at pier No. 5? A. Yes.

Q. That is the south pier of the south span? A. Yes.

Q. Now, do you mean that, witness? That it is from 100 to 200 feet east of that, that shoal? A. East of the center of the south span.

Q. Now, get your mind concentrated upon what I told you. This is pier No. 5, are you looking at that? A. Yes, my lord.

Q. Now then, how far is that shoal east from that? A. 100 to 200 feet east of that.

Q. That is it? A. Number 5 pier.

20 Mr. Burns: Q. When you say 100 to 200 feet, would you say it was somewhere between 100 and 200 feet, that is what you mean? A. Yes.

Q. Would it be nearer 200 feet or nearer 100 feet in your idea? A. Oh, I wouldn't be prepared to say.

Q. What is the draught of the "Harbour Princess"? A. Approximately nine feet.

Q. And what was the date of that occurrence? A. About two years ago, as near as I could tell you.

Q. What was the stage of the tide? A. Fairly low tide.

30 Q. Fairly low tide? A. Yes.

Q. Would you say that it was low tide? A. Yes, nearly, a shallow tide.

Q. Did she go through the south span? A. Yes.

Q. Why would she go through the south span when she could have gone through the north span as easy? A. Well—

Q. In that stage of water? A. Well, she was bucking a certain amount of current I presume, and he would naturally be keeping in out of the current.

Q. Were you aboard? A. I was not.

40 Q. Then you are just speaking of a report that was made to you about the "Harbour Princess" running aground and you are presuming the rest; is that right? A. Yes.

Q. Now, you know of course that the Harbor Board regulation is that a fog horn cannot be used on the bridge. You understand that?

The Court: Fog horns shall not be used.

Mr. Burns: Shall not be used upon the bridge.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. D. Stalker
Cross-exam.
(Contd.)

A. I have never been able to get that very clear.

Q. Well, have you been notified—I think you said you got notice—that there would be no fog horn on the bridge. Were you notified to that effect? A. Yes, later.

Q. By whom? A. By the bridge company, and either verbally or in writing by Captain Reed.

Q. Captain Reed, who is Harbor Master? A. Harbor Master, yes.

Q. Now, what are you not clear about? A. I beg your pardon?

Q. You say you are not clear—you said it was not very clear to you? A. Yes. They put a fog signal on there for a time and used it and then they discontinued it.

Q. Well then, you got this notice from the Harbor Commissioners? A. We were not notified about it at the time that it was—it was just stopped without any notice at first.

Q. Well then, you got the notice? A. Yes.

Q. And since that time you have had notice that there would be no fog signals on the bridge, that is as far as sound was concerned, that is so, is it not? A. We were just notified that that signal order would be discontinued.

Q. Well then, you never made it your business to find out what the situation was—didn't you, or did you? A. I don't understand you.

Q. Well, didn't you make it your business as general manager, or manager, of this Navigation Company, using the Second Narrows in your work, to find out about it? A. I, as manager, tried to do what I could to have some sort of signal put in that place.

Q. Well, but in the meantime you got notification and you knew that there was no fog horn on the bridge; isn't that so? A. Yes.

Q. Now, what are you not clear about? A. Regarding what I said before lunch, was why an obstruction should be placed in the channel where we had—where we navigated for years before without any obstruction without any difficulty, and why these obstructions should be placed there at very great risk to our boats without any signal of any sort to indicate where those piers were.

Q. Well then, what you mean by not being clear is that you complain that there is no fog signal, that is fog horn on the bridge; is that it? A. Well, to make myself clearer, if I can, if there were an obstruction of any sort, any rock or anything of that sort in a fair way it would be marked with a buoy—bell-buoy, or something of that sort.

Q. Well, witness, you understand this, don't you, that what you mean when you say you are not clear about, is that you simply

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are complaining that there is no fog signal—fog horn on the bridge; isn't that so? A. That is the point.

Q. All right. Now, you have been helped quite a bit by the bridge operators, haven't you, in connection with the navigation of the bridge in fog? A. In what way do you mean?

Q. Well, you know, don't you? A. I would say we got no help whatever.

Q. No help whatever? A. No.

Q. Then you didn't get light signals, you didn't get that
10 sounding triangle and so on, helping you through? A. Nothing of that sort to my knowledge.

Q. Well, does that mean you simply—it didn't occur with you? A. Nor any of our Masters that I know of.

Q. So far as your direct results—

Mr. Griffin: Well, let him answer.

Mr. Burns: Q. So far as your other Masters are concerned you have received no report to that effect. That is what you mean? A. Yes.

Q. Now, have you altered your schedule of sailings in any
20 way because of the bridge? A. No, I can't say, definitely.

Q. Well, can you say—you can't say indefinitely either, can you, Captain, except by your state of mind. You know as a matter of fact you haven't altered your schedule of sailings one iota by reason—because of the bridge? A. Yes, it has had something to do with it.

Q. Well, what have you done, let me have it? A. Where a run was not particularly profitable the bridge certainly was the deciding factor in discontinuing the boat going up there at night or in foggy weather.

30 Q. Do you mean that you took that into consideration when you were going to put a boat off? A. Yes.

Q. But as far as your regular sailings were concerned, that is what I was getting from you, these haven't been altered in anyway because of the bridge? A. It would be a regular sailing that I speak of, but the bridge was the deciding factor in discontinuing it.

Q. Then you mean to say that there have been regular sailings of yours that you have called off because of the bridge? A. Yes.

40 Q. Will you tell me the ones? A. One—it is the one I have in mind, is the boat leaving Vancouver at—I can't say definitely, 7:30 or 8:30 on a Sunday night.

Q. Is that during the summer season? A. All the year around.

Q. All the year round? A. Yes.

Q. When was that running regularly? A. We were running regularly until—I think it was a year ago.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseJ. D. Stalker
Cross-exam.
(Contd.)

Q. Yes, and then you stopped it? A. Yes.

Q. And why did you stop it? A. Well, it was not a particularly profitable run, and going out through that bridge at night time, and occasionally fog at night time as well, we didn't figure it was—

Q. That was one reason, one of the reasons you had against the bridge when you gave me your answer a minute ago, is that so?

Mr. Smith: That is not fair, he did not.

Mr. Burns: Well, isn't it fair—let us see whether it is not fair or not.

Q. You say now it was not a particularly profitable run, and on account of fog and so on you took it off? Or that you took it off because of the bridge? A. I said the bridge was the deciding factor.

Q. Was the deciding factor, all right, we will leave it that way. And if the bridge had not been there you would have continued it? A. We probably would have continued for sometime at least.

Q. How do you mean sometime—a few months or more? A. No, we might have carried on for a year—maybe a year or two longer. We figured the risk was too much for what we were getting out of it.

Q. Well then, when you say "probably would have continued it for a year or two longer," then you wouldn't have it running now anyway; is that right? A. It may have been running at the present time.

Q. You don't know? A. No.

Q. Now, do you know the depth of water under the south span at low water? A. I do not.

Q. You said that the current was stronger since the bridge has been constructed, what did you mean by that? A. Well, it can't possibly help but be stronger than it was previously.

Q. What you mean is just what I thought. You meant that because of the piers being placed in there, that naturally the current would be stronger? A. Yes, and then the fill at the south end of the bridge acts somewhat as a wing dam, or whatever you might call it.

Q. Yes, you said it before. So that you interpret that or deduce that from the fact of the bridge being there, that it must necessarily make the current stronger? A. Yes, and our experience with the current.

Q. Well, what experience have you had that will base your statement? A. Well, going to and fro up and down the Narrows as often as we do—

Q. I don't say that, I want your evidence now—your personal evidence. A. Well, there is no question about it, when I am going up and down I could tell before the bridge was there and

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after it the effect it would have—the bridge put right off one end.

Q. Where? A. In the narrowest part of the channel where the bridge is.

Q. Well then, at what part of the bridge, right across the channel or some particular span? A. No, I would say practically from the south shore, well over toward the north shore.

Q. Well, you mean practically across the whole of the channel? A. Yes.

Q. That the current is stronger. How much stronger would you say? A. Well, I—I wouldn't be prepared to just say to the extent.

Q. Well, what do you mean by saying that it is stronger? Can't you define that in some way? A. Well, I just said as far as the average boat going down there, it makes a material difference on it.

Q. Well, how much difference? A. Well, I would say that the current was running probably a knot or two knots faster than it was before any place in the Narrows.

Q. One knot or two knots faster than it was before? A. Yes.

Q. That is before the construction of the Second Narrows bridge? A. Yes.

Q. Have you given any thought to the dredging of the First Narrows in respect of that? A. Not particularly.

Q. You haven't thought about that at all? A. No.

Q. You would think, wouldn't you, that if the First Narrows was made a deeper channel that it would have a tendency to increase the current at the Second Narrows, wouldn't you? A. I suppose it would.

Mr. Burns: That is all.

Mr. Smith: That is all.

The Court: Q. Your evidence is interesting, witness, in this way, that you are the first witness that has been heard in behalf of the so-called smaller craft. Now, I understand that you are—of course undoubtedly, as the whole community is interested, your business would be very important for transportation, therefore I am glad to hear you. Now, I understand you are operating four vessels? A. At the present time, my lord.

Q. Yes. Now, why don't you use the bascule? A. You mean, my lord, to have the bascule raised?

Q. No, with the present bascule, why don't you use—you see you have told us that you used the north span and the south span, why didn't you use the bascule span? A. We do occasionally, my lord, use that span, but we prefer to use the 300-foot span for certain reasons of our own, and because we have been asked to do that by the bridge company as much as possible.

Q. Yes, I understand that, but what I mean, is there any—your vessels being so small, I understood you to say the largest was 100 or about that? A. 110.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseJ. D. Stalker
Cross-exam.
(Contd.)

Q. 110, yes. You experienced no difficulty, did you, in using the bascule if you wanted to? A. Except on a high tide, I believe it is a bit lower than the span, my lord.

Q. Oh, I see. A. There is a foot less clearance for—

Q. For your masts? A. Yes, exactly, my lord.

Q. At high tide? A. Yes.

Q. Well now, apart from that, you have no difficulty in using the bascule for the moment if you wanted to? A. Oh, exactly—

Q. Precisely? A. One thing, my lord, is that I believe that the tide runs better through the long span than through the others. 10

Q. That may very well be, you see, but what I mean is there is no—in a ship of the small size apparently of your ships, you see—I am looking now from your point of view? A. Yes, sir.

Q. I say, as I said before, that with the increase of settlement the smaller craft are a factor, just as much as anything else, so as I say the question of this bridge, by reason of it causing obstruction to navigation does not mean something for the big ships alone, it means to all concerned? A. Exactly.

Q. So apart from what you might call the convenience of the matter, I think a very laudable idea, of not inconveniencing the bridge company unnecessarily, the only difficulty you would experience in regard to the bascule would be at high tide. You understand it is a foot lower? A. Exactly, my lord. 20

Q. You are not troubled, as I understand from what you say, with the shoal, if you are going through the bascule, the shoal that is ahead of you won't trouble you like it would big ships? A. Oh no, my lord, that is quite all right, that part.

Q. Of course, because you can manoeuvre in a short distance? A. That is right.

Q. Yes, I understand so. Now then, what is the height of your masts? A. Now, I am afraid, my lord, I can't tell you exactly that. The "Harbor Princess" is 22 feet to the top of where the mast is hinged. 30

Q. Oh, I see, where it is hinged, to the deck? A. Yes, and the mast would probably be about 18 or 20 feet above that again.

Q. Yes. Well, what I mean is, is there really any necessity for your having a high mast now. It certainly cannot be except for lights, can it? A. Well, exactly, we must carry lights—

Q. I know you must, but that is what I don't quite understand you see. You might, instead of having a hinge to your mast, all you would have to do would be for instance to cut a foot off it. What I mean is, what is the necessity for your having the mast so high? It is just looks, is it not? A. No, the— 40

Q. Well, what is the object? A. Well, you see the 22 feet I spoke of in the "Harbor Princess," that is really the top of her pilot house.

Q. Oh, I see. A. Now, you would have to have your light a certain distance above that again to show properly.

Q. Yes, quite so, you have your side lights and your mast light? A. They are on the boat deck—just at the wheel-house deck.

Q. Yes, exactly. A. Now, there would have to be a mast of such height it would have to be hinged in any case on that boat.

Q. Of course, seeing that you cannot give me the exact height you see from the water, you see, to the bridge, it is impossible to tell whether you are right on that or not. A. Well, at extreme
10 high water the top of the wheel-house would practically touch the bottom of the bridge.

Q. It would? A. Yes.

Q. I see. A. That is why we use the—if the bridge opened when we were within a couple of feet, in that case if you got on a wash you are liable to catch the bridge from underneath.

Q. Well now, then, of course that does not—as you have explained, that does not relate to the bascule. Now, tell me this, you have spoken of the difficulty you have experienced with regard to obstructions? That is to say, that before the bridge, if there
20 was any obstruction in the channel you would expect it to be buoyed or a light shown or fog signal or something of that kind? A. Exactly, my lord.

Q. Now, it has been brought out that there are no fog signals on the bridge because the Harbor Board, which has the jurisdiction over these matters, and again presumably in the interests of navigation, would permit them. But suppose that there were lights on these piers, or in the center of these piers, supposing it was illuminated in the ordinary way of any series of lights, not red or green, which are the nautical lights, but any lights you like,
30 a blue light or anything else, would that get over this difficulty? A. I think not, my lord. There should be some sound signal of same sort.

Q. You think there should be a sound signal? A. Exactly—

Q. Where would you suggest? A. Well, it would be immaterial as long as we knew what pier it was on. At the present time I believe that the bascule pier itself would be the best place to put it.

Q. Yes; well, it does seem to me, you know, that the way you have presented it, with your particular details, you see, seem
40 to me to be—perhaps with the one exception, and that exception of that white light— A. Yes, my lord.

Q. It would seem to me to be relatively simple. That is while they are appreciable, what I mean is they could be easily overcome. It seems to me more a matter of the illumination of the bridge and aids to navigation, you understand what I mean? A. Exactly.

Q. Not that I do not quite appreciate the difficulties you

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

mention, but it would seem to me that these might be, so to speak, you know, related to any bridge which had piers there of any kind. I suppose that would be so, wouldn't it? A. Well, except if there was a reasonable span.

Q. Yes. A. The spans in the bridge are narrow, that is 150 feet, and then 150 feet again, that is 150 in the south span, 150—

Q. Yes, but I was thinking of the north span which is apparently a very long one? A. Of course that is very difficult to navigate in fog, because if you are going over on that side you will get on the poor water on the south shore. 10

Q. Precisely. I understand that, but that is owing to the natural configuration of the ground apart from the bridge? A. Yes.

Q. Even before the bridge you did not resort to that unless you had to? A. No, my lord.

Q. Even before that you hugged the south shore? A. The point I am trying to make clear, my lord, is if it was wider—I am speaking now of the piers.

Q. Oh, yes. A. That if we had a wider space between the south pier, the fifth pier and the one on the north of the bascule pier, where instead of having just 150 feet to go through it would give us so much wider space, we would have a much better chance of getting through there. 20

Q. I see what you mean, you mean taking the south span—if the south span were wider? You are not thinking of the bascule at all, but if the south span were wider it would help you? A. Exactly, if it were perhaps twice the width it is. It is very difficult to get through this narrow space in foggy weather, even with a small boat. 30

Q. Well, the trouble seems to be fog particularly, that is what I am trying to get at. Your main trouble is relief from fog? A. That is part of our difficulty, my lord.

Q. But I mean it really is the most substantial, is it not? A. That is perhaps the most serious in our case.

Q. Yes, and it does seem to me that there is a great deal in what you say, that fog is very serious where you have piers in a bridge, and I was speculating just for the moment as to how that could be removed, because that is a very large question. So you think then that lights upon the bridge would not assist you? A. No, not to any extent. 40

Q. But if you had, for instance, a fog signal, would you suggest that it should be at the bascule piers 3 or 4 or at the south—pier No. 5? A. I think it would be better on No. 4, my lord.

Q. Where do you suggest this obstruction to navigation should be put? A. I would say—

Q. You see, looking at the bascule pier, there are two to—

gether, 3 and 4? A. Exactly, I would suggest here, running—that is going from—

Q. You say what you mean by "here." A. Pier 5 there.

Q. On pier 5? A. You are getting very close to shore.

Q. I should think so, too, but I wish you to make the observation. You think the proper place for a fog signal so it would possibly assist you should be at Pier 5? A. No, pardon me, my lord, on Pier 4, with the other—Pier 5 is the shore pier.

10 Q. Oh, I see. A. Now, we would be getting too close on shore.

Q. Too close, yes. A. If the fog signal were here.

Q. That is on Pier 4? A. On No. 4 pier.

Q. Yes. A. It would give us a channel on either side.

The Court: Yes, that seems very sensible. Thank you.

Mr. Burns: May I ask the witness, a question, my lord?

The Court: Yes.

Mr. Burns: With reference to what your lordship was asking him.

20 Q. Did you make any complaint to Ottawa, witness, with reference to the using of a fog signal—sound signal on the bridge by the company? A. Now, if I remember correctly there was something done about the Shipping Bureau of the Board of Trade, and there was an agreement made about the fog horn on the bridge, and then after that fog horn was put on there, for some reason it was discontinued.

Q. Well, what I was asking you, did you take it up with Ottawa, that the company was using a fog horn improperly on the bridge? A. No.

30 Q. You did not make any complaint yourself? A. No.

Q. Were you a party to that complaint being made? A. No; the only thing that I had anything to do with, as I say, was through the Shipping Bureau of the Board of Trade.

Q. Mr. Stalker, I was asking you—

The Court: Turn this way.

Mr. Burns: Pardon me, my lord.

Q. —along that direction, it was along that direction? A. As far as I know, the fog signal placed on the bridge in the first place was concerned.

40 Q. No, but I mean the fog signal was there, and then complaint was made to Ottawa. Do you know of this, that the bridge company was using this fog horn improperly, because they were not—they hadn't the authority to use it. Did you know that? A. I understood something in connection with that.

Q. Yes; well, you were a party to that, were you not? A. That they were using it improperly?

Q. Yes. A. No.

Q. Without authority? A. No.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

J. D. Stalker
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseJ. D. Stalker
Cross-exam.
(Contd.)

Q. It was after that complaint then that they were prohibited using it, was it not? A. I believe it was something of that sort that stopped it.

Q. But you didn't have any part in that? A. No.

The Court: Do you wish to ask him?

Mr. Smith: No, my lord, thank you.
(Witness aside.)

Mr. Smith: Mr. Hermon.

J. W. Hermon
Recalled
Direct.

JAMES WILLIAM HERMON, Recalled, testified further as follows: 10

The Registrar: You are already under oath in this matter, Mr. Hermon? He was the second witness called, my lord.

DIRECT EXAMINATION BY MR. SMITH:

Q. You have already told us that you live here and that you were a land surveyor in Vancouver, Mr. Hermon? A. Yes.

Mr. Donaghy: My lord, my friend called this witness in the early stages in his defence, and he was cross-examined, and I object to him now being called for further examination. He should have exhausted him at the start.

The Court: Are you recalling him? 20

Mr. Smith: Yes, I wish your lordship's permission to recall him on one point of his evidence which was overlooked at the time, my lord. I just want to ask a date from him as a matter of fact. He gave evidence your lordship will remember the last time, that he had made a survey and I omitted to ask him just what date that was, when he made the survey.

Mr. Donaghy: Well, if that is all.

The Court: Oh, you may go on.

Mr. Smith: Well, you will see, my lord.

The Court: Yes. 30

Mr. Smith: Q. You remember, Mr. Hermon, making a survey of the bridge? A. I do.

Q. Yes, and you made it at that time, I think with Mr. Donald Cameron? A. Yes.

Q. And the effect of that survey is as shown on Exhibit 17. Do you remember what Exhibit 17 was? A. Not off hand; it was the—

Q. Perhaps I had better find it for you. You remember this result of the survey of the locality made by you and Mr. Cameron. (Handing plan to witness.) A. Yes, that is so. 40

Q. And you carried out that survey at what date? A. November 18th and 19th, 1924.

Q. Yes, and then subsequently you made another survey that is shown on Exhibit 19.

Mr. Smith: No, that is Exhibit 18, Mr. Registrar.

Q. Exhibit 18, witness, you remember making that survey. (Handing plan to witness.) A. Yes, I remember.

Q. What date did you make that one? A. February 12th 1925.

Q. February, 1925. So that the first survey was made November, 1924, and your second in February, 1925? A. Yes.

Q. And the first survey is as set out in Exhibit 17, and the second in Exhibit 18? A. Yes.

10 Q. Now, when you made the first survey in November, 1924, do you remember if the rock fill was being built or had they commenced building it just? A. No, I don't remember that they had commenced it, I don't remember any rock fill there at that time at all.

Q. There was no rock fill there?

Mr. Donaghy: No, he says he doesn't remember.

Mr. Smith: Q. When you returned in February, 1925, was the rock fill there then? A. Yes, it was there practically in the same form as it is today.

20 Mr. Smith: That is all.

Mr. Donaghy: No questions.

Mr. Smith: Q. Just one question more, Mr. Hermon. In February, 1925, was the state of construction as is shown on this plan, namely these piers being in place? A. Yes.

Q. That is Exhibit 18, I refer to Exhibit 18. That was the state of construction in February, 1925? A. Yes, everything that was there at that time is shown on this plan.

The Court: That is Number 18.

30 Mr. Smith: Number 18, my lord, yes. All right, thank you. (Witness aside.)

Mr. Griffin: I will ask my friend to produce a letter which I would like to put in, a letter of Messrs. Burns & Walkem to Mr. St. Laurent, Chief Engineer of the Public Works Department, 22nd January, 1923. Just shortly to explain what it is, it is a letter of application forwarding the plans for approval.

Mr. Donaghy: You can use that.

Mr. Griffin: I put in certified copy.

The Court: What is that you are putting in?

40 Mr. Griffin: Letter from Messrs. Burns & Walkem to Mr. St. Laurent, Chief Engineer of the Public Works Department forwarding the plans.

The Court: 22nd January, 1922.

Mr. Griffin: 1923.

The Court: 1923.

Mr. Griffin: Forwarding the plans for approval under the Railway Act, and also a telegram of the 16th of February I am putting in this too. The first one will be Exhibit Number—

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

J. W. Hermon
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.

The Registrar: Exhibit 37, my lord.

(DOCUMENT MARKED EXHIBIT No. 37.)

Mr. Griffin: And a further one, being a telegram from Messrs. Burns and Walkem to the Secretary of the Public Works Department, 16th February, 1923.

The Registrar: Exhibit 38.

(DOCUMENT MARKED EXHIBIT No. 38.)

The Court: That is 38, Mr. Registrar, is it?

The Registrar: 38, my lord, yes.

Mr. Griffin: I put in Notice to Mariners number 80 of 1925. 10

The Court: Number 80 of 1925?

Mr. Griffin: Yes, my lord. The only passage I wish to call attention to is a short one as to duration of slack water: "The duration of slack water at both high and low water is brief and is ten minutes on the average.

(DOCUMENT MARKED EXHIBIT No. 39.)

Mr. Griffin: I asked my friend to produce a letter of the Plaintiff Company to the Vancouver Harbour Commissioners 27th June, 1923.

Mr. Donaghy: Did you give us notice to produce. 20

Mr. Griffin: I haven't given you notice about that particular one perhaps—I thought I did. My friend tells me he gave you notice to produce.

Mr. Burns: I haven't got it. What is it about.

Mr. Griffin: It speaks of the applications to the Railway Commissioners, and P. C. 718.

Mr. Donaghy: Let us see the copy and perhaps we will put that in.

Mr. Griffin: Covered by the notice to produce.

Mr. Burns: It isn't really from Burns & Walkem. 30

Mr. Griffin: Oh, I say Burns & Walkem—the Plaintiffs, I said, I think.

Mr. Burns: Oh, yes.

Mr. Griffin: I put in this copy with my friend's consent.

Mr. Donaghy: Yes.

Mr. Griffin: Addressed to the Vancouver Harbour Commissioners. (Reading.)

(DOCUMENT MARKED EXHIBIT No. 40.)

Mr. Griffin: The other parts of the letter I don't think are of any special importance, my lord, but they can be read if any- 40
 thing turns on them.

I tender two photographs of the bridge. One of them is made by Mr. Leonard Frank and the other is an air photograph taken by one of the Airway Companies, and I haven't examined the takers of them to prove them, but of course they are available and can be; but it seems to me that my friends could readily dispense with the calling of the photographer.

RECORD
British Columbia
Admiralty Dist.
Proceedings at
Trial.
(Contd.)

Mr. Donaghy: That is all right.

Mr. Griffin: I would ask your lordship's attention to this one first.

10 The Court: 41 and 42.

Mr. Griffin: 41 will be the one taken by Mr. Frank.

(DOCUMENT MARKED EXHIBIT No. 41.)

Mr. Griffin: And 42 the air photograph.

(DOCUMENT MARKED EXHIBIT No. 42.)

Mr. Griffin: I would ask your lordship's attention to this in connection with the fill, as I think that shows it quite graphically.

Mr. Burns: The comment I might make, my lord is that a photograph might appear taken from the north shore as well as
20 the south shore—of course these photographs mean anything on the point from which they are taken.

The Court: I understand, of course, this is just to give a general idea.

Mr. Burns: Oh, yes, but taken from the south shore makes it appear somewhat nearer the south shore, that is all, as a matter of comment.

The Court: Oh, yes.

Mr. Griffin: Very well, in order to oblige my friend, I have one taken from the north shore—there are both shores now.

30 (DOCUMENT MARKED EXHIBIT No. 43.)

Mr. Griffin: If your lordship pleases, we do not—

The Court: Just one moment.

Mr. Griffin: My friend will perhaps let me have those accident reports that were produced in the affidavit.

Mr. Donaghy: Just while we are getting them you might go on.

Mr. Griffin: My friend who is with me says there may be some doubt as to whether all the contracts which were referred to this morning have been put in evidence. I myself did not note
40 that. The learned Registrar will make it plain. We must get them all in.

The Registrar: There is only one put in, Exhibit 35.

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

Mr. Griffin: Better to all go in evidence when one is in, I think, my lord. I have extracted parts out of them, but I suppose they had better go in pro forma. Then I will put in one of the 26th September, 1922—Exhibit 44.

The Court: A contract of what date, Mr. Registrar?

The Registrar: 26th September, 1922.

The Court: Yes.

The Registrar: That is between the Burrard Inlet Tunnel & Bridge Company and the Northern Construction.

The Court: That is 44.

10

(DOCUMENT MARKED EXHIBIT No. 44.)

Mr. Griffin: Then the one of the 20th February, 1925—

Mr. Donaghy: Isn't that a draft.

Mr. Griffin: No, it is one that was marked by Mr. Swan. We have had that one. It is subject, of course, to my friend's finding—

Mr. Donaghy: You see that is obviously a draft. There are three copies of that signed, and that must be a draft.

Mr. Griffin: There is one that has Mr. Swan's name on it.

Mr. Donaghy: Just a lead pencil mark.

20

Mr. Griffin: Yes, but identifying it.

Mr. Donaghy: Yes, there it is—that is not a signature.

Mr. Griffin: Wait until you get my point. It was put in this morning, identified by Mr. Swan, and shown to have been signed. It was put in subject to my friend's showing when he makes his presentation it is not the original. If so, of course, naturally, it comes to nothing. The witness, Mr. Swan, agreed that it had been signed, and it was put in subject to it being shown to be an incorrect copy.

The Court: Yes, it is a draft as it is now.

30

Mr. Donaghy: Yes, my lord.

Mr. Griffin: It is only a draft as it is now, or a copy—one or the other.

(DOCUMENT MARKED EXHIBIT No. 45.)

Mr. Griffin: 26th September. There is the 1st February, 1923, my friend has not produced that yet. That was to be searched for. Did you find that since luncheon.

Mr. Donaghy: No.

Mr. Griffin: Now, the 5th of March, 1924, that was to be found. No, that is in.

40

Mr. Donaghy: It is in, is it?

Mr. Griffin: Yes.

Mr. Donaghy: All right.

Mr. Griffin: Yes, that seems to be four.

The Registrar: There are only three in.

Mr. Griffin: Yes, as far as appears.

Mr. Burns: As far as the accident reports are concerned, I am quite content to have them go in as part of my friend's case, but we have them segregated in connection with each witness' evidence, the operators of the bridge, and to put them all in and take them away from their segregation would lead to quite a lot of trouble. Now, they are in my friend's case, and it can be understood that his case includes them.

10 The Court: A little louder, please, Mr. Burns.

Mr. Burns: I say the accident reports we have, they are all segregated according to each witness that we propose to call, and to take them and put them all in will make quite a bit of confusion in connection with our case, and my suggestion is, subject to your lordship's idea, that they can be considered in as part of my friend's case, but that we will still keep them in a segregated condition and give them to the court as the witnesses are called.

The Court: Just as counsel think is most convenient.

20 Mr. Griffin: Of course I don't think my friend can call any more witnesses, my lord, on this point, so we are putting them in, but for convenience I will put them in in scraps as he has got them segregated, and they can be marked in that form.

Mr. Burns: We had better mark them then.

The Court: Whatever you decide is most convenient.

Mr. Griffin: I will put them in in groups so that you would not have them mixed up.

Mr. Donaghy: This is one set, if you could have these fastened so they won't get separated, because one witness will deal with these perhaps.

30 Mr. Griffin: I had better count these—a bundle of 25 of the Plaintiff Company's accident reports.

Mr. Burns: There is the next one. That is just one single one. (Producing document.)

Mr. Griffin: One single accident report under date 24th August, 1926.

Mr. Burns: There is the next one. (Producing documents.)

Mr. Griffin: A bundle of thirteen accident reports. Is that the lot?

40 Mr. Burns: No, there are more there. I understand now that amongst these we have, there are some reports that are not accidents.

Mr. Griffin: Well, I thought they were the ones produced and shown to us and examined. So they will have to be inspected then. What are they besides that, Mr. Burns?

Mr. Burns: I don't know.

Mr. Griffin: Because they were inspected by the solicitors in the case, and we must take care that they are the same ones.

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

Mr. Burns: Well, I say put them in as we have started anyway, we can work it out. There is the next bundle.

Mr. Griffin: I think if your lordship pleases I had better allow this matter to stand down until these have been inspected, because they were produced by my friend and inspected by myself and my friend, and returned, and they have added to them now, and we may have got a different lot to what we looked at.

The Court: Yes.

Mr. Griffin: And I am going to ask your lordship now to allow the case to stand over until Monday so as to give us an opportunity to consider the expert testimony with our own experts. The position being, that if witnesses had been called—if Mr. Swan had been called in due course with the Plaintiff's testimony in the ordinary way, we would have had several days probably for calling our testimony on navigation during which we could have got ourselves properly prepared. On the contrary, as he was held up until the last moment we have not had that opportunity and have not had a chance to consult with our advisers. And in the same way the plans and documents only arrived on the very day of the trial opening, although a certain number of them were shown to us before, some were not. Under these circumstances, having now one hour to run, I would ask your lordship considering adjourning until Monday morning.

The Court: Have you any objection?

Mr. Donaghy: I have, my lord. Mr. Swan informs me that he has a pressing engagement that calls him to the east.

Mr. Griffin: I would like to interrupt my friend by saying there would be no chance of finishing tonight. It could not be done. I would not make such a request if we could finish, anyway.

Mr. Donaghy: Of course, if that is the case, if you would not finish in time to call Mr. Swan tonight it doesn't do any harm.

The Court: Mr. Swan will have to be here on Monday in any event.

Mr. Griffin: Yes, in any event.

The Court: Well, it seems simply a natural thing that Mr. Griffin is asking. He has certainly had a great number of plans and that sort of thing to consider and on very short notice, and it seems a very reasonable request therefore, Mr. Registrar, we will adjourn until Monday.

The Registrar: My lord, will these accident reports be deleted?

Mr. Griffin: My friends have agreed to segregate them in the proper order.

The Court: You will be able to tell so the Registrar will know on Monday?

Mr. Griffin: Yes, my lord.

The Registrar: I will strike them off the record now, my lord.

The Court: Oh, yes.

(COURT THEREUPON ADJOURNED AT 3.30 P.M. UNTIL DECEMBER 3rd, 1928, at 10.30 A.M.)

RECORD
British Columbia
Admiralty Dist.
Proceedings at
Trial.
(Contd.)

Vancouver, B. C., December 3rd, 1928, 10.30 a.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

Mr. Griffin: We discovered, my lord, that one of the contracts that was handed in and is on your lordship's desk was not marked as an exhibit. That is the contract dated?

The Registrar: The 25th of July, 1923.

Mr. Griffin: It is between the Plaintiff and the contractors. That will be Exhibit No. 40 something.

The Registrar: It will be Exhibit No. 46.

(CONTRACT REFERRED TO MARKED EXHIBIT No. 46.)

Mr. Griffin: I will call Mr. Muckleston.

HUGH MUCKLESTON, a witness on behalf of the Defendant, being first duly sworn, testified as follows:

Defendant's
Case

20 DIRECT EXAMINATION BY MR. GRIFFIN:

H. Muckleston
Direct.

Q. You are a civil engineer practising your profession in the City of Vancouver? A. Yes.

Q. And you have how many years experience in that practice? A. Thirty-five.

Q. Have you given consideration to the particular study of hydraulics? A. Yes, about twenty-seven years experience.

Q. Are you familiar with the Second Narrows Bridge? A. Yes.

30 Q. Have you been in court during the taking of the evidence? A. Yes.

Q. I would ask you to state in what respect this bridge affects the navigation of the Second Narrows? A. It restricts the available width for small height vessel to the 300 foot span and the bascule, and there might be some occasions that small height vessels could use the span immediately north of the 300 foot span, and some of them might use the span immediately south of the bascule. Vessels with high masts can only use the bascule and before the bridge was built all vessels had the uninterrupted width of the channel.

40 Q. In any other respect? A. It restricts the vertical clear-

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 H. Muckleston
 Direct.
 (Contd.)

ance in the same way. It forces any large ship which has to use the bascule to cross the channel twice and violate the rules of the road twice and also to cross the currents, whatever they may be, twice.

Q. That would be going west? A. Westbound, yes.

Q. Then how about the position with regard to traffic passing through the 300-foot span, small boat traffic? A. Small boat traffic passing through the 300-foot span is interfered with by any opposing traffic crossing the channel north to south.

Q. Have you any other suggestions to make? A. The piers 10 affects the currents in the Narrows, whatever they may be. In addition to the actual physical obstruction which the piers cause they create all sorts of local currents. There is a cluster of piers under the bascule which affect the currents very materially and there is a rock fill at the south end of the bridge which creates a cross-current to northward and which—

Q. The cluster piers are those 3, 4 and 4-A, I take it? A. Yes, 3, 4 and 4-A.

Q. Might I also invite your attention while looking at the plan, Exhibit 41 to a photograph which shows it in a different 20 form.

The Court: Yes.

Mr. Griffin: Now, what effect has the reduction of the cross-section area on the actual velocity of the current? A. It increases the velocity over what it would be were the bridge not there. The pier themselves offer an actual obstruction and the eddies they create are quite as effective as a solid obstruction.

Q. In other words, is it possible to formulate a statement as to the extent to which the piers form an effective obstructive 30 beyond their actual breadth in the surface? A. Only by imagination. The piers themselves at low water, the piers and the fill together at low water offer an obstruction which is about 10 per cent. of the total area of the cross-section, but the effect of the obstruction probably would not be far from 12 per cent.

The Court: Not far from what? A. 12 per cent., my lord.

Mr. Griffin: Q. Take conditions at high water? A. The cluster of piers, 3, 4 and 4-A are more effective at high water than low water and the rock fill is much more effective. In addition to that the whole of the trestle on the north shore is effective at high water and not at low and I believe the effect of the obstruction 40 at high water is not far from 15 per cent.

Q. Now, you spoke of this rock fill at the south end and its effect upon the current. Could you explain that a little more fully how or why it would affect the direction of the tidal current? A. Before the fill was there the tidal current had an uninterrupted sweep along the shore. Now, that the fill is there that portion of

the current must of necessity be deflected to the north, whichever way the tide is running.

Q. At what period of the tide in your opinion would this northerly tendency be most noticeable? A. It would be most noticeable on low water, at the beginning of the flood, but it would be felt all through both tides.

Q. Have you yourself visited the site? A. Oh, yes, on many occasions.

10 Q. Is the existence of this cross-current within your personal knowledge? A. I have noticed it.

Q. How far over to the northward in your opinion would the influence of such a cross-current be felt? A. Under the worst conditions it might be felt quite a bit to the north of the pier No. 2.

Q. That is directly across the whole of the bascule span? A. Oh, yes, and beyond.

20 Q. Now, does the configuration of the shore itself and apart from the bridge construction lead you to any conclusion in regard to the possibility of a tidal current eastward at or about the present position of this fill, and if so explain that? A. Tidal current eastward?

30 Q. Any tidal current which might flow eastward along the shore. I want to get in other words a statement from you as to the effect of the general configuration of the shore of the harbour apart from the bridge construction as indicated, and as to the possibilities of eddies at that point? A. I would expect at the beginning of the flood tide that a cross-current would be set up from south to north under practically all conditions of the tide except during a long slack, or practically long slack. The low water in the harbour according to the tide table is about thirteen minutes before low water slack in the Second Narrows, and low water in the harbour may be anywhere from two minutes to twenty-three or twenty-four minutes before low water slack in the First Narrows. The consequence is that at a certain period, about the turn of the tide there is actually being poured more water from the east into the harbour than is being discharged at the west and under such conditions the harbour being actually filled from the two ends under either conditions I would expect to find large scale circular movements in the east end of the harbour in a counter clock-wise direction. As the harbour began to fill up that circularization or eddying, I would expect to find that moving eastward and passing through the Narrows and eventually disappearing about somewhere at the entrance of the North Arm. As none of the eddies reach the Second Narrows it shows as the north current, the current setting towards the north and as it passed on it shows as an eastward set on the south shore and a westward set on the north shore, and if the effect is massed by the tide, being

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followed by the second cross-current from north to south—but I don't believe that second cross-current would be noticeable.

Q. Is there anything to guide one in forming an opinion as to whether that cross-current would necessarily be visible on the surface at all stages of the tide? A. It would only be visible on the surface immediately at its inception. As soon as the tidal flow is established to any degree at all eastward that cross-current shows a tendency to dive under the main current.

Q. What in your opinion would be the general direction and method of the flow of the flood tide in the Second Narrows in view of the configuration of the bottom and side? A. The channel is more or less V-shaped and under such conditions the current almost invariably flows in a spiral direction, turning outward at the surface and inward at the bottom and any cross-current established would show a tendency to go down underneath the main current. 10

Q. I want you to take Exhibit 17. Would you please find a position in the exact centre of the bascule draw? A. Pardon?

Q. Would you please fix a position in the exact centre of the bascule draw? A. Have you a piece of white paper. I have the measuring device, but it does not show very well unless I have some white paper with it. 20

Q. I have some white paper. Have you marked that position? A. Yes, by a short red line across the centre of the bridge.

Q. I would ask, subject to your lordship's direction, that that be marked "X." A. (Witness thereupon marks.)

Q. I wish you would draw a line eastward, in a general eastward direction 350 feet long and 5 degrees north of a line that would be at right angles to the bridge? A. You mean a line at right angles and another five degrees north? 30

Q. No, I want it five degrees north of right angle and a distance of 350 feet.

The Court: This is 350.

Mr. Griffin: 350 feet in length and at an angle of five degrees northerly? A. How much north?

Q. Five degrees eastward I want to go? A. I have gone 350 feet east and you want—

Q. Five degrees north. That is all right. Mark that with the letter "Y." A. That is "Y," the line five degrees north.

Q. That is what I am asking. No, that is not what I am asking. I want you to put the point "Y" at a distance of 350 feet east of the bridge? A. Yes. (Marks.) 40

Q. Now, that at the five degree angle, how far is that point "Y" from the 5 fathom line? A. About 170 feet.

Q. Which is the 5 fathom line that you have taken? A. This (Indicating).

Q. That is not the five fathom line. Here is "Y". This is

the five fathom line here, 5.3 fathoms, you see. A. Correct, about 100 feet.

Q. Now, then, for the purposes of the record how far from that 5 fathom line would a ship, a ship 56 feet broad be when her bow reached that point? A. About 72 feet.

The Court: Q. What point have you suggested where the point 350 feet— A. I have marked that point "Y".

Q. 350 feet at the point "Y"? A. And—

Q. Wait now. Now, then, you say that when a ship what
10 length reaches that point she is how far from—you need not show me, just turn around and say it plainly so that the stenographer can get it in the notes. You are looking at Exhibit 17, and you say what? A. I drew a line from the centre of the bascule span 350 feet eastward and making an angle with the centre line of the bridge of five degrees.

Q. Yes? A. And I have marked that point "Y".

Q. That is at the end of the 350 feet you mark the point "Y"? A. Yes.

The Court: Now, Mr. Griffin, we have him there, what is the
20 next?

Mr. Griffin: The only two other questions I put are how far is that from the five fathom line and he says 100 feet.

The Court: Which is how many feet from the five fathom line? A. 100 feet, my lord.

Q. Yes, I have that.

Mr. Griffin: Then as a mere matter of conclusion a ship of 56 feet width would have her starboard line within 72 feet of the five fathom line?

The Court: What is that?

Mr. Griffin: Would have her starboard side within 72 feet of
30 the five fathom line.

Mr. Burns: Q. That is going east.

Mr. Griffin: It does not matter which way the ship is going, the line is going east.

Mr. Burns: It does matter whether it is the starboard or port side. You said the starboard side.

Mr. Griffin: Quite correct.

Q. Now, I think I forgot this question about the other topic.

The Court: Q. You said the starboard side would be 72
40 feet. What did you say? A. 72 feet, my lord.

Mr. Griffin: Q. One question about the other topic. You spoke of this eastward eddy and the current through the Narrows and I intended to ask you, assuming that condition to exist, what effect is there upon it being created by the fill? A. It would make the northerly setting current very much more pronounced.

Q. Would such a cross-current be constant in direction, location and magnitude? A. No, it would vary in every change of

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condition of the current and wind and any of a dozen different conditions which might be variable.

Q. I would like the registrar to give you Exhibit 2. (Exhibit 2 produced.)

Q. Comparing that plan, Exhibit 2, with the bridge as actually built, do they correspond? A. No.

Q. In what respect does the bridge as built differ from the bridge as there shown? A. The bridge is five feet higher throughout as built than as shown on Exhibit 2. It contains two more spans each of which is 150 feet long at the north end and one span— 10

The Court: Wait now. Yes. At present it is higher by 5 feet. What is the other difference? A. There are two spans at the north end each of which is 150 feet long.

Q. You are telling the difference. You mean that the present bridge has the spans different from that? A. Yes.

Mr. Griffin: It has two new ones, two extra ones not shown in the plan.

The Court: That is what I mean, he did not say so. You put it better, Mr. Griffin. 20

Mr. Griffin: Q. On the north side 150 feet, with how many piers? A. Two extra piers on the north end.

Q. On the south end.

The Court: For each, two piers each.

A. No, two extra piers.

Q. Two extra spans, two piers to set them on? A. Yes.

Q. Any other difference? A. At the south end there is one, 150-foot span and two additional piers.

Mr. Griffin: Those are pier numbers— A. 4-A and 5. On the other plan. I have not got the other one here. 30

Q. 4-A and 5 on the other plan. All right. A. There is also a rock fill existing in the present bridge as built which is not clearly shown on Exhibit 2.

The Court: Q. What did you say there was not clearly shown? A. Not clearly shown on Exhibit 2.

Mr. Griffin: Q. The character of the piers? A. The design of piers Nos. 2, 3 and 4 is of a radically different kind. In addition to that the design of the actual bascule truss is not the same.

The Court: The design of what? 40

A. The design of the actual bascule truss is not the same.

Mr. Griffin: Q. Now, I would like you to state whether these alterations are variations of the original design or are they changes in the details? A. I consider they are all variations in the original design.

Q. Now, I would like the learned registrar to give you Exhibit 18. You can have any other exhibits you wish. How far

does the rock fill on the south end of the bridge extend north horizontally from original high water mark?

The Court: What exhibit are you looking at now?

Mr. Griffin: Exhibit 18.

A. This is not very clear as to where the high water mark is. It is hardly printed at all and is very faint. I can draw it.

Q. I would not put anything on the plan if you do not need to. Oh, yes, if you have to you must run it out. I see. You are going to run that out; run that out? A. Do you want low water
10 mark, too?

Q. Yes, I want low water mark, too? A. That is not a very good plan.

Q. Would this one make it easier? A. That is a better one.

Q. That would help. That is Exhibit 27? A. Exhibit 27, yes.

Q. How far— A. What was the question?

Q. How far does the rock fill extend northerly from high water mark in a horizontal line? A. 260 feet on this.

The Court: Q. You said that the rock fill extends northerly
20 from the high water mark 260 feet? A. Yes, my lord.

Mr. Griffin: Q. From low water mark how many feet? A. 77 feet.

Q. Now, does your personal inspection of the ground, so far as it enables you to tell, does it confirm those figures? A. As near as it is possible to confirm it.

Q. Does this fill to the horizontal extent mentioned in the two questions, that is 260 feet high water and 77 at low water constitute an obstruction to the flow of the tide? A. Yes.

Q. At ordinary low water how deep is the water against this
30 fill measuring vertically from a point on the top of the northerly slope of the fill? A. About eight feet.

Q. And measuring, if you did measure it vertically at the toe of the slope.

The Court: At high water mark.

Mr. Griffin: At low water mark, at ordinary low water mark.

The Court: Q. Just repeat that until I see what your point was? A. Eight feet.

Q. From what point are you taking the top of the fill? A. Not from high water, from low water mark on the face of the fill
40 down to the original bottom of the channel at that point is about eight feet.

Mr. Griffin: Q. And measuring vertically from a place which would be at the northerly end of the slope and ten feet if measured vertically from the toe—

Mr. Donaghy: What is the difference between 8 and 10?

Mr. Griffin: One is taking the toe of the slope in the measure-

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ment vertically and the other is from the top of the fill measuring vertically.

A. There is ten feet of water over the toe of the fill at low water.

The Court: Ten feet over the toe. That is ordinary low water.

A. Low water is given on the exhibit.

Q. On that plan? A. Yes, my lord.

Mr. Griffin: Q. Now, I want you to direct your attention to exhibit 2 which contains a plan and profile and direct your attention first—I am directing the witness' attention to Exhibit No. 2 10 again and particularly to the point marked in red with the figure 2 by the witness A. D. Swan. Does this plan indicate the existence; indicate that a fill is contemplated by that exhibit? A. I see no indication on the plan of any fill.

Q. What is the white line to which reference was made by Mr. Swan? A. Apparently that is the boundary of the road as extending from somewhere up Cariboo Street right across the same line going right across the bridge.

Q. If the fill had been called for how would it have been shown in the ordinary course? A. It would have extended some 20 40 feet outside of that line and would have been taken from practically zero at the edge of the C. P. R. bank out to something like 40 feet at the extreme outer edge.

Q. But at the point marked 2, how far outside the line of the roadway would such a fill if it existed show? A. About 33 feet.

Q. Does it in fact—what fill is there in fact outside the limit of that roadway at that very point? A. About twelve feet.

Q. What would be the right way to indicate if it was to be built? A. In order to make it clear the slope of the fill would be shown as a hatched surface. 30

Q. Is there any other way of showing it? A. On a plan?

Q. Yes? A. Not on a plan, but indicating on a sketch by cross hatching or some conventional sign.

Q. What about the use of words. I observe on many of these plans the word 'fill'? A. The fact that a fill is usually noted as a fill, either gravel fill or rock fill.

Q. Turning your attention to the profile, does the profile clearly indicate that any fill is in contemplation? A. There is a diagonal line marked and outlined in red.

The Court: Q. What are you looking at now? A. At ex- 40 hibit 2, at the part marked in red.

Q. Oh, yes, exhibit 2, the point marked 1 in red? A. There is a diagonal line marked in red and marked 1 which might indicate a fill if there were any other evidence on the plan to back it up. There is another diagonal line farther in which might also be taken to be a fill. Do you want to mark that one?

Mr. Griffin: Q. Yes, it might as well be marked. Wait until his lordship rules. Will we mark that with a yellow pencil?

The Court: Yes.

A. Yes, which I have outlined in yellow and marked 3 which might also indicate a fill.

Mr. Griffin: Q. Giving the consideration to the two documents now, what considerations are there in an engineer's mind in reading that plan to enable him to decide whether those lines do or do not indicate a proposed fill? A. The lack of correspondence

10 between the two would throw some doubt as to what that or either of those lines was intended to indicate. There might be a fill, but there is no evidence on the plan to show that a fill is intended there.

Q. Does the absence of other indications on the plan negative the existence of any fill? A. I should think it would.

Q. Supposing however—we will turn to a suppositious case, let us suppose the diagonal mark indicates a fill, what would be the extent, the height, and so on and the erection? A. It varies. Where would I measure the height?

Q. I only want to get it in general, just a contract with the

20 general facts. Mr. Donaghy: He ought to know? A. About 30 feet at the maximum.

Mr. Griffin: Can you give an average so that we will not be confused by the maximum. There might be a minimum of one. Give it generally as an average? A. About 22, an average.

The Court: Q. What is 22 on an average? A. The height of this fill.

Mr. Griffin: The height of any fill which that white line calls for, if it calls for anything at all would be a fill 22 feet high. Now, assuming again this diagonal line does indicate the end of an

30 embankment of any kind, what is its northerly limits? A. Low water mark?

Q. Have you seen the fill as actually built? A. Yes.

Q. Does it resemble in any way the one which has been deposited to as shown on exhibit 2?

A. No, it is very much longer, and nothing like as high and is very much wider than anything this plan would show.

Q. How much longer is it? A. It goes out to about Pier No. 5, say it went out 75 feet further.

40 Q. As to height? A. It is only a matter of four feet above high water mark instead of about 20 or 22 as this one shows.

Q. So it is less in height by 17 feet? That would be the difference in height? A. About 18 feet lower.

Q. And considerable difference in the depth? A. It is very much wider than anything that can be shown on this plan.

Q. Now, I observe that the highway trestle as indicated on exhibit 2 is founded upon a dash line which is supposed to repre-

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sent what? A. I take it that that dash line is the profile of the actual surface of the ground underneath the roadway as it was when the survey was made and that it represents the old beach which lies just below the embankment of the railway and the trestle is apparently founded upon the beach, but there is no indication on the plan as to whether any piles were to be driven or not.

The Court: Now, you are directing attention to what exactly?

Mr. Griffin: To this fill, my lord, which is to the south of the 10 words "No. 3."

The Court: Q. Now, you say you are directing attention to what? A. A dash line which I take—

Q. Yes, that is from the south of the yellow line? A. South from the yellow line almost to the railway track which I take to be the surface of the ground as it was when this survey was made immediately under the centre line of the highway.

Mr. Griffin: Q. Therefore, that profile indicates an intention to build the roadway trestle upon the surface of the ground as it then existed? A. Yes. 20

The Court: As what?

Mr. Griffin: Q. As it then existed? As it then was. Do you find the highway trestle as actually built, rests upon the fill, as actually built? A. Yes.

Q. Is there any other valuable conclusion to be drawn from the legs and supporting cross braces in that trestle as read from the plan? A. I take it that is the way the cross bracing is shown on this profile and the way the legs of the trestle are shown, that there was no intention at that time to build any fill, at any rate, not under the roadway. 30

Q. And on the ground today do you find one? A. The fill extends under the highway right back as far as the junction with the railway bank.

Q. Now, I want to direct your attention to a totally new topic. Is a high level bridge at the point where this one was built giving an unobstructed channel for the full width beyond the five fathom line feasible? A. Yes.

Q. Can you suggest any other kind of bridge which might have been designed and constructed—

The Court: Excuse me, you are reading, and when you are 40 reading you are speaking down and it is hard to follow you.

Mr. Griffin: Yes, I am reading these questions from some notes that I have.

The Court: I notice that.

Mr. Griffin: Q. Could any other kind of bridge have been designed and constructed which would not impede navigation at this point at all, or impede it less than the present bridge does.

If so suggest an alternative design of that kind? A. A bridge could be built at that point which would include a vertical lift span set where the 300 foot fixed span now is.

Q. I show you for consideration exhibit 33 being the plan prepared by Messrs. Waddell & Harrington. Is that the type of bridge to which you are referring? A. Yes.

Q. Assuming as we have from the evidence that the cost of the present bridge was \$1,718,000 or more could a bridge of the design such as shown in exhibit 33 have been built for a cost not unreasonably greater? A. Mr. Griffin, this bridge plan submitted by other counsel has a far greater carrying capacity than the present one and is not comparable at all.

Q. I forgot, this bridge carries two railway lines— A. And two double sections of water pipe.

Q. Could a bridge of the lift type with piers substantially in those places be built of the kind of construction more comparable to the present one and carry one line of rails and no water pipe; could that have been constructed for a price not unreasonably greater than \$1,718,000? A. Yes.

20 Q. Would you care to advance figures which in any event would be amply sufficient to cover such additional cost? A. If the lift span was made 300 feet long and put in position where the present 300 foot fixed span is I believe of that type could be provided for very little more than the one and three-quarter million you mentioned. I do not believe it would cost in excess of \$100,000 more.

Q. Was Dr. Waddell an authority on bridge designs? A. Yes.

Q. I am speaking of those years 1914-1912, '13 and '14? 30 A. Yes.

Q. It is a fact that he designed the Fraser River Bridge? A. Yes, he designed the Fraser River Bridge and the Granville Street Bridge and the Connaught Bridge and the old bridge at Westminster Avenue and 19 bridges on the Canadian Northern Pacific which is now the Canadian National between here and Yellowhead.

Q. I want you to take and compare the location of the north pier in Dr. Waddell's lift span as shown in exhibit 33 with pier No. 1 on exhibit 2, and tell me if they are in substantially the same 40 place. Are they on the same scale? A. Yes, Pier No. 1 on the bridge as built would be about 25 feet farther south than the north pier as shown on Dr. Waddell's plan.

Q. So they are substantially in the same place.

Mr. Donaghy: Well, he is giving the measurements.

Mr. Griffin: All right.

Q. Take the southern span of Dr. Waddell's lift and compare it firstly with No. 2 and secondly with No. 2 of the bridge

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actually built on the location? A. The south pier of Dr. Waddell's design would come about 125 feet south of Pier No. 2 of the bridge as built and about 60 feet north of pier No. 3.

Q. Now, is there any question as to the foundation at the point where Dr. Waddell chooses his northerly pier for his lift span. Are you in any way in doubt as to location. A. It is gravel and boulders, and the glacial drift generally.

Q. Assuming Pier No. 1 in exhibit 2 is in the proper place, as to the other one? A. Practically the same, the foundation would not differ materially. 10

Q. And as to the position on the other side, the south side? A. Rock should be within reach there. It was reached at Pier No. 2 of the existing span and Pier No. 3, and unless there is a rift there they would find rock for that pier probably.

Q. Now, could a bridge have been so constructed as to provide an open span of greater width without moving the position of the piers of the present bridge and if so what suggestion have you along that line? A. The present fixed span of 300 feet might have been made a perpendicular lift without altering the position of any of the piers of the existing span, existing bridge. 20

Q. What other suggestion in addition to that change would you then suggest in aid of navigation? A. If the pier marked zero on the present bridge was removed and a 300 foot span substituted for the two spans of 150 feet it would improve the current to some extent, and if Pier Four were removed and the interval between Pier 3 and 4-A were spanned it would help and if an open span were put in place of the present—where the rock fill is now it would help materially.

Q. Could a change have been made in the month of November, 1924, at the time when the official enquiry took place? A. 30 Yes. I am not certain about Pier 4. That was in place while the examination was on, but the piers zero and double zero had not been built and the rock fill had not been placed.

Q. And the spans had not been put in? A. None of the spans were in at that time.

Q. Now, should the designer desire to use the bascule form and in order to put it in the centre of the channel how far north would it have to be moved? A. Practically its own length, 180 feet.

Q. That is, you would turn pier 3 into the bascule pier? A. 40 No, Pier 2.

Q. Pier 2 into the bascule pier and have the bascule drop down upon or seat upon the Pier on the far side where No. 1 now is? A. No, it would be between No. 1 and No. 2.

Q. A pier built south of the place where No. 1 now is? A. It would come at a point on exhibit 2 which I will mark. Any letter?

Q. Yes, mark it 4. A. (Witness marks.)

Q. A question was raised I think yesterday as to whether or not the present Pier 2 has to bear any great weight from the bascule span? A. It carries the live load on the bascule span and a very small dead load.

Q. Now, you have to put those on the record clear. I am not sure that I know the difference between live and dead load. A. The bascule span is almost completely balanced about the trunnion which rests on pier 3 and that leaves a small residual load on Pier
10 No. 2, but not by any means the whole weight.

Q. When the bascule span is lowered and drops into place is the weight which is thrown on Pier No. 2 a serious or substantial one? A. It is not very great. The live load, any load, a train, or vehicles throw the whole of their share of the load on Pier 2.

Q. That is what you mean by the live load? A. Yes.

Q. Is the amount of weight thrown upon the receiving pier of the bascule span, is that of great force? A. That is what I say, there is the small residual unbalanced load of the dead load, the actual weight of the span.

20 Q. Which is enough to hold it in place? A. Yes, it slacks down in addition.

Q. The importance is to have it sufficiently on there to hold it in its place. A. Yes.

Q. Now, in what way if at all would the discharge of water from Seymour Creek affect the current in the Narrows? A. That adds one more complication to the current; the discharge of Seymour Creek might on occasion be felt right across. Seymour Creek is fresh water and it discharges practically as a stream on the surface of the salt and if it was flowing at any great discharge
30 it might be felt clear across the Narrows on the south shore and if it were it would affect the navigation of ships.

Q. In what direction would the set from Seymour Creek be at low water? A. At slack water?

Q. Yes? A. Straight across practically.

Q. During the ebb tide? A. It sets towards the west.

Q. Assuming an occasion when the force of Seymour Creek would be felt out at least in the middle of the channel or beyond, how would it affect a vessel approaching the opening from the east at low water slack? A. It would add complications to the current
40 as it exists. The fresh water cannot flow over the salt water without displacing a corresponding amount of salt water which will show up somewhere as subsurface currents. If the discharge of Seymour Creek is felt across, that sub-surface current must be felt, too. One vessel might feel it possibly to a greater extent than the other, but it would affect her helm one way or the other.

Q. Any irregularities in Seymour Creek? A. No, it is a flashy mountain stream. On the 28th of October, 1921, it is shown

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in the reports of the Water Power Branch of having a mean flow of 16,900 cubic feet per second and that means the maximum flow on that date would not be far from twice as great, 30,000. On the same date in 1925 the discharge was only 16,000 cubic feet per second or something less than half of 1 per cent. that it had varied.

Q. Would a variation of that kind, so great as that be such as would upset the calculations of navigators in charge of big vessels? A. Oh, yes.

Q. Can you tell me from your professional knowledge or experience would the beginning of the ebb or flow of the tide begin on the surface or below? A. As a general rule all currents start as a subsurface flow and the actual surface flow is noticeable an appreciable time after the subsurface has started. 10

Q. Take the case of an oscillating tide or flow where the tide is running between two large pools or bodies of water in sequence what is the result in that case in regard to where the beginning of the flow starts? A. It depends altogether on the rapidity of the current. A sharp turn around between two very long tides, the subsurface current might actually reverse before the surface current ceased to flow. If there was a long slack such as occasionally occurs—there was one last month—when a run out is followed by a period of three hours of no tide at all and it is not impossible that the outward subsurface current will persist for the whole of the time and never actually cease. 20

Q. So that in such cases as you have spoken of you might have a subsurface current flooding underneath and it would be ebbing on top? A. That is very common.

Q. At what point in the flow of the stream is the thread of the greatest velocity usually found? A. If the channel is symmetrical in sections the thread of the maximum velocity is about one-fifth of the total depth below the surface and in the middle of the channel. If the channel is not symmetrical it will be about the same distance down, but it may be quite a way from the apparent centre of the stream. 30

Mr. Griffin: Your witness.

H. Muckleston
 Cross-exam.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Mr. Muckleston, will you state what experience you have had and where you have had it in regard to the actions of tidal currents? A. The tidal current is very much the same thing.

Q. I do not want a definition of it. I do not know whether you heard my question? A. I did. 40

Q. Please answer. Speaking of your experience, where you had it and when you had it? A. In designing the construction of large irrigation works, including reservoirs, pools, ponds and canals and control of violent, fluctuating rivers.

Q. Tell me where these works were that you were connected

with so that we may judge of the knowledge that you would acquire in regard to tides? A. They were all in Alberta.

Q. I take it there would be no tides there? A. No lunar tides.

Q. What tides were you talking about? A. Well, you find "seiches" as they call them in all reservoirs which is an oscillation back and forward from one end of the pool to the other.

Q. And on what waters were you engaged in Alberta? A. The Bow River, the Old Man River, and various other small
10 streams including 3,000 miles of canals of various descriptions and sizes.

Q. Now, we will come back to my first question: Tell me where and when and in what manner you gained experience in tides. Tides have a well known meaning, you know? A. No actual experience with tides.

Q. I see. A. Hydraulic experience is much the same anywhere.

Q. You probably know more about bridges than you do about tides. You have had some experience with bridges? A.
20 Experience and designing.

Q. Will you state to us what your experience has been, where and when, and of what character in regard to the building of bridges, that is of magnitude? A. 67 bridges on the main canal of the Canadian Pacific Railway's large irrigation scheme.

Q. Tell us where that was? A. The main canal commenced about five miles southwest of Bassano and runs about 80 miles more or less east, that is, it runs east and south and north and east again for about 87 miles. It is crossed nearly every mile by a road allowance on which a bridge had to be constructed.

30 Q. Give us an idea of the location of the bridges, and the length? A. The longest would be 187 feet and the shortest about 67.

Q. Were these bridges for carrying autos, horses and wagons, and traffic such as that? A. Yes.

Q. How wide was the stream which they were bridging? A. The main canal varies from 160 feet wide to a little over 50. It has a slope on the sides two horizontal to one vertical and carries 11 to 9 feet of water.

40 Q. Had this work any aspect comparable from an engineering difficulty to the Second Narrows Bridge? A. Oh, no, very small. Then in addition—

Q. Tell us of other bridges? A. In addition to that I built the two aqueducts on the Lethbridge Northern District.

Q. Where is that? A. The main canal of the Lethbridge Northern District heads out of the Old Man River 11 miles west of the town of Macleod and runs generally in a northeast direction out on the plateau between the Old Man River and the Little

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 H. Muckleston
 Cross-exam.
 (Contd.)

Bow River. It crosses the Old Man River about three miles below the intake by an aqueduct.

Q. What was this bridge built to carry? A. To carry an aqueduct discharging 800 cubic feet of water per second. That is a load about comparable to what is known as E— 50 Railway loading.

Q. Were you the chief engineer in charge of that work? A. Yes.

Q. Does it carry anything else except this water pipe? A. It is not water pipe, it is an open flume. 10

Q. Does it carry anything else except the open flume in the irrigation district? A. No.

Q. Carry on. A. That aqueduct is something over 3,900 feet long and contains 5 spans each 135 feet long founded on piers which are carried down 42 feet below the original surface of the river to the rock. The Old Man River aqueduct is carried partly on steel trestles and partly wooden trestles. The steel trestles are carried on concrete piers founded anywhere to 12 feet below the original surface.

Q. What is the width of the stream that this aqueduct spans at the place that it spans it? A. 900 feet. 20

Q. What is the depth of the stream? A. It varies from about 8 inches in the winter time to twenty-seven feet in the summer on a maximum discharge.

Q. What other bridges have you had experience in constructing? A. The Willow Creek aqueduct on the same canal. That consists of the same type of construction but the spans were only 100 feet long and there were only three of them. It is founded on concrete piers. Some of them go down 30 feet below the surface. Then I made eleven designs for the proposed bridge for the First Narrows in Vancouver Harbour. 30

Q. You did not build it? A. No.

Q. We will not bother with it just now. A. It is the designing, Mr. Donaghy.

Q. Yes, I know. I am talking of your experience, you see. What other bridges have you had experience in constructing that are of any magnitude, you know? A. The crossing of the Columbia and the Kootenay Railway over the Kootenay River at Granite which is 13 miles west of Nelson. It is just west of Nelson. There is one span there 140 feet if my recollection serves me right. They are founded on masonry piers filled with rock, and there are a great many other spans that I have forgotten, it is so long ago; I forget the particulars. 40

Q. What is that, a railway or traffic bridge? A. Yes, it carries the Columbia and Kootenay Railway, part of the C. P. R.

Q. The piers were mounted on exposed rock? A. Two of them are.

Q. Any sunk under water? A. No, not at low water. It was low water when the work was done.

Q. No. Yes. What is the width of that stream? A. Well, the 140 foot span takes it all in low water, but it is long since I built it. It is 30 years since I built it and I do not remember.

Q. What other bridges that are important? A. Nine bridges on the Kicking Horse for the C. P. R., the main line, and two on Eagle River, and quite a lot of smaller structures on the Beavermouth.

10 Q. Were you the chief engineer? A. No, resident engineer.

Q. Who was the chief engineer? A. Of the railway?

Q. No, bridge construction? A. Hotley was the chief engineer of bridges and Mr. Heatley the chief engineer of the railway.

Q. Any others? A. That is all that I can call to mind, that is, bridges that were built.

Q. That is what I am asking you about. Have you had any experience in the dredging of harbours where tidal waters were in existence? A. No.

20 Q. Have you made any personal test or experiments regarding the tidal current at the Second Narrows Bridge? A. No, that does not include observations.

Q. I want to know if you made it? A. You did not intend to include observations without experience.

Q. No, unless you made some experiments with something. Have you made an actual survey or measurement of the fill at the south end of the bridge? A. Just a survey without instruments, that is by pacing off a distance and using my own eyes for a level.

30 Q. Yes. Now, on exhibit 17 you drew a line which you said was 5 degrees north of right angles to the bridge, and you drew it 350 feet long to the point "Y"? A. Yes.

Q. And you said "Y" is 100 feet from the five fathom line? A. Yes.

Q. Will you show me the 5 fathom line where you measured that 100 feet from and show me where you did it? A. It is the line marked 5 fathom contour on exhibit 17.

Q. Where did you get the 5 fathom line when you measured this 100 feet you have just shown me? A. (Witness indicates.)

Q. It was there. It is marked 5 fathoms precisely? A. Yes.

40 Q. You do not seem to follow it. You see what it is marked? A. That is not the line. That is the individual sounding.

Q. Yes, all right, to get the 5 fathom line— A. The 5 fathom line is marked on the exhibit as such.

Q. You know how they get the 5 fathom, by sounding? A. Yes.

Q. You know this 5 fathom line is not uniformly 5 fathom as they proceed that way. That is why I call attention to the

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 H. Muckleston
 Cross-exam.
 (Contd.)

figure. The sounding indicates a variation in the precise depth. What is the precise depth of that line? A. I do not understand your question, Mr. Donaghy?

Q. Look at that 5 fathom line so called. Follow your eyes along it and do you not observe that it is precisely 5 fathoms as it proceeds? A. Wherever there is a possibility of checking there is—

Q. Do you see 5.3 for instance on the line? A. No. It is about 10 feet north of the line.

Q. You are not reading the line. That cuts the line. A. 10 The decimal point is the point of sounding, 10 feet north.

Q. No, that is to indicate the decimal point? A. No, it is the point, and they have drawn a ring around the sounding.

Q. That is the way you interpret it? A. That is the way soundings are interpreted.

Q. You may be right. The only way of possibly checking is the farthest south and on the four lines, that is the only possibility of actually checking, on the whole 5 fathom line. Tell me this, this line which you drew to the point "Y" does it follow in the same direction as the current there. Can you answer that? 20

The Court: The red line he drew to "Y"?

Mr. Donaghy: Q. Yes, or do you know? A. No, I think the current would set farther north than that.

Q. Do you know? A. No, I do not know.

Q. That is all right. Now, you spoke of ships having to cross the current twice if they navigated through the bascule span. Now, we will take a ship coming into the harbour going east, will you tell me in the first place where it has to cross the current?

Mr. Griffin: That is limited to ships going east. A. Ships going west. 30

Mr. Donaghy: Q. Will you tell me in the first place where a ship going west would have to cross the current? A. If she is to the north of the centre of the channel and is keeping according to the rules of the road north of the centre line, to starboard of the centre line in order to get into the bascule span it has to cross to the south side and has the maximum current practically through the centre of the bridge as built and must cross the current and after leaving the bascule span if it is to get back into its own position again it must cross it.

Q. Did you hear the evidence of navigators who spoke of 40 sailing from Ioco? A. Yes.

Q. And going west? A. Yes.

Q. You heard their evidence. Do you say that those navigators in that course crossed a current so as to raise some objectionable feature or difficulty, slight or great in the navigation before getting to the bridge, and where did you learn they crossed a current under those adverse circumstances? A. I did not say adverse

circumstances, Mr. Donaghy. I said that it was an objectionable feature.

Q. You did not state whether you were a navigator or not. And you might state that now? A. I am not a navigator with papers. I don't think I would qualify.

Q. I take it when you made that remark in your examination in chief that you were dealing with the apparent difficulties that this bascule raised in the way of navigation of ships in crossing currents, and that you were not speaking as a practical
10 navigator and neither did you mean to imply it was an adverse circumstance. What about that? A. I was not speaking as a navigator, but I did not mean to say that it did not imply an adverse circumstance.

Q. You have a double negative on me now and I do not like that. I will meet the thing directly, did you mean to imply it was an adverse circumstance affecting navigation? A. I meant to imply in my opinion it was an adverse circumstance affecting navigation.

Q. Now, where would you in your opinion point as the place
20 where this crossing would be an adverse circumstance in navigation, where from Ioco to the bridge? A. Anywhere, if the current is strong enough in dealing with where you are crossing the current.

Q. Now, coming between Ioco and the bridge do you say the ship would get into an unfavourable position in crossing the current in the manner you have indicated? A. It is not a matter of position, it is a matter of what other traffic will be in the channel at the time. If a vessel navigating westbound in the Narrows and in the bridge and there is eastbound traffic such as logs and other craft coming down will have a reasonable chance, but if
30 they have to cross the face of the eastbound traffic going some 300 feet, I would say that would be an adverse circumstance and the current going east with the traffic makes it worse.

Q. The width of the channel east of the bridge determines whether it is difficult to navigate? A. I do not know, Mr. Donaghy. Navigation is outside of my sphere.

Q. Surely you must know that the area of manoeuvring is an important thing to consider? A. I presume it would be of advantage to have a wide area.

Q. Do you know whether the area is wide enough to permit
40 of all sorts of manoeuvring for the meeting of ships east of the bridge to Ioco? A. I could not say.

Q. Then I had better drop that. You do not know enough about it. Now, you spoke of exhibit 2, this general plan we have here, and you went on to indicate in what respect the bridge differed from exhibit 2. You said, for instance, it was 5 feet higher. Is that correct. The actual bridge is 5 feet greater elevation than shown on exhibit 2? A. Yes.

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*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

Q. I do not just see what the point was you were trying to make. What was it you were trying to convey in giving those answers. What was the point in it? A. I don't really understand that question.

Q. We all knew this bridge was 5 feet higher than exhibit 2 and there was a plan showing it. You knew that? A. I know it from the other exhibits filed.

Q. We were told the other day that these plans speak for themselves and show the difference, do they? A. Yes.

Q. By looking at them we would get the actual difference? 10
A. Yes.

Q. Quite so. Now, you spoke of—I do not know whether I touched on this or not, on the fill extending 260 feet out from the shore line on the south. Will you tell me whether or not in getting that distance you are measuring at right angles to the shore line? A. I was taking off the profile which had been handed to me.

The Court: Witness, you are standing with your back to me then and I wish you would speak louder, please.

Mr. Donaghy: Q. Your answer to the question as to whether you were drawing the line at right angles to the shore line is 20 what? A. That I scaled off the distance on the exhibit handed to me for that purpose.

Q. That is not an answer to my question? A. I don't know whether it is at right angles or not.

The Court: Which line is this, Mr. Donaghy? The red line to "Y" or the line at the fill?

Mr. Donaghy: I forget what he drew. He said the fill extended 260 feet north from the shore line.

The Court: Exactly.

Mr. Donaghy: I was asking if in measuring that distance he 30 placed a ruler or drew his line at right angles to the shore line or not. You said you did not? A. I don't know whether the profile was taken at right angles to the shore line or not.

Q. Now, have you made a cross-section of this fill? A. Have I made a cross-section?

Q. Yes. A. No.

Q. Have you made any measurements so you might tell us what the area of a cross-section of this fill is? A. No. Do I understand you to mean a cross-section taken at right angles to 40 the railway or highway?

Q. You know what a cross-section means? A. That is what a cross-section is understood to be, a section taken at right angles to the structure. I did not take a cross-section of that fill, understanding it that way.

Q. I understand. When you spoke of a cross-section you mean a cross-section taken at right angles to the shore line or the railway track? A. A cross-section is normally, in railway engin-

eering, a cross-section is taken on a plan at right angles to the centre line of the structure and a profile is taken on a plane along the line of construction.

Q. We will get down to practical work. In order to find out the area of space that this fill would occupy as an obstruction to a stream, I might find that out by taking a cross-section of this fill, might I not? A. I do not understand you.

Q. Will you please tell his lordship how you would ascertain just what the area is that this fill occupied so as to form an obstruction to the stream. How would you proceed to do that? A. I would take the plan—

Q. Never mind that, how would you start out? A. I would make a survey on the ground to find out exactly how far out from, some fixed point if I could find one to the edge of the fill and do the toe of the fill, and if it was necessary to be very accurate I would sink a shaft down through the fill until I got to the original surface of the ground so as to get the height.

Q. You would probably omit the sinking of the shaft there under the circumstances there? A. It depends, if the client was willing to go to the expense. There is no other way of finding where the original surface was before the fill.

Q. We have you absolutely on that that you would sink a shaft? A. Or drill a hole.

Q. Did you do these things? A. I did not drill a hole.

Q. Did you do any of these things? A. I found out on the ground that the fill extended out so that the outer limit of the fill was practically level with pier 1.

Q. Did you make any of the measurements that you told his lordship it was necessary to answer the question? A. Not on the ground.

Q. And to be accurate you say it would be necessary to do it on the ground? A. To be absolutely accurate.

Q. And you did none of these things? A. I did not.

Q. Now, we will turn to your suggestion for other types of bridges at this place and we will deal with your suggestion that a vertical lift span might feasibly have been placed where the 300 foot fixed span stands today. Now, having in mind what you were contemplating in this way of the 300 foot lift span at this span at this point, would you mind telling us what elevation would go up to? A. 150 feet would be enough, in fact, 135 feet probably would be enough.

Q. Now, will you tell his lordship whether or not with a structure such as we have spoken of, this lift span there would be any difference in the weight which the piers had at the end of this 300 foot span, would have to carry? A. They would have to carry slightly more.

Q. Slightly more than they are carrying now? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

Q. We will just analyze that. How much do they carry now? A. The north pier of the present 150 foot span carries half the weight of the 300 foot fixed span and half the weight of the 150 foot span lying north of it.

Q. Let us deal with that, and under the lift span scheme you propose what else that the piers will have to carry? A. The towers and the counterweights.

Q. What would the weight of those be? A. The towers?

Q. And the counterweight, everything in fact that would be in those weights? A. The counterweight would be about half 10 the weight of the span.

Q. Give us the figure? A. In the neighbourhood of 350 tons in that bridge.

Q. Yes, what else? A. And the half weight of the machinery and the tower would possibly run 80.

Q. 80 tons. Are you satisfied that you have given yourself sufficient margin there? A. I think so.

Q. That would be 430 tons extra? A. I think that you can get it a little closer, perhaps.

Q. Take your time, I am warning you fairly that your fig- 20 ures may be checked, you see. A. The tower would be about 180 tons in round figures and the counterweight around 350, I think.

Q. Yes? A. The machinery is very small, oh, possibly thirty tons.

Q. Now, did you make these estimates yourself of your own knowledge, or did you get them from some other engineer? A. I made them four years ago.

Q. From your own knowledge or information supplied you by someone else? A. From my own knowledge and technical 30 publications, and with the assistance of Dr. Waddell.

Q. Did you do this through correspondence with Dr. Waddell or personal conversation? A. Both.

Q. Have you had any experience in building a structure of the kind you are now mentioning? A. No.

Q. Then I take it for safety you felt it was well to get information from somebody else to assist you? A. Yes.

Q. Very good. Now, are you quite satisfied that so far as your opinion goes you have given us all the total weight that would be put on the north pier of the 300-foot fixed span? A. That is 40 very close to it.

Q. You are satisfied with that? A. Yes.

Q. Now, take the south pier of the 300-foot span, would the same additional weight be brought to bear on that pier as the north pier? A. Rather more, because the bascule span probably would be changed under those circumstances to a fixed span and would have half the weight of that span, whatever it is.

Q. You would say that there would be more weight on the south end than on the north end? A. Probably.

Q. How much more probably? A. Whatever that bascule span weighs, I have not the figures on that.

Q. You do not know? A. No.

Q. And then you do not know what that would be? A. No.

Q. It would be well to know before you started to build considering the question of the size of the foundation and the depth and all that sort of thing and the piers. What do you say to that?

10 A. I mean—

Q. You know what I mean, we will have it read if you do not understand. Will you read the question, please. (Reporter reads: "It would be well to know before you started to build considering the question of the size of the foundation and the depth and all that sort of thing and the piers. What do you say to that?") A. It would be well to ascertain in advance.

Q. Is that putting it precisely from an engineering point of view, it is essential to ascertain it in advance? A. If the knowledge is not already in existence.

20 Q. State it in any way you like. I am suggesting to you the proper thing and what an engineer would require would be to know it in advance. If I am wrong you may tell me? A. Certainly, that is what I meant.

Q. And you do not know it? A. No.

Q. Would you mind telling me as an engineer what else you would require to know regarding the north end and south end of this 300-foot space before you start in to build? A. I don't understand that.

30 Q. You don't? A. No, it is necessary to know the loads you have to carry and I do not know what else—

Q. You don't? A. You wished to get—

Q. Never mind what I wish. State what you as a professional man would require to know? A. The character of the foundation I would want to know.

Q. I thought so. Do you know the character of the foundation? A. Not from personal knowledge.

Q. No, then you don't know? A. I know by descriptions from men who were actually on the job.

Q. From hearsay? A. No.

40 Q. What do you call that? A. A published paper.

Q. We call it hearsay here. Do you know from any other source? A. Also from the actual description of the bridge which was published in the proceedings of the Institute of Civil Engineers.

Q. Now, since you know this perhaps you will state to his lordship what is the nature of the foundation at the pier at the south end of the 300-foot fixed span? A. The pier at the south

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 H. Muckleston
 Cross-exam.
 (Contd.)

end is partly founded on rock, that is, No. 2 pier is founded partly on rock and partly on gravel or drift. The part founded on rock was shot out to a certain amount.

The Court: Q. What pier are you talking of now? A. Pier No. 2; the pier is founded on rock. The rock was shot out to a certain extent until the shooting looked as if it was likely to damage the caisson and then a cantilever footing was put in under the north end of No. 2 pier and extended out some five or six feet and reinforced with 15-inch I beams and after that was done the pier caisson was filled in the ordinary way. 10

Mr. Donaghy: Q. What proportion of the pier is on solid rock and what proportion on gravel? A. Possibly half the area is in rock. I would not be certain as to that.

Q. What is the nature of the other material that the footing is on? A. Drift, boulders and gravel.

Q. The part that is on rock, do you know the nature of the rock, hard solid rock? A. Sandstone, friable, but good for 100 tons to the square foot.

Q. What is the depth of the footing of this No. 2 pier? A. 124 feet, I believe. 20

Q. From what? A. From, I am not certain whether it is low or high water. There was 46 pound pressure in the construction as far as I remember.

Q. State to the best of your knowledge the best opinion you formed as to the depth of the footing of this pier, say from low water? A. About 124 feet, I believe.

Q. 124 feet. Now, that figure you have given us, will you tell his lordship whether or not it would be practical for a workman to work at a footing that deep at No. 2 pier and live? A. 124 feet? 30

Q. You know what you said? A. Practical?

Q. Yes? A. They have worked at very much greater pressure than that. The caisson at the Eads' Bridge was 137 feet deep.

Q. What would the pressure be? A. I would have to work it out. I could not say.

Q. What would the pressure be at this 124-foot depth below low water? A. About 46 pounds.

Q. Have you worked that out? A. No, I took that from the same paper.

Q. Now, what would the depth be below high water. You told us that it was 124 feet at low water? A. 137 feet. It is 124 feet from low water. I am not certain on that, though. 40

Q. I am only getting your opinion as an engineer. What would the pressure be 137 feet below? A. About half a pound more.

Q. What is the ultimate pressure at which it is impossible

for workmen to work, in an affair of that kind? A. It has never been determined.

Q. Almost determined, has it not? A. No, divers work down to 200 feet and more.

Q. In a caisson under air pressure? A. No, divers.

Q. I am not talking of divers, I am talking about putting this caisson down. I might as well state now so as to have it on record that these are put down and air pressure is kept in them to keep the water out so that the workmen can work. That is at
10 the pressure.

Q. Yes.

Q. That is not diving? A. It is the same principle.

Q. No, there is no air pressure? A. I mean the professional deep-sea diver who goes down in a diver's dress.

Q. Are you going to tell me that it is the same thing? A. Yes, they work under exactly the same air pressure.

Q. You go this far, then, I take it, that it would be quite feasible to sink this footing some 200 feet below high water, is that your answer? A. No.

20 Q. How many feet do you say would be the ultimate limit under which a human being could work in sinking this footing? A. It comes to the question of cost.

Q. I am not talking of the cost, but human life? A. If the cost is eliminated, divers can work to 200, and 234 feet and it enters into the feature of the cost and so on, as to whether it can be put down that deep.

Q. All right, we have you on record on that. Now, as to the foundations and footings of Pier No. 2 such as would be sufficient to carry considerably greater weight on that pier? A. I
30 could not say without examination.

Q. Then, you do not know? A. Oh, no.

Q. You don't know that. It would be necessary to know that before starting out to build a greater weight and heavier structure? A. But the pier would be designed for the heavier structure.

Q. I am not asking that, I am asking about the footing? A. If the footing is there adequate to carry the load on it, an adequate footing would carry an extended load.

Q. What extended footing do you mean, to what extension?
A. Possibly increase the area 50 per cent.

40 Q. Are you satisfied that would be ample? A. I think so.

Q. Do you know how much extra that it would cost now? A. Possibly might run to 50 per cent. more.

Q. I suppose you are prepared to state that dredging of the channel where the Second Narrows Bridge is constructed would compensate to some degree for the action of the piers? A. If the dredging extended far enough from the centre line of the bridge in an easterly direction it would compensate.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
H. Muckleston
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

The Court: Turn around, I cannot hear you, witness.

A. If the direction extended far enough east and west of the line of the bridge it would compensate to some degree.

Mr. Donaghy: Q. Will you tell me where the narrowest place, approximately where the narrowest place, the narrowest channel exists in the Second Narrows? A. From the chart it is about where the water pipes are.

Q. Somewhere about 1500 feet east? A. Yes.

The Court: I think there is a mistake there. The nearest water pipe is about 1,000 feet? A. No, 1500 feet, my lord, about 10 the centre of the group of water pipes. There are nine or ten of them, and the 1500 feet I think measures to the centre of the whole group.

The Court: There is a place called the knuckle about 1400 feet from the bascule. We will just see now. The knuckle is marked on Exhibit 8 by the letter "A" and that is 1400 feet east from the bascule and that is about the middle of the main group of water pipes, if you will please look at it.

Mr. Griffin: I did not hear the figures your lordship gave.

The Court: Marked on Exhibit 8 there is a place called the 20 knuckle and as I scaled it the knuckle is 1400 feet east of the bascule. I want the witness to look at that.

Mr. Griffin: And that is the most easterly of the mains?

The Court: No, he pointed out, about the middle, and I think that is about right.

A. It is more like 1500 feet to the centre of the group of easterly mains.

The Court: Yes, I think that is right. About 1500 feet to the centre of the group.

A. The knuckle marked "A" it is possible 100 feet nearer. 30

Q. I think you are right. That is what I would make it. The knuckle is about 100 feet east of—you say the centre of the group of water pipes is about 1500 feet east of the bascule? A. The south end of them.

Q. 1500 feet reaches about the middle of the main group of water pipes projected on a line east from the bascule? A. Yes.

Mr. Donaghy: Q. We have that located as the narrowest part of the channel? A. I spoke from memory. Looking at the chart I might change that.

Q. Is it also the shallowest part of the Second Narrows? A. 40 I would have to see the chart.

Q. At any rate, it is in and perhaps there is no use having you verify it. It is a chart made by engineers.

The Court: Yes, the second group of pipe lines is in quite as narrow, is not quite as narrow as the bridge, I understand that you say it stands on the very narrowest part. I understand that is so.

A. Mr. Donaghy asked me where the narrowest part of the

channel was and I said to my recollection of the chart that it was east of the bridge somewhere about the water pipes.

Mr. Donaghy: We have a survey made of it and have it in.

The Court: I think the witness is wrong.

Mr. Donaghy: I think that he is right.

Mr. Griffin: I think we are all agreed that the narrowest part is east of the bridge.

The Court: A little east of the bridge, but nowhere near the water pipes.

10 Mr. Donaghy: We had an actual survey made by engineers.

The Court: As I understand what really would actually be the narrowest is where the B. C. Electric transmission line crosses, as I understand it, just a little east from the bridge. It is certainly not the water pipes. The water pipes are much too far over to be in the narrowest part.

A. There is no telling, there is not any great difference any-way.

20 Mr. Donaghy: Q. When you told my learned friend in your examination in chief that an alternative plan of the bridge with this 300-foot lift span could be constructed for a few hundred thousand dollars more than what the present bridge cost you had in mind that the present bridge cost almost \$1,800,000? A. I believe that the figures quoted were one million and three-quarters.

Q. All right. Yes. Now, do you know how much of that million in three-quarters in round numbers was expended in works starting on the north shore, such as the fill, railway tracks and small bridge across Lynn Creek? A. No.

30 Q. Well, then, in figuring the cost of the proposal for the bridge which you submitted you were dealing only with the cost of the bridge and not including any of these works to the north of the harbour, on the north shore, like the fill, the railway track and some bridge across Lynn Creek? A. That would be coming to the two propositions.

The Court: Turn around and keep your hand down? A. I was keeping it on my ear.

Q. I see. All right.

40 Mr. Donaghy: We will see how you split this thing and how you make it up. You say it would be coming to both propositions. What would the bridge proper cost on the plan you have proposed, leaving out the fill and the mile of railway track and the bridge across Lynn Creek? A. I have not tackled that.

Q. You have not tackled that yet? A. No, I am dealing with differences and not with totals.

Q. Have you any idea of what the cost was of the work north of the north shore, the fill, railway track and bridge across Lynn Creek? A. No.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

Q. Not at all. Have you any idea what proportion that would be bearing to the million and three-quarters? A. No, I would not give an estimate.

Q. You haven't even that. All right, Mr. Muckleston. Then it necessarily follows, I suppose, that you have no idea what the bridge proper would cost? A. No, the figures I gave were the difference between the cost of the lift span and the fixed span and making allowance for the saving in cost of the bascule span, which is only a rough estimate.

Q. Yes. Have you made a suggestion that the bascule should be further north than it is in the present bridge? A. I did not make any such suggestion. 10

Q. And you do not suggest it today? A. It would be much better if it opened further north than the fixed opening.

Q. What do you mean by the opening? A. The moving span would be much better from a navigation standpoint of view if it was farther north.

Q. That is the bascule span. Do you suggest that the bascule should be farther north? A. The moveable span should be. I would not take the position of putting the bascule further north. 20

Q. You do not suggest that the bascule span should be further north? A. You mean to move the whole thing bodily, pier and all?

Q. Do you not suggest in the construction of the bridge with a bascule opening that the bascule opening should have been put further north than where it is at present? A. The opening would have been very much better further north.

Q. The bascule span? A. No, I say an opening.

Q. I want to get it plain on the record. I am not dealing with all kinds of openings, I am dealing with one, and you may answer this if you like. It is the last time that I will ask it. Do you suggest the bascule span should have been further north than it is at the present clearance, yes or no? A. I don't know whether the bascule span could have been built further north. 30

Q. Very good. That satisfies me. Reverting again to the fill at the south of the bridge, starting at the toe, the north toe. Do you remember stating that that was 77 feet north—

The Court: Just one minute. Yes, Mr. Donaghy.

Mr. Donaghy: Speaking of the fill, and the distance which the toe or north end of the fill is from low water mark will you tell me whether or not you measured that on the ground? A. Measured it on the profile handed to me for the purpose. 40

Q. Did you measure it on the ground? A. There was no trace of the low water mark on the ground now. It is covered over with the fill.

Q. Could you not find it on the east and west side? A. No, it is filled up on the west side with the fill from the railway track.

Q. The railway track has not changed? A. Yes, there are two additional tracks put in and quite a lot of fill put in there. I don't know whether it is possible to find the low water mark.

Q. Did you look about to see? A. I haven't had a chance of looking.

Q. Did you look to see? A. No.

Q. Why did you tell me that you could not find it? A. I said I did not think you could find it.

Q. You have not been there to examine them? A. I have
10 been there several times, but the times—I have never been there at zero, it is only in December.

Q. You don't know whether one can see the low water mark line there or not? A. No.

Q. To have it plain you did not measure from the low water mark as you thought it existed, to the north of the fill to the toe? A. No.

Q. Neither did you do that measurement from the high water mark? A. No.

Q. Did you measure the depth that the bottom of the fill is
20 below water at low water? A. No.

The Court: The depth of the toe?

Mr. Donaghy: Yes, the depth of the toe as below water at low tide? A. No.

Q. Did you measure that at high tide? A. No.

Q. Now, do you remember telling his lordship that you paced the fill to find how far it ran north from low water? A. No.

Q. And did you pace it? A. No, I told his lordship I ascertained that the last of the fill was even with Pier 5.

Q. How, by pacing? A. No, by going and looking at it.

Q. Did you do any pacing down there? A. I paced across
30 to see how wide it was at one point.

Q. Is that all you did? A. That was all that was necessary.

Q. I did not ask that. Did you do all that was necessary?
A. Yes.

Q. You see you might have done more than was necessary. Do you know the height of masts of vessels—

The Court: You are going into a new subject?

Mr. Donaghy: Yes, I close on that.

The Court: We will adjourn then.

40 (12.56 p.m. COURT WAS THEREUPON ADJOURNED
UNTIL 2.15 p.m. OF THE SAME DAY.)

2.15 P.M.

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

RECORD

HUGH MUCKLESTON, Resumed the stand.

*British Columbia
Admiralty Dist.*Defendant's
CaseH. Muckleston
Cross-exam.
(Contd.)

Mr. Griffin: My lord, before my friend proceeds with this witness, he had marked his testimony in regard to the fill on another duplicate copy of Exhibit 2, in the form of coloured marks, and I forgot to ask him about it this morning. I would ask leave now to put it in so that my friend can, if he wishes, take it up in his cross-examination.

The Court: Yes.

Mr. Griffin: Q. Witness, I show you a duplicate copy of Exhibit 2, and on it are two areas which you have marked, one of them in red, and the other, is that green or yellow? A. Yellow. 10

Q. And the other one in yellow, at the place where the fill is which has been in question this morning. Would you just explain in your testimony those two marks and what they represent.

The Registrar: We will mark that Exhibit 47.

The Court: Yes.

(PLAN MARKED EXHIBIT No. 47.)

A. The area which is hatched in red colour is the area which is supposed to show the fill as it was intended. The area hatched in yellow shows the fill as it actually is, both of them being profiles on the line of the—the centre line of construction. 20

Mr. Griffin: Q. In other words, the red part would represent the suggested fill, if in fact it is indicated by the diagonal line referred to by Mr. Swan? A. Yes.

Q. And the yellow shows what appears on the ground to the best of your information? A. Yes.

Q. And the northerly lines of the yellow mark, where is that with reference to pier five? A. Pier five comes at the crest, approximately. 30

The Court: Q. Pier 5 what? A. Comes at the crest.

The Court: At the crest.

Mr. Griffin: Of the yellow slope.

The Court: Of the yellow slope?

Mr. Griffin: Yes.

Q. I think you might almost take that pencil and run in a line there and mark it pier 5.

The Court: Yes.

Mr. Griffin: That would be better—right from here. A. (Indicating.) 40

Mr. Griffin: Yes, thank you.

CROSS-EXAMINATION CONTINUED BY MR. DONAGHY:

Q. Mr. Muckleston, before leaving the subject we touched

on this morning, another question has occurred to me: Did you state in your examination in chief that the cost of altering that 300-foot fixed span to a 300-foot lift span—had the design been altered originally—would be something like \$100,000? A. No.

Q. What was the figure you gave us this morning? A. I gave you \$100,000 as the net increase due to a change in design. That means increase in total cost had the one design been substituted for the other.

Q. Yes, I see. Now, in your scheme, would the bascule be eliminated entirely? A. It would never have been built.

Q. No. And how do you propose to take care of the clearance of vessels whose masts were higher than the 150 foot clearance in the lift span? A. I say very few vessels come in this harbour with masts of a clearance of more than that, and very much fewer who would ever wish to go up above the Narrows, and I estimated that 150 foot clearance would be ample. There would be a clearance considerably in excess of that at a lower tide, but that is for that extreme high water.

Q. Well, did you propose then to debar vessels of a higher clearance. I suppose that is obvious, is it not? A. Oh, yes.

Mr. Donaghy: Thank you.

RE-DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Mr. Muckleston, I have one or two questions. A reference was made to the height—the distance between low water mark and the bottom of pier 2, and you gave a distance of 124 feet as being the possible distance that you got from the pamphlet. Have you had an opportunity of checking up those figures from the pamphlet? A. Yes, it appears that they are very much on the large side. I was speaking from memory of more than a year ago, but I find from this pamphlet that the elevation is—to the bottom of pier 2 is about 87 feet below low water.

Q. And that pamphlet is—who is the author of that pamphlet? A. It is an advanced proof of a paper presented before the Institution of Civil Engineers by Mr. A. D. Swan.

Mr. Donaghy: We had better have that marked.

Mr. Griffin: I have no objection to it being marked.

Mr. Donaghy: By the way, my lord, I don't know—Mr. Swan has called my attention to the fact that as he says—as the witness says it is only an advanced proof, and that is dangerous to put that in.

Mr. Griffin: Well, don't put that in, that is all right.

Mr. Donaghy: We have the real proof here if you want to question the witness on that.

Mr. Griffin: I am not questioning the witness on it. I am only just checking up the accuracy of his source of information

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
H. Muckleston
Cross-exam.
(Contd.)

H. Muckleston
Re-direct

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 H. Muckleston
 Re-direct
 (Contd.)

on which he based certain matters that my friend put to him in cross-examination. I did not deal with this pamphlet.

The Court: Are you putting in 48 or not?

Mr. Griffin: No, I am not putting it in.

The Court: Do you wish 48 put in?

Mr. Donaghy: No, seeing it is only an advanced proof it might not be reliable.

Mr. Griffin: Q. Just on the same point, you were asked as to what you knew of the extent to which pier 2 was founded upon a rock basis, and you spoke of it as from the same pamphlet which you did not then have in your hand. Having referred back to this same pamphlet to check the correctness, does what appears on the face—what percentage—

Mr. Donaghy: Mr. Griffin, I would suggest that you use—

Mr. Griffin: I am not suggesting that the pamphlet is right, I am only saying that the witness's recollection of it in cross-examination—he has a right to correct, to what it shows from the same source, so as to get the statement accurate, whatever the source may have been. It was my friend that brought out the reference.

Mr. Donaghy: I simply suggest that you do that. Of course if you don't want to do that I can't control you.

Mr. Griffin: I don't see any advantage—

The Court: It would be, no doubt, more satisfactory to take it from the final proof. He had better look at it and see if it is the same.

Mr. Griffin: My lord, I have no wish to utilize the document. My friend asked the witness about it, where he got certain information, and he having stated it on the basis of his memory, I merely want to correct the statement as from the same source. It is a very trifling point, but we might as well be accurate.

The Court: On the other hand we ought to know what he holds in his hand.

Mr. Griffin: No, I am not asking him—

The Court: You do not want that to go in?

Mr. Donaghy: No, my lord.

The Court: Well, we will not trouble about it then.

Mr. Griffin: I just want to have an answer to that question.

Q. From a perusal of that particular source, what does appear to be the correct percentage of the base of that pier which is founded upon rock?

Mr. Donaghy: Just a moment.

The Court: Of course the source is not here.

Mr. Donaghy: The source is not here

Mr. Griffin: Yes, my lord, the source from which he drew the statement he made in cross-examination is this source.

Mr. Donaghy: You are producing a source—

The Court: But that document was not produced, no reference was made to it.

The Witness: Yes, my lord, I referred to this same document.

The Court: You referred generally to it.

The Witness: No, I mentioned it by name, sir.

The Court: You did not have it in your hand.

Mr. Donaghy: You didn't have it here.

Mr. Griffin: He was speaking of it from memory, it being in
10 his pocket, and now I really want to show that he has been somewhat inaccurate in his memory of the document.

The Court: I think really the sensible way, really the most reliable way to do it of course is when he has got a revised document before him, is for him to look at it.

Mr. Donaghy: Yes, I offered my friend, the copy is here.

The Court: There is the source of information open to him, and if he wishes to build anything on that, but of course if he deliberately shuts his eyes to it it will carry no weight with me.

Mr. Griffin: Well, my lord, I asked him simply the source
20 from which he derived his memory.

The Court: There is no trouble about the memory because he has himself very clearly displaced the memory by exact knowledge, and if you reject that you understand I will pay no attention to it. What he has said is evidence for what it is worth, but it is worth nothing.

Mr. Griffin: Q. Well, from the same source of information upon which you based that statement this morning, what is the actual percentage based upon rock foundation? A. It is something less than a fifth.

30 Q. Now, a question was put as to your having or not having certain information in regard to the designing of a bridge, and you stated you did not have certain information as to weights and so forth. Is that information available in professional sources? A. Oh, yes.

Q. One other question: Reference was made as to whether or no you could give actually with absolute accuracy the length and breadth of the fill at the south end of the pier. Was it in your opinion, for the purpose of the question of impediment to navigation, essential to give the exact distance which this fill extends
40 north at low water mark?

Mr. Donaghy: Just a moment before the witness answers. My friend went into this in his examination in chief and I took it up then. He is dealing again—re-affirming the same subject.

Mr. Griffin: No, I am not.

Mr. Donaghy: He should have exhausted him.

The Court: Yes, it is really not re-examination, Mr. Griffin. you are asking him for really this, that what he gives me will have any weight with me, that is really your question.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Re-direct
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Re-direct
(Contd.)

Mr. Griffin: No, I mean as a matter of professional opinion, is it necessary to know the exact number of feet of a certain thing in order to be able to express an opinion upon its general effect. That is properly a professional opinion.

Mr. Donaghy: You see, my objection, my lord, to the question is, it should have been asked in chief.

The Court: Yes, well the question is objectionable on at least three grounds, and I rule it out.

Mr. Griffin: Q. Now, Exhibit 46, being the building contract between the Plaintiff and the Northern Construction Company, I see a reference is made to it. Perhaps you can find that, you are more familiar with where to look for it. My memory is that this contract provides for the construction of the bridge in one large respect in accordance with a loading called Cooper's E-50 loading. Would you just verify that. 10

Mr. Donaghy: My lord, I have an objection to this line of examination. It is not an anything that I raised now.

Mr. Griffin: Oh, yes, it is, Mr. Donaghy, excuse me. You referred to—

Mr. Donaghy: I did not deal with what the contract said at all. 20

Mr. Griffin: No, you dealt with another form of loading which you called Canadian E-50 railway loading; I just want to verify that.

The Court: Since it is objected to, Mr. Griffin, tell me please exactly what you are asking so I shall see.

Mr. Griffin: I want to find out if the Cooper's E-50 loading in the contract is the same as the E-50 loading referred to this morning by my friend.

Mr. Donaghy: I never used the expression. 30

Mr. Griffin: I have taken it down.

The Court: I do not recall it.

Mr. Donaghy: I never used the expression.

The Court: I do not recall it, I must say.

Mr. Griffin: I have taken it down in the beginning of the cross-examination, that this bridge was built as most bridges were built to E-50 loading.

Mr. Donaghy: I did not ask him that.

Mr. Griffin: Yes, my friend's cross-examination taken down by me in my own handwriting from his cross-examination.

The Court: Well, it is really not very material, but I prefer to allow him to explain it, which is the easiest cure of a possible lapse of memory, which may be on my part or anybody's else's, you see. There is no harm in explaining that—just as a matter of precaution. 40

Mr. Griffin: Then, Mr. Muckleston, is Cooper's E-50 loading the same thing as E-50 railway loading? A. Essentially.

Mr. Griffin: That is all, thank you, on that point. That is all, thank you.

Mr. Donaghy: No questions.
(Witness aside)

Mr. Griffin: Mr. Creer.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. D. Creer
Direct.

ALFRED DOUGLAS CREER, a witness called on behalf of the Defendant being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Mr. Creer, you are a civil engineer practicing your profession in the City of Vancouver? A. I am.

Q. Of what Associations are you a member? A. Member of the Institute of Civil Engineers, London.

Q. Slower please; Member of the Institute— A. Member of the Institute of Civil Engineers, London, England.

Q. Yes? A. Member of the Canadian Society of Civil Engineers, and Member of the Professional Engineers of B. C.

The Court: If you would stand a little farther back in this way, and try and speak clearly. You don't speak very clearly.

A. And member of the Professional Engineers of British Columbia.

Mr. Griffin: Q. Now, you know the Second Narrows bridge? A. I do.

Q. Have you had occasion in the last two or three years to consider it with a view to its effect on the navigation of the upper harbour? A. Yes, I have.

Q. In connection with what matter did that arise? A. It arose in connection with the joint committee of the Board of Trade, the Shipping Bureau and the Merchants' Exchange, I was on—

Q. To do what? A. I was on that committee as a member. There was a good deal of anxiety—

Mr. Donaghy: Well—

Mr. Griffin: Q. Never mind that. The committee's purpose was to do what? A. The committee was requested to bring in some resolutions—

Mr. Donaghy: My lord—

The Court: Never mind about that now.

Mr. Donaghy: He had better tell his own experience.

Mr. Griffin: Q. What did the committee—what did the committee investigate, what was the purpose.

Mr. Donaghy: No, my lord.

Mr. Griffin: To investigate that—

The Court: We have nothing to do with the committee. What did this man do himself?

Mr. Griffin: Q. Yes, what did you do then, either alone or

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 A. D. Creer
 Direct.
 (Contd.)

with the others, in this connection? A. I was on the committee—

The Court: Q. Never mind the committee, just go on and tell your own story of what you did. The committee does not control this matter, you see. A. I was asked by the committee to—

Mr. Donaghy: Now, my lord—

The Court: Q. Will you please stop. You know perfectly well— A. Yes, my lord, I am trying to do what you want.

Q. Well, it ought to be very easy, you see, because it is very plain and sensible. Just give the answer to the learned counsel, what he wants you to do? A. Yes.

10

The Court: It is quite clear, what did you do.

Mr. Griffin: Q. Did you make investigations of the conditions of navigation which surround the Second Narrows Bridge?

A. No, I did not.

Q. What did you do yourself then? A. Well, I examined the plans of the Second Narrows Bridge as the bridge was built.

Q. Yes? A. And I considered—

Q. Wait a minute now. You examined the plans? A. Yes.

Q. Now, then, what did you do on the ground or in connection with the harbour. Did you go and look at it? A. I went 20 and looked at it, yes, several times.

Q. Yes, you are familiar with the surroundings? A. Oh, I am familiar with the surroundings there.

Q. Now, what do you say as to whether that bridge impedes navigation, and if so in what respects? A. It certainly is an obstruction to navigation. Any bridge is more or less of an obstruction, and this bridge being at a particularly narrow part of the channel where the velocities are high, the current is changing direction, it is a particularly bad place for a bridge from a navigation viewpoint. The height of the bridge, of course, prevents the free navigation of all sized vessels. There is a fill on the south shore which deflects the current into a cross-wise direction; there is a considerable amount of trestle work on the north shore which also has the effect of cutting down the area available for flow, and increasing the velocity of the flow.

30

Q. And how about the piers themselves? A. The piers themselves are an obstruction to the passage of vessels, of course, and if I might look at the plan—

Q. Yes? A. I might mention a particularly objectionable feature is that a large vessel navigating in either direction would be obliged to depart from the centre of the stream which would be her natural place.

40

The Court: Q. That a large vessel would what, witness? A. Would be obliged to depart from the centre of the stream.

Mr. Griffin: Q. Now, did you hear the testimony of the previous witness?

The Court: Q. Which do you mean, stream or channel, be-

cause there is a difference, you know? A. Well, perhaps Channel would be the better expression to use, my lord.

Q. Do not say perhaps, because it is the only exact thing we are considering, it is the thing, because the stream may be two miles wide and the channel may be anywhere near the centre.

Mr. Griffin: Q. Did you hear the evidence of the previous witness in regard to percentages whereby the cross-sectional area by piers, etcetera? A. I did.

Q. Do you concur with that? A. Yes, approximately cor-
10 rect.

Q. Would that have the effect of increasing the velocity of the current? A. It certainly would increase the velocity, yes.

Q. Now, take another feature of it, that is, do the piers create an obstruction greater than their mere face? A. Well, most decidedly they would.

Q. In what respect? A. The turbulence of an eddy set up in the current, that would have been minimized if they had been streamline piers, but they are not.

Q. In what respect are they not streamline piers? A. Well,
20 they don't conform to the natural streamline shape.

Q. So that the current strikes them at somewhat of an angle? A. Strikes them—yes.

Q. Now, then, you spoke of the fill, in what way does it impede or affect the current? A. It reduces the size of the channel. It reduces the area available for water to pass through, and it forms an obstruction in the stream in the line of flow. It is jutting out into the stream.

Q. What was the condition of tidal flow in the main harbour, irrespective of the bridge at that point? A. The shore line was
30 practically straight.

Q. Yes? A. Straight right through. There was no obstruction there at that time.

The Court: Q. Are you speaking of the sound end? A. I beg your pardon?

The Court: Are you speaking of the south end?

Mr. Griffin: Oh, yes, my lord, the south end.

Q. Was there a tidal current at certain stages of the tide in the main harbour below? A. Yes, unquestionably there was.

Q. What was its direction? A. There was a very marked
40 current in the harbour in counter-clockwise direction.

Q. Has the tide shifted where that goes? A. Well, that would tend to travel up the harbour with the tide.

Q. Now, on reaching the point there where the Narrows begins, what would be the result? A. It would effect a cross-current.

Q. It would affect— A. Well, it would form a cross-current.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseA. D. Creer
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. D. Creer
 Direct.
 (Contd.)

Q. Now, what effect would the fill, if any, create upon the otherwise natural eddy or stream? A. It would force the current out from shore across the normal direction of the current, there would be a turbulence there, a disturbance in the even flow of the current, and there certainly would be a very strong cross-current formed by the fill.

Q. Now, evidence was given this morning, which I will repeat to you so as to save time— but before doing so, you heard the evidence of the witness Mr. Muckleston? A. Yes.

Q. And that of Mr. Swan? A. No, I didn't hear Mr. Swan's—at least I don't think—I heard part of it, I don't think I heard the whole of it. 10

The Court: Q. Witness, come a little this way and try and speak clearer. You do not speak clearly.

A. I am sorry, my lord.

Mr. Griffin: Q. Now, evidence was given that the bridge as built departs from that shown on Exhibit 2 which you have before you in these respects, firstly, that it was five feet higher; secondly that it had at the north end two 150-foot spans which are not shown on Exhibit 2, with two extra piers supporting them, an extra span on the south end, with two extra piers supporting it, and a fill at the south end, and piers 2, 3 and 4 were changed in character and design. In your opinion are those changes changes in general design, or changes in mere detail? A. Most decidedly changes in design; and I might say that the test I put to that is this, that if you can add piers you can subtract piers; and if you admit that by adding piers you do not alter the design, you do not alter the design by subtracting piers, and you might have a trestle bridge all the way across. 20

Q. Now, I would like you to direct your attention to—you are familiar with that fill on the south side of the bridge, are you not—you went and saw it? A. Yes, I stood on it. 30

Q. I show you Exhibit 47 with the marks made thereon by—well, you can take both 2 and 47 together. (Handing plans to witness). A. Yes.

Q. First I will direct your attention to Exhibit 2, the plan where Mr. Swan has marked that red figure 2 and line. Now, does the plan show any fill as being intended to be built? A. Not in the slightest degree.

Q. What considerations lead you to that conclusion? A. There is—high water mark is shown coming right through, there is no break in high water mark. There is the high water mark shown right through there—comes out the other side. There is no sign of any—of any bank with the fill to the natural form, and the width of the roadway too, there is approximately 25 feet which is the full width of the roadway. 40

Q. Have you been over this recently? A. I have been there, yes.

Q. And the actual fill that exists following the width of the roadway? A. Oh, considerable.

Q. How many feet, for example, on each side does it extend beyond the roadway? A. Well, I would be guessing—

Q. Well— A. —a considerable distance. It is very variable because it is not parallel to the roadway.

Q. In order to show it properly on that plan which is before you, how should it have been shown? A. Oh, it should have been shown with a hatched line falling down on the top of the bank, high water would have come round there, low water would have come round it if it approached particularly low water, or say any other direction in which the water would be shown.

Q. It would be shown by the curved line at least of high water extending out toward the surface through a hatched line showing the limits of the actual fill and again joining the roadway?

A. Yes.

Q. Is there any other way commonly used by engineers when they wish to indicate a place to be filled? A. Well, if the fill is a matter of some importance, it should certainly be labelled.

Q. What is the common label, what is naturally put on it? A. Put the name on it.

Q. The word "fill"? A. "Fill."

Q. In view of these considerations, does this plan, in your opinion, negative any fill? A. The plan absolutely negatives any fill at all.

Q. Now, then, will you turn your attention to the profile, to which reference has been made, and in particular to the place where the witness A. D. Swan has marked in red the figure 1, and you will there find a diagonal line. Does this indicate to an engineer reading that plan anything, and if so what? A. To me it indicates, in the absence of the plan, it indicates the termination of the embankment carrying the railway. It runs from the top level of the embankment down to about low water mark.

Q. Now, then, there is another line there also, isn't there—a diagonal line— A. The 3?

Q. Yes, another diagonal line shown in yellow? A. Yes.

Q. What does that represent, if anything? A. That represents undoubtedly the original ground level of the line of the proposed line of railway. It is a line sloping at an angle down the bank, that is why it is so long.

Q. Now, then, taking the position that would confront an engineer reading that plan, and having read it both as to profile and plan, what conclusion, if any, could he be expected to come to? A. Well, the conclusion I come to is that the draughtsman who put that on, he put it on just to finish off the embankment.

Q. Well, what I am trying to get at is, on reading the two together, what conclusion would you come to as to whether the fill is proposed or not? A. I wouldn't like to say.

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Defendant's
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A. D. Creer
Direct.

(Contd.)

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*British Columbia
Admiralty Dist.*Defendant's
CaseA. D. Creer
Direct.

(Contd.)

Q. Is it possible to be positive? A. No, I wouldn't like to be positive.

Q. I show you now exhibit 47 where Mr. Muckleston has portrayed in yellow—

The Court: Just right here, Mr. Griffin, what is it exactly the witness says he would not like to be positive on.

Mr. Griffin: As to what the red on the plan would be to an engineer reading the two together?

The Court: Yes.

Mr. Griffin: Q. In other words, I think his lordship would like to know whether it would be possible to form a definite conclusion? A. Personally I would not care to. 10

Q. I now show you exhibit 47, where you will find a red space marked by Mr. Muckelston as indicating where the fill would go if indicated on Exhibit 2 and if made; and in yellow the actual fill as actually made and found on the ground. Does that, in your opinion show it with substantial accuracy? A. It is very substantially correct.

Q. How far does this rock fill extend north horizontally over the original high water mark? A. Which plan would you like that measured on? 20

Q. Well, any way that you can feel that it is sufficiently accurate to enable you to measure it from. Take Exhibit 2 if you can and see if it can be done. You had better use probably Exhibit 47, because it has the other space marked on it? A. That is apparently—from high water mark?

Q. From original high water mark, yes? A. To the toe of the fill or the top of the fill.

Q. Take it to the top of the fill first, original high water mark? A. It shows here about 120 feet. 30

Q. At high water mark? A. Yes, that is apparently at high water mark on the line of the railway. This other line is on the line of the road.

Q. The witness Swan said this was low water mark? A. It is low water mark.

Mr. Donaghy: What?

Mr. Griffin: I understand Mr. Swan to say that this line was substantially at low water mark.

The Witness: Well, it begins—

Mr. Donaghy: I don't remember him saying that. 40

Mr. Griffin: Well, I will take that back, it is my memory, but I don't want to press that.

Mr. Donaghy: No.

Mr. Griffin: Q. Show me where high water mark is on Exhibit 47. Where would high water mark be, where would it strike the shore? A. High water mark would strike the shore here on the line of the railway. On the line of the road—

Q. Yes? A. It would strike the shore there.

Q. Oh, I see, that is the distance, that is where original high water mark would be—there? A. Yes, on the line of the road, the original high water mark is there. On the line of railway it is there.

Q. That must have been on account of the fill then? A. No, it is on account—they are two different lines.

Q. Can you give me the shore in any place where we can measure from?

Mr. Burns: I would suggest, my lord, that he state what there and here are to be useful, so the notes will show, your lordship.

The Court: Yes, I was just thinking that.

Mr. Griffin: I will make it plain enough.

The Court: It is very indefinite, what you mean.

Mr. Griffin: I will try and get it plain.

Q. Take exhibit 27.

Mr. Burns: “There and there” had reference to this exhibit.

The Witness: The point marked 6—

Mr. Griffin: Q. Yes, we will just mark it first. The point marked 6— A. Exhibit 47, the point marked 6 is high water mark.

Q. Yes? A. On the line of the proposed roadway.

Q. Now, measure from that point—

Mr. Burns: Now, get the other one, too.

Mr. Griffin: I will do them one at a time if my friend please, I can only do them one at a time.

Q. Measure from that to the top of the present existing fill?

A. About 340 feet.

Q. Now, my friends wanted some other things marked.

Mr. Burns: Well, the other “there,” the witness said “there and there” that is high water mark at that—I think it was. I want it identified on this or else it won’t be intelligible at all. A. There is the pencil mark 4, and I marked high water mark about 10 feet south of the point marked 4 in pencil.

Mr. Griffin: Q. Would this be of any assistance to you, exhibit 27, to fix high water mark. (Handing plan to witness).

A. No, I don’t think it would.

Q. Well, now, then, can you tell me what is the distance north horizontally from original low water mark to which the top of the fill extends? A. From original low water mark?

Q. As near as it can be discovered from the plan to the end of the fill as built, how far is it? A. About 83 feet deep.

The Court: Q. Which? A. 83 feet.

Q. From original low water mark to the edge of the fill it is 83 feet? A. 83 feet, that is the bottom edge.

Mr. Griffin: Q. From the toe? A. Toe.

The Court: Q. You say now there are two distinct things.

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British Columbia
Admiralty Dist.
Defendant's
Case
A. D. Creer
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 —
 A. D. Creer
 Direct.
 (Contd.)

You do not seem to realize the difference. The edge of the fill is the top of it and the toe is that submerged in the water? A. The figure I gave, my lord, was the toe.

Q. Which do you mean? I thought you must mean that.

Mr. Griffin: Give it from the same sheet and measure it—

The Court: Q. Call it the edge. The edge means the top edge. The toe is the lower portion that projects into the stream.

A. About 40 feet.

Q. From original low water mark to the toe of the fill, it is 83 feet. From original low water mark to the edge of the fill it is what? A. About 40 feet, my lord. 10

The Court: 40 feet.

Mr. Griffin: Now, does this fill to that horizontal extend at the two stages of tide respectively constitute an obstruction to the flow of the tide? A. A very decided obstruction.

Q. Then in what direction would it have a tendency to throw the current at the bay to the west? A. It would throw the current across the stream.

Q. Now, you have been on that fill yourself, haven't you?

A. Yes. 20

Q. To what extent does personal inspection of it enable you to verify the distance of the obstruction from high and low water mark respectively? A. Well, I saw that the fill extended to pier 5.

The Court: Give me exhibit 27, please, Mr. Registrar.

Mr. Griffin: Q. And it is possible then to measure from pier 5— A. I didn't measure, but I could see that the fill extended to pier 5. I could see pier 5, standing up at the fill.

Q. Now, does the fill as actually built in any way resemble the one that is shown on exhibit 2, if in fact it can be deemed to be so shown. 30

A. Not in the slightest degree. The one shown on exhibit 2 is an embankment—railway embankment. It is a continuation—or I might say a branch of the C. P. R., an embankment shown to carry the railway. The fill as actually constructed is a rock fill running out some distance beyond low water, used as a base to carry the trestle construction for both the railway and the road.

Q. Now, turning your attention to another topic, is the construction of a high level bridge spanning the channel from side to side—at least from 5 fathom line to 5 fathom line, a feasible engineering project? A. It is practical; it can be done. 40

Q. Leaving that one out, and turning to more modified projects, can you suggest any other kind of design which would bridge the Narrows and at the same time impede navigation less than the one now built does? A. Well, the important part to my mind is to leave the natural centre of the channel open for

navigation, and the lift span, whatever form it took, should have been in the centre of the channel.

Q. Which is the best available form for that design, is it determined upon, which kind of lift span; which kind of span?

A. Well, any information—I am not a bridge engineer, it is not worth very much, but my opinion is that a lift span would be the best span to put in there.

Q. Will you just take that other exhibit that is on the desk, No. 17—that is not it, exhibit 33. Is a lift span of that type perfectly feasible? A. It is, yes.

Q. Now, that calls for the construction of a very much more elaborate kind than the present bridge. It calls for two lines of railway and water pipes and so forth, but you might say modifying that design to a less ambitious structure— A. That was the type of bridge I recommend they should put in in my report—

The Court: What exhibit is that? Will you look at that, Mr. Griffin.

Mr. Griffin: No. 33, my lord.

The Court: 33.

A. —on the joint committee of the Board of Trade.

Mr. Griffin: Q. What is your suggestion then as to the width of the span? A. 300 feet.

Q. Where the present one is? A. Where the present one is.

Q. The present 300 foot span? A. I might say at the time I made that recommendation I had no idea it had ever been made previously.

Q. What height did you recommend? A. 135 feet.

Q. I see this one exhibit 33 is 165 feet? A. 165, yes.

Q. I suppose they are both equally practicable? A. Oh, both, it is a question of cost.

Q. Now, have you any doubt as to whether or no a bridge of that type of 300 foot span only instead of 400 could be built at a limit of cost not unreasonably greater than the present bridge.

The Court: You see this gentleman has told us, you see, Mr. Griffin, he is not a bridge engineer. Now, in these highly technical matters is it really of value to have his opinion?

Mr. Griffin: Well, my lord, if I might say so—

The Court: If so, it is perfectly right that he should say so, because you know what difference there is in these things. We know in exercising our own profession we see the difficulties it has and the more we realize the impossibility that other able men, so to speak, discharge our functions properly. Well, is it not a similar thing with our profession?

Mr. Griffin: Yes, my lord, I was going on the experience which the witness has given—

The Court: I will just leave it to you, Mr. Griffin, about this witness. You see what I mean, as this is the opinion of an

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Defendant's
Case

A. D. Creer
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 A. D. Creer
 Direct.
 (Contd.)

expert in a particular line, if it is that, of course, it is very valuable and helpful, but where it is not his particular line—

The Witness: Perhaps I might explain that we have a great amount of technical matter available in our institution journals.

The Court: Q. What? A. Technical data available in our institution journals, and although we may not be experts in that particular line we are quite capable of expressing an opinion on works of which we have no experience from our reading, our knowledge and our knowledge of engineering literature.

Mr. Griffin: Q. In other words, you were associated with 10 other engineers in the investigation? A. Yes, I was with three other engineers.

Q. Did you obtain information from them?

Mr. Donaghy: Now, that is—

The Court: No, please do not do that.

Mr. Griffin: My lord, I submit that my friend here is being too strict. In estimating the cost of works you get information from others. We have it on record already that a large portion of the present bridge was obtained from other sources, it was not the original work of any one advisor. He got his data from all 20 sorts of places, and I propose to ask this witness, subject to your lordship's direction, what in his opinion would be the additional cost of a bridge built on the lift principle instead of—

The Court: If you really conscientiously feel he knows you can ask him for what it is worth, but it may be really an injustice to all when people embark upon matters which they do not feel come within their knowledge. You may proceed—just proceed.

Mr. Griffin: Q. Well, do you feel qualified to express an opinion? A. May I state just what happened. If I trespass, 30 my lord, it is unwittingly—

The Court: Q. Now, that is for you, if you think you really know, you see, give us the benefit of it, do not hesitate. If you do not know, do not say.

A. My personal knowledge of what happened, I was a member of this committee—

Q. Can you not get away from that committee. You see, you seem to become obsessed with that. Bear in mind that the committee has nothing to do with this tribunal, leave that off and then start, never mind telling us that you were on the committee, concentrate upon your own knowledge and then you will be of 40 some assistance to me; otherwise you will not?

A. I investigated the possibilities of converting this 300 foot draw—fixed span into a draw span. I took out the width of the bridge and made rough calculations, very rough calculations, my lord, as to the possible ultimate cost. I included for putting in additional piers, and I made what might be called an intelligent guess at the maximum amount it would cost. The figure I arrived

at was \$400,000. I decided to be safe and I put it at about 5, and I said in round figures this alteration can be got for \$500,000.

Mr. Griffin: Q. That was on the basis of an alteration at the time, in November, 1924, when the enquiry was on? A. Oh, no, that was on the basis of the alteration more than a year ago.

Q. Oh, quite recently? A. Quite recently.

Q. That is on the basis of a complete bridge, really, remaking or rebuilding it? A. Altering—putting in a lift and towers, which will convert that span into a lift span.

10 Q. For that, you say your maximum estimate is \$500,000?
A. I say that can be done for \$500,000.

Q. Now, I would like if you can give it to me, what would be the figure which you think would be the maximum to reasonably allow for the additional cost if the lift you say had been put into force in the beginning and designed for that purpose? A. And abandon—in place of the bascule?

Q. Yes? A. And abandon the bascule?

A. Well, I would say not more than half that—about \$250,000, as a safe figure.

20 Q. Mr. Creer, one more question and that will be all. In your opinion is the increased extent to which the fill projects beyond the point indicated by Mr. Swan in the red line, is that in itself an alteration in the design? A. I should say from the point of view of the navigator it was a very serious alteration.

Mr. Griffin: All right, thank you. Your witness.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Mr. Creer, you have been a specialist, have you not, in your profession in— A. To a certain extent.

30 Q. Yes, as engineer on sewer construction? A. No, not entirely. I have had a lot of experience in waterworks and river work.

Q. Yes, how many years have you been practising in Vancouver? A. About ten years, I think—in 1918 I started.

Q. Yes; and when you came here what position did you come to assume? A. I came as resident engineer in charge of the investigations of the Burrard Peninsula Joint Sewerage Committee.

Q. Yes, and then you became engineer for the Board? A. I became engineer and consulting engineer.

40 Q. And held it for how many years? A. Up to about 1922, I think.

Q. Yes, so you have had a large experience in sewer work—sewer construction? A. Sewer and waterworks and river work.

Q. Where are you practising now, Mr. Creer? A. In Vancouver.

Q. Yes, I see. Now, you were very frank and told us you were not any bridge engineer, and I take from that that you have

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

A. D. Creer
Direct.

(Contd.)

A. D. Creer
Cross-exam.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 —
 A. D. Creer
 Cross-exam.
 (Contd.)

not been engineer in construction of bridges? A. No, not to any extent. I have put up one or two small bridges, but I would never class myself as a bridge engineer—specialist.

Q. Yes. I take it that means also that you had no experience in figuring cost of bridges? A. Well, I wouldn't go so far as that, because figures or cost are available, if you like to look them up.

Q. Yes. Well, now, will you go so far as to say that you can give us fairly accurate statements as to costs of different portions of this Second Narrows, if I take you along that line? 10
 A. No, I won't.

Q. Well, I will not bother then. Now, your estimate of the cost of changes in the bridge which you gave to my friend, you say they were made as a guess? A. As an intelligent guess.

Q. An intelligent guess? A. Based on figures.

Q. Yes. Now, will you tell me what figures of your own knowledge you base this on and we will just total them up for you? A. Well, now—

Q. Yes? A. I am speaking from memory.

Q. Yes? A. I haven't got my notes here. 20

Q. Yes? A. But as far as I remember we figured up the total weight in the towers that would be required.

Q. Who did that? A. This committee, I was one of them.

Q. But I don't want the committee? A. Well, I did it.

Q. You did. Well, confine it to yourself. You figured it up, did you? A. I figured up the total weight on both sets of towers.

Q. Do you remember approximately roughly in round figures what the total weight of each tower would be? A. I haven't the faintest recollection. 30

Q. Well, now, how high was it to go up? A. We were going to put a clear span of—a clearance of 135 feet.

Q. Yes, you know the size of the piers and the footings they have there? A. Oh, yes.

Q. Yes, how much additional weight would these piers and footings carry at the end of the 300 foot draw? A. Well, I wouldn't care to put any additional weight on them.

Q. You would not? A. No. We were going to build piers outside these. I don't say they wouldn't stand it, but with the knowledge I had then I wouldn't dare to put any additional weight 40 on them.

Q. Tell me what would be the cost for further excavation for the piers you would have, where these piers are? A. What would it cost?

Q. Can you give me any idea—yes? A. I should say it might cost from \$2 to \$500.

Q. Can you give us a closer mark than that? A. No, I could not.

Q. That is rather a wide margin? A. It is. It depends on conditions.

Q. You are not in a position to give us an estimate as an engineer on the cost? A. Of what?

Q. Of the pier footings? A. I never gave an estimate on the cost of the pier footings.

Q. Then you don't know the cost of these piers? A. As you like.

10 Q. Very good. By the way, did you make any personal tests to ascertain the direction of the currents at the south end of the Second Narrows Bridge? A. At the south end of the bridge?

Q. Yes? A. Not for some years. I did make a very elaborate series of tests in connection with the disposition of the sewage from the Clark Drive outfall.

Q. Where is that outfall from the bridge? A. It is quite a long way farther down, but the floats extended all over the inlet, in that part of the bay.

Q. There was no attempt—

Mr. Griffin: Let him finish.

20 Mr. Donaghy: Q. Finish? A. A very elaborate study was made.

Q. Yes? A. And I found, as I think I have told you, a distinct counter clockwise movement of the falling tide.

Q. Yes, how many years ago did you make this experiment? A. Oh, I suppose about fourteen or fifteen years ago.

Q. Yes, very good. Now, have you made any experiments at the site of the Second Narrows Bridge? A. No, none at all.

Q. None? A. None at all.

30 Q. And I suppose where you say this outfall of the Clark Drive sewer was is about a mile and a half away from the bridge, is it not? A. I should think so, yes.

Q. Yes, I see. Now, with your lift span with a clearance of 135 feet, of course, it would be obvious that would be an absolute bar to all vessels having a higher clearance? A. Naturally.

Q. In other words, it comes down to this, that your design would in some respects interfere with navigation? A. Naturally.

Q. Naturally; and in popular parlance most bridges are said by mariners to interfere with navigation? A. All bridges are, yes.

40 Mr. Donaghy: Yes, quite so. That is all.

Mr. Griffin: That is all, thank you.

(Witness aside).

Mr. Griffin: Mr. Young.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

A. D. Creer
Cross-exam.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Young
 Direct.

WILLIAM YOUNG, a witness called on behalf of the Defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Mr. Young, you are also a civil engineer practising your profession in the City of Vancouver? A. Yes.

Q. And have been doing so for how many years? A. Nine and a half years.

Q. And before that you occupied I think a position in the Provincial Government? A. Yes.

Q. What was it? A. Comptroller of Water Rights. 10

Q. And in that connection I suppose you had considerable experience with the effect of waters of some kind, what were they? A. Well, the plans for any development that was being made in the Province were generally submitted to me.

Q. A little louder? A. The plans for any developments that were being made in the Province were submitted to my Department then for approval.

Q. Yes. Now, do you know this Second Narrows Bridge? A. I do.

Q. You have been there recently and seen that fill and so forth down there? A. Yes. 20

Q. I just draw your attention shortly to exhibit No. 2. You might first turn it over and look at the plan. Do you see the place where the previous witness has marked in red the figure 2? A. I do.

Q. Reading that plan as an engineer do you say whether that fill in question is shown at that place? A. None indicated.

Q. What is indicated? A. A roadway on—

The Court: Speak louder, witness. A. A roadway is indicated and centre line of railway. 30

Q. What? A. Centre line of railway.

Mr. Griffin: Q. And a roadway? A. Low water mark, high water mark, top of bank.

Q. And does that roadway shown—approximately what breadth? A. Approximately twenty-five feet.

Q. Now, if a fill were intended to be shown there what would be the proper conventional indication? A. There would be a line shown outside of that again to the top or toe of the fill—both, probably.

Q. Louder? A. Both would be shown, top and bottom— 40 or perhaps the bottom alone.

Q. And how would it be indicated as being a fill? A. It would be indicated on a plan like this by a single line.

Q. But how would anybody reading it know what it was, I am trying to get at? A. They would assume that—unless it was

designated they would assume that it was the outer line of an embankment.

Q. Is there any other conventional way of making embankments or fills? A. Not on a plan like this. It may be designated by the word "fill."

Q. Well, by the word "fill." Now, then, what other considerations indicate to you that no fill is there intended? A. The other indication is that that original line is carried right from the bridge, right clean up from the railway track at the same width
10 the entire distance of 25 feet, you see, all the way along there.

The Court: Q. You will have to speak louder, witness?
A. I beg your pardon, sir. The indications are—of these lines are—the two lines there, the edge of the roadway carried right from the bridge clean up to and across the railway track.

Mr. Griffin: Is there anything else on that plan that would assist you? A. Nothing else.

Q. Take for instance, the high and low water, are they any help to you? A. Yes, they are of some help.

Q. What do they indicate to you? A. In studying the pro-
20 file—

Q. No, but I mean in the plan, I am dealing with the plan now? A. Well, they would be a help in seeing where the low water and high water marks were.

Q. What I am driving at is do the high and low water marks as appearing on that plan assist you in deciding whether or no a fill is there indicated? A. They would raise the question of a fill.

The Court: Q. They what? A. Would raise the question of a fill.

The Court: You say they would raise the question of a fill?
30 A. Yes.

Mr. Griffin: Q. Do you explain that? A. Well, you see here, this—the edge of the roadway is outside of the high water contour.

Q. Yes? A. And that one in particular. Well, that is along the edge of a bank there.

Q. Yes. A. And if the bents carrying the highway are merely laid on the ground then there is a fill, but if they are not, the bents are driven in ordinary shape piles there would be a fill, so it raises the question of a fill.

Q. Aren't you now referring to the profile? A. No, I am
40 referring to that there.

Q. You don't see any bents there? A. I don't see them here.

Q. You can't tell whether it is? A. No, it just raises the question.

Q. Well, then, turn to the profile, where do you find your bents there? A. Shown.

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CaseW. Young
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Young
 Direct.
 (Contd.)

Q. How do you find them shown there? A. They are shown in solid lines.

Q. And they go down to what point? A. They go down to a point—

The Court: What is the profile plan?

Mr. Griffin: No. exhibit 2. It is all the same.

The Court: Oh, yes.

A. —they go down to a point apparently slightly below high water mark.

Mr. Griffin: Q. Which would— A. That is on the high- 10
 way. I might say that this profile is a development of the bridge. The bridge is on the curve and it is flattened out to give the entire length of the bridge—the roadway as it comes off the bridge.

Q. It is a composite profile both of the railway embankment and the railway trestle? A. It is, yes.

Q. Now, following up your argument you were using a minute ago, the bents on that trestle are shown footed upon what? A. Footed upon apparently solid ground there.

Q. Solid ground, well, then, does the appearance of these bents and footings on that trestle negative the existence of any 20
 fill at that point? A. Yes.

The Court: Q. Just repeat what you said, witness, because I did not quite grasp it—it is hard to follow you. Just what do you say you wish me to understand there? A. That these bents, your lordship are—

Q. These what? A. Supports to the highway, we call them bents in engineering terms.

Q. Yes? A. These supports to the highway—

Q. Would you mind speaking louder? A. On the highway.

Q. To the highway? Yes? A. Are supported by solid 30
 ground.

Q. The bents for the highway are bedded on solid rock? A. Solid ground.

Q. Solid ground, yes. A. It doesn't say whether it is rock, earth or anything else.

The Court: No, solid ground.

Mr. Griffin: And also they are portrayed on the plan, the witness said, my lord.

The Court: Yes.

Mr. Griffin: Indicates that there is no fill at that place and 40
 thereby negatives it.

The Court: Yes.

Mr. Griffin: That is the point.

Q. Now, can you from these plans, or from your inspection of the ground give this court any idea of how far northerly in the horizontal line from original high water mark the present existing fill extends. You can have any plans you like to measure

from, exhibit 2 or 27. I will give you 27, I think. A. I would like the plan showing pier—

Q. Pier "A?" A. Pier "A."

Q. Pier 5? A. Pier 5.

Mr. Griffin: Could your lordship let me have plan 27 for a few moments.

Q. Do you want a ruler—oh, you have got it. High water now? A. What scale is this?

Q. I don't know? A. 50 feet to the inch. Here is high water here; low water.

Q. Now, measure to high water? A. High water. Well, it would be just about this.

Q. Please take the high water line? A. Well, it will be the same point.

Q. I see, mark there? A. I know. It would appear to be about 75 feet. You see it would just be the same at low water as at high water, because of the natural angle to which the fill would fall off.

The Court: I cannot hear what he is saying.

20 Mr. Griffin: I cannot hear.

The Court: If this is supposed to be evidence—I do not know.

The Witness: I am sorry, your honour.

The Court: There is a sort of whisper going on.

The Witness: About 75 feet.

Q. About what, 75 feet. A. The extent of the fill north from that shown actually as it is from that shown on the plan here exhibit 2.

Mr. Griffin: It extends 75 feet farther north? A. About 30 that, I wouldn't say that exactly.

Q. As shown by the red line marked with the figure 1? A. Yes, the red line marked with the figure 1.

Q. Here is a portrayal of it on exhibit 47 by Mr. Muckleston where you will see the line indicated by Mr. Swan at the figure 2, and the extension of it is shown by Mr. Muckleston in yellow. Do you confirm that? A. What is your question again, Mr. Griffin?

Q. I just want you to measure that here and see what the extent of it is, again at that point. A. On this plan it scales 40 feet.

Mr. Griffin: 70 feet. Well, that is near enough.

The Court: Now, this plan is what—what is the number of it?

Mr. Griffin: 47.

The Witness: 47.

The Court: Q. On this plan 47 you say the distance is 70. A. It scales as 70, my lord.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

W. Young
Direct.

(Contd.)

RECORD

British Columbia
Admiralty Dist.Defendant's
CaseW. Young
Direct.

(Contd.)

The Court: That scales 70.

Mr. Griffin: Q. Now, on the supposition that the white line marked with the red figure 1 does indicate the end of a proposed embankment, is there any such embankment of the kind, in any way resembling that? A. No.

Q. Evidence has been given—you heard the evidence of Mr. Muckelston and Mr. Creer— A. Yes.

Q. That the bridge as built differs from the bridge as indicated on exhibit 2 in these respects: It is 5 feet higher; it has two 150 foot spans at the north end with two additional piers supporting them; it has one additional span at the south end with two additional piers supporting it; the design of piers 2, 3 and 4 is entirely different, and then there is this fill which we have been discussing; and I wish to ask you whether those changes in your opinion are alterations in the general design? A. They are, of the bridge as a whole.

Mr. Griffin: Your witness, Mr. Donaghy.

W. Young
Cross-exam.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. You were looking, Mr. Young, I think, at exhibit 27? A. Yes.

Q. This is it, is it? A. Well.

Q. And you used it in comparing it with exhibit 2 for the purpose of making a scale from low water mark—something like that, didn't you. Do you remember making use of exhibit 27? A. Yes, I laid it out just—

Q. To supplement your knowledge of exhibit 2? A. We were just simply checking on there.

Q. Just checking on there? A. In fact what I was endeavouring to do—

The Court: Do not speak like that. I cannot possibly hear you if you mumble in that way.

The Witness: I am sorry.

The Court: Nobody can hear you—anybody can hear you if you speak out. A. What I was endeavouring to do when I was inspecting these plans was to get the distance from high water mark to the shore at all these points here, and from this point here.

Mr. Donaghy: Q. Don't say this point. A. This is about

Q. Say that again now? A. From high water mark—

Q. As shown on exhibit— A. Exhibit 27.

The Court: 27? A. 27.

Mr. Donaghy: Q. Yes? A. And the outer portion—of Pier 4. That is 4, is it not—Pier 4. This is 4-A—no, that is 3, is it?

Q. That is No. 3? A. Yes, No. 3.

Q. They are all numbered? A. And then from there up to here, No. 2, that is what I was endeavouring to do.

Q. Yes, and in doing that you were having regard to the

contour shown on this exhibit 27 where the fill appears here? A. I wasn't concentrating on that at the time.

Q. No. A. I was concentrating on the other thing.

Q. Now, you say exhibit 27 is a sketch of a curve rolled out flat, is that right? A. Well, it would be developed to—you don't turn out flat in order to show the—

Q. Well, between what points on exhibit 27 does the curve appear on the ground? A. Well, have you got a plan here—it would depend on this—

10 Q. If you have exhibit 2 there you might follow that? A. That would be looking at right angles to the steel portion of the bridge.

Q. Yes? A. Which is a straight line.

Q. Yes? A. This curved portion would be flattened out in order to give you the entire profile.

Q. Yes, where is the middle point of the curve, is it at the bridge end? A. Point of the curve?

Q. The middle point? A. Oh, I can't tell you that.

Q. You can't tell me that? A. No.

20 Q. Does it embrace the bridge end? Does the curve embrace the bridge end? A. It begins at the bridge end.

Q. Yes. In the measurements you gave of distance of this fill did you take the line at right angles to the shore or not in making that measurement? A. This is it here. That measurement was made along the profile here.

Q. I know? A. It would be along the curve.

30 Q. Well, now, if you can answer my question I want you to do it. You see some importance turns on it. In drawing that produced line, you see, from the shore out to the north end of the fill, did that line run at right angles to the shore or not? A. I measured from the profile and that profile was along the centre line of the bridge.

Q. Yes? A. And the measurement would be along the centre line of the bridge.

Q. And you tell me this profile is a flattened out curve, you see, that doesn't help me a bit. A. Well, your centre line of that bridge is flattened out.

Q. Well, can you answer the question. If you can't you can say you can't? A. Well, I wish you would put it a little plainer?

40 Q. I don't know what I can do but repeat it. Was the line produced from the shore line, what you call high tide or low tide—the line produced there northerly—the northerly end of that fill—or the edge of the fill—was it at right angles to the shore line. Surely that is a simple question? A. Not on this plan.

Q. I mean when you drew it and gave it. I am not talking of the plan, I am asking—you drew it on the plan, did you draw

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseW. Young
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 W. Young
 Cross-exam.
 (Contd.)

it at right angles to the shore line in making that measurement?

A. No.

Q. You did not? A. No, it is along the centre line of the profile.

Mr. Donaghy: You didn't draw it that way, all right.

Mr. Griffin: That is all, thank you.

(Witness aside.)

Mr. Griffin: If your lordship pleases, I am not proposing to call any further witnesses, and I have made a valiant effort, as I see it, to endeavour to get the documents for which I have been, one might fairly say, clamoring—these particular productions, as I see it, from my friends—proper productions; and as they declined to recognize the force of a notice to produce, I then had a subpoena served upon my friend, Mr. Burns, as solicitor for the Bridge Company, and upon Mr. Ward, its manager, to produce documents that I wished to see, and I have had handed to me a large volume—quite a large block of correspondence which, of course, I haven't had a moment to read. It was handed to me in court, and for the moment I therefore ask my friends to produce, firstly, the applications made to the Railway Board for the four orders which have been put in evidence. The Board requires applications in writing and the rule I turned up—my friend was not prepared to accept my assurance the other day and I looked it up in the rules, and I find that rule 3 of the rules of the Railway Board, as I say, requires the section to be named in the application. So that I ask my friends now to produce me those for the four orders of the 24th July, 1923; 30th July, 1923; 31st July, 1923; and the 6th March, 1925, the four that are put in evidence. 10 20

Mr. Burns: Well, so far, my lord, as the subpoena is concerned, of course, I am ready to obey it, still with the objection that these matters that are being asked for are entirely irrelevant to this case. I have endeavoured to answer the subpoena and can only say I have not had time to do it, because it was just served this morning at 10:30, just when I was coming into court, and I shall be very glad to look it up and see what we have in answer to the subpoena. 30

Mr. Griffin: The matter of time is not to my mind an important one, because the notice to produce was long since given.

Mr. Burns: I have taken my position as far as the notice to produce is concerned. 40

Mr. Griffin: Very well, my lord, if my friend takes the strict standing on the notice to produce that was negatived after it came to trial, it was to have been looked up. My friend yesterday didn't say he didn't have it, merely that they wouldn't produce it. The subpoena is bringing that to a test, so that I ask for it.

The Court: Now, just let me understand exactly what you are asking for now, because I have got it down what you are ask-

ing for. Now, you ask for the production of the applications for the four orders that were made by the Railway Board.

Mr. Griffin: Yes, my lord, for if the four orders are available and are introduced in evidence as they have been, then clearly the written application on which they are founded is at least the document I was entitled to see.

The Court: Well, why? You see they object, first, that they are not, you see, why do you say that?

Mr. Griffin: Because, my lord, on the point alone that has
10 come up, that that order was made under a section which your lordship yourself admitted—and I think your lordship has ruled it was a clerical error. Now, that could not be so if the application made it plain.

Mr. Donaghy: Well, I suggest, my lord, as my friend, Mr. Burns here said, he was served at 10:30 with the subpoena and if he can, he says, he will bring all documents called for in the subpoena, only my friend tries to say some other thing, and we have never discussed it and Mr. Burns has had no opportunity to obey this subpoena.

Mr. Burns: Twenty-one documents.

Mr. Donaghy: My friend might have gone ahead and served this subpoena on Friday or Saturday. He had ample notice of our stand on this matter, but he served us at 10:30 when we came into court—delayed a long time.

Mr. Griffin: It wasn't impossible to do it any quicker, but you had notice to produce.

Mr. Burns: Well, I will obey this subpoena with pleasure.

The Court: Well, of course, you must give the parties time to answer the subpoena.

Mr. Griffin: They have had plenty of time to have that affidavit. Well, my lord, I am applying now—

The Court: Why surely I do not know the reason why you did not give them that on Saturday, they would have had no excuse this morning, if they were legally compelled to do so.

Mr. Griffin: Then I also served a subpoena on Mr. Ward, the company's manager.

Mr. Donaghy: That is the same position.

Mr. Burns: Yes, when he was coming into court this morning.

Mr. Griffin: I desire to see the minutes books, and I have
40 asked him to produce some applications for the Railway Board, and I asked also for the progress estimates—I mean the record of progress, I want to fix more closely this figuring of the various prices. Now, I ask my friend whether this witness will produce these or not.

Mr. Donaghy: I said with pleasure we will obey these sub-

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

W. Young
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Defendant's
 Case
 —
 W. Young
 Cross-exam.
 (Contd.)

poenae to the utmost of our ability. I don't want to repeat that again.

The Court: Yes.

Mr. Griffin: Very well.

The Court: Well, tomorrow morning we will be able to see what can be produced.

Mr. Donaghy: Yes, my lord. My lord, I would like to make a remark now regarding Mr. Swan. He tells me that it is imperative in his business that he leaves on tonight's train.

The Court: When?

Mr. Donaghy: Tonight to carry out some important engagement that he has.

The Court: Yes.

Mr. Donaghy: I have only a few questions to ask him.

The Court: Yes.

Mr. Donaghy: If my friend is through calling his witnesses.

The Court: Oh, yes, that has nothing to do with Mr. Swan.

Mr. Donaghy: Mr. Swan might be called now. It is a very short examination.

The Court: Yes, quite so, you may call him.

Mr. Donaghy: He has been cross-examined before. We will call Mr. Swan.

Mr. Griffin: Of course, we have not closed our case, but I would raise no objection, but I just merely wish to mention that.

Mr. Donaghy: It is an accommodation.

The Court: You see apart from these documents, you have closed your case. You told me you had no more witnesses.

Mr. Griffin: No, my lord, but they may produce some.

The Court: Oh, well, that is another matter, I will bear that in mind, of course; but subject to that.

Mr. Griffin: And then I may have a number of interrogatories to put in.

The Court: Yes, that is another matter.

Mr. Griffin: As far as I know, my lord, I have no other witnesses unless something develops.

The Court: Yes, I will bear that in mind tomorrow morning.

Mr. Donaghy: Very good.

Plaintiff's
 Case

—
 A. D. Swan
 Recalled
 Direct.

ANDREW DON SWAN, a witness called on behalf of the Plaintiff, recalled, testified further as follows:

DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Swan, did you hear the evidence of witnesses for the defence on the subject of the position of the bascule draw in the Second Narrows Bridge? A. Yes.

The Court: Yes, just one moment.

Mr. Donaghy: Namely, to the effect that it is placed in the wrong location, being too far south—too near the south shore. You heard that? A. Yes, my lord.

Q. Yes, what do you say in regard to that point?

Mr. Griffin: Now, before the witness answers that, my lord, I want to make plain what I was saying before. My friend is evidently now endeavoring to offer evidence in reply, that is rebuttal. My submission is that it is not now permissible—my friend is not in a position in which he can now bring evidence in
 10 rebuttal, for these reasons: First, this witness, here, as I see it—as I remember the transcript on the previous hearing, my friend got leave to call this witness on one point only, that was the legality of construction. Now, if this point is part of the legality of construction he was bound to have given it as part of his case in chief. If it is not legality of construction then he has not your lordship's leave to call this witness—put him in the box at all. We waited for him for the purpose of his giving evidence on one issue and one issue only, the case being otherwise concluded. Now, I support that, my lord, by this further, this case involves two issues
 20 and two issues only: One is the legality of construction, which in effect is nuisance and the other is negligent navigation. This witness, my lord, is not being called on navigation, I understand that clearly enough. If, therefore he is being called on the issue of illegality of construction, that is founded on four arguments, that is to say the test is founded on four arguments: firstly, that the bridge as built does not conform to the advice largely—a plan of their own largely. Secondly, that the authority under the Navigable Waters Act was not obtained. Thirdly, that no proper authority was obtained under the Railway Act; and fourthly, even
 30 if it was obtained under the Railway Act the bridge by reason of its impeding navigation more than it need have done is still unlawful. But, my lord, these four are all arguments that the bridge is unlawful, they are simply four reasons why we say it is unlawful and a nuisance; but the issue whether it is unlawful and a nuisance is upon the plaintiff, and therefore he cannot add to his case. It was as much his duty to show that this bridge was unlawful—or lawful, to put it from his side, was lawful, permissible, and the question as to whether it impedes more than it need as to enter on the grounds upon which we proposed to attack this bridge. He
 40 had the onus of showing, in other words, that this bridge was defensible on the ground that it impeded navigation no more than was necessary, he had the onus of that argument as well as of all the others. And therefore my submission is that for him to attempt to strengthen his case now would be undoubtedly within the principle of splitting to which your lordship has referred. I endeavoured to get the authority which your lordship had indicated, but could not find it up to date, the volume being out of the library

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Direct.
 (Contd.)

and there is no other copy in town, so I cannot offer your lordship that particular case to which you had reference; but I offer a case to which I wish to shortly refer, but I don't want, if I can help, to delay—

The Court: There is no occasion to refer to it, Mr Griffin, because that proposition is exhausted, too, that is to say, he cannot split his case, that is so, and you are right. The point that is really of importance, has he split his case. I am ready to express my opinion that he has not.

Mr. Griffin: I know your lordship has intimated that, so of 10 course if you do not wish me to argue it now—

The Court: You argued it all before, you argued it very elaborately before.

Mr. Griffin: If your lordship feels that the matter is concluded I don't want to waste time over it.

The Court: If you wish to add to it anything important, as I said before, I would be glad to hear you.

Mr. Griffin: No, I only want if this witness has not much time and he ought to be heard not to waste time. I want to get your lordship to thoroughly understand that my submission is 20 that if the issue be legality of construction, and if that depends upon the extent of interference to navigation, the onus is as much upon the plaintiff on that as any other issue, because he must demonstrate the bridge to be a lawful structure within those statutes which he says make it so, and if one of those statutes requires him to build a bridge which impedes navigation to the minimum only and he goes beyond it, the bridge becomes unlawful, and he must establish that. Now, then, he cannot establish that in my opinion by any evidence in rebuttal, which would be splitting.

The Court: It is really unnecessary for me to repeat what I 30 said before. However, now this being adduced is particularly given in this case upon the statement of defence, paragraph 8 of it to illustrate one, and the particulars delivered thereunder and upon the counter claim. There is nothing that is now being proposed which in any respects violates, as I regard the case, splitting of the case, or at all inconsistent with the rulings that I have made at the opening of the case, which were based of course upon the case as then presented that is to say, upon the case that the plaintiff was making out at the time, that this ship by negligent navigation damaged this bridge. That is quite apart from the other 40 issues which were raised by the defence and by the counter-claim. You may proceed therefore.

Mr. Donaghy: My lord, might I have that question read, and the answer.

The Court: Yes, you might just ask him.

(Record read as follows:

“Q. Mr. Swan, did you hear the evidence of witnesses for

the defence on the subject of the position of the bascule draw in the Second Narrows Bridge? A. Yes.

“Q. Namely, to the effect that it is placed in the wrong location, being too far south—too near the south shore. You heard that? A. Yes, my lord.

Q. Yes, what do you say in regard to that point?”)

A. I consider that the bascule is placed in the proper position.

Q. Why? A. Because we had, if we possibly could, to get the bascule piers founded on rock and we went the very limit in placing No. 2 pier at the edge of the rock, in fact, we went too far unfortunately and we overstepped it.

The Court: Give me 27, please. A. —but to the best of our ability we endeavoured to get piers 2, 3 and 4 all founded on solid rock.

Q. And also to get piers 2— A. 2, 3 and 4, my lord.

Q. You got 2, yes, and also in regard to 2, 3 and 4? A. Yes, my lord.

Q. What did you say about them? A. Also founded on solid rock.

20 Q. What about 4-A. When you say 4 do you mean four and 4-A? A. 4 and 4-A, but it was not so vastly important.

Q. No, 4-A is not so important, yes. You say 4-A then in 27 is not very important? A. No, but there was solid rock there to our knowledge.

Q. Yes, I understand, but that was not the primary thing you were aiming at? A. No, my lord.

Q. You had first to get your pier 4 and 3, so I understand? A. 2.

30 Q. You first got 2, then it was essential to get 3, essential to get 4, and A was desirable—4-A but not so essential, you mean? A. Yes, my lord.

Q. Is that what you wish me to understand? A. Yes, my lord.

The Court: Yes.

Mr. Donaghy: Q. Now, Mr. Swan, do you prepare a cross-section of pier 2 showing its footing, so as to give the court an idea of what you meant when you said you had gone as far north with it as you could have, in fact, a little too far north, that you got over the edge of the rock. A. I prepared a drawing—I didn't 40 prepare it specially for the court.

Q. No, I show you this. Is this drawing which you see here, a good representation of the footing of Pier 2 (Handing sketch to witness.) A. That is a correct drawing showing the foundation of Pier No. 2.

Q. Yes? A. As actually constructed.

Q. Yes.

Mr. Griffin: I again object, my lord. I don't see what that

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

has to do with any reply. It is not in reply to any evidence I gave, so how can it be rebuttal.

Mr. Donaghy: I ask to have this drawing marked.

The Court: Yes, I think that drawing should be put in evidence. Mark that particular drawing, but nothing else.

Mr. Donaghy: Yes, just the drawing I want marked.

The Registrar: Exhibit 48.

Mr. Donaghy: You might mark it with pier 2 on it, so we will know.

The Court: Put a red circle round it. A. (Indicating.) 10

Mr. Donaghy: Before I proceed further, my lord, I would like if your lordship would care to look at the footing. That shows the point he is making.

The Court: Yes, let me see it.

Mr. Donaghy: You will see the little edge of rock—well, just on the corner of the pier, on the edge of the rock.

Mr. Griffin: My lord, before that goes in, may I interrupt to ask the witness a question or two about it—before that document goes in.

The Court: What do you suggest, Mr. Griffin? 20

Mr. Griffin: I would like to ask the witness a question or two before the document goes in.

The Court: In what connection?

Mr. Griffin: In connection with his knowledge of it, I want to ask him if he knows about it.

The Court: Oh, of course, yes, but I thought he said it was his own.

Mr. Griffin: I want to ask him.

The Court: Well, you looked at it, is that so?

Mr. Griffin: I had never seen it. 30

The Court: That is a matter of cross-examination. He has sworn it is, you cannot ask for that now.

Mr. Griffin: Before the document goes in evidence I ought to ask him about it, because otherwise it might not go in.

The Court: I will allow you.

Mr. Griffin: Q. Mr. Swan, were you ever down there? A. Yes.

Q. Personally down at the bottom? A. I wasn't in bottom of No. 2.

Q. No, that is what I mean. You knew I meant that. A. No, 40 but my staff of assistants, for whom I am responsible were there and made the exact measurements.

Q. And you are speaking from what they told you? A. No, not from what they told me, from a correct measurement on the ground.

Q. Made by them? A. Made by my staff for whom I am responsible.

Q. Yes. That is the reason I am asking this, and you made this, I presume, based upon what your staff reported to you? A. Yes, and their measurements.

Q. You were never down in the bottom yourself? A. I wasn't on the bottom.

The Court: Of course, you can understand, Mr. Griffin, I have not supposed he was. I suppose that what he was giving us here was the plans from which—which as engineer in chief had been made for the construction to be carried out upon.

10 Mr. Griffin: No, this is a statement made—alleged to have been made of the conditions as they were made; this is made afterwards.

The Court: Yes, I see what you mean. No, I did not understand that.

Mr. Donaghy: That is after having—

The Court: I do not understand that. Of course, you will assure me on that point. No, I did not understand that he was conveying anything more to me than what you say, Mr. Griffin.

Mr. Griffin: Yes, then it would not be admitted.

20 The Court: But the only thing now so far as the plans, they were his own plans for that work, which he approved and gave them.

Mr. Griffin: No, my lord, but that is not what I said. That does not purport to be a plan by which the work was to be done.

The Court: That is what I say.

Mr. Griffin: No, he does not say it was that, it is a plan of the work that it is supposed to have been done?

The Court: Well, I did not know that. Let us clear that up.

Mr. Griffin: Yes, no doubt about it.

30 The Court: Q. Did you pass upon that, witness? A. This is a plan as actually constructed, my lord.

Q. Yes, but what I mean is did that plan come under your observation? Did you yourself approve that plan? A. I approved the carrying out of that plan.

Mr. Donaghy: That is the point, my lord, is it the way the work was done.

The Court: I beg your pardon?

Mr. Griffin: The point is this, did he on the report of his engineers order this work to be done?

40 The Court: That is what I mean.

The Witness: Not only that, my lord, but I had five of the very best engineers I knew in the world to advise on that.

The Court: That is not it, that is not sufficient, is this the plan you authorized your staff to work upon? A. Yes, my lord.

Mr. Griffin: My lord, let me ask a few more questions, because I am satisfied that is a misapprehension.

Mr. Donaghy: That is not the point.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Direct.

(Contd.)

Mr. Griffin: No.

Q. Isn't this a representation, witness, of what you understand was in fact done? A. Yes.

Q. It is not a plan prepared for the work at all, is it? A. It is in accordance with the plan.

Q. Please answer my question? A. Yes, it is in accordance—

Q. That plan was not made until the work was finished, was it? This plan here in front of us was not made, never came into existence until the work was done? A. Yes, most decidedly it did, the original of it. 10

Q. No, this particular piece of paper we have here? A. Oh no, that particular piece of paper, that was done possibly six months ago. It is dated when it was done, showing the thing as actually constructed.

Q. As actually constructed, but that it was so constructed you don't personally know of your own knowledge, do you? A. No, as I have endeavoured to state, it is only information from my staff for whom I am responsible.

Mr. Griffin: Yes, now, my lord, I think that is plain, that the fact that it was done that way— 20

The Court: No, I never supposed in the least, you know, I never supposed in the least that it was. That is precisely what I said.

Mr. Griffin: Yes, my lord, it is hearsay.

The Court: That plan you have before you, of course, is a printed report, I suppose.

Mr. Griffin: Yes.

The Court: Nobody supposes that was the actual plan that he worked from, nobody supposed so at all, I least of all. I understood this witness to say that plans were drawn for the construction of these piers in the manner that is shown there, and that he authorized his staff to construct it upon that basis, that is what I understand him to say. 30

The Witness: That is correct, my lord.

Mr. Griffin: But, my lord, these plans are not tendered and this one is, and I object to this one on the ground that the witness admits that this is a plan of work that was done as he told us on the report of his staff but he himself cannot verify it.

The Court: Well, of course, that is not the point, I wish to emphasize that again, on which he answered, and it is only in regard to what he told me in his evidence that I am admitting that plan to that extent and no more. 40

Mr. Donaghy: Q. Now, was there any other reason actuating you in placing the bascule draw where you placed it. A. Simply that we thought it was the correct place to put it.

Q. Correct from what point of view? A. From the engineering point of view.

The Court: What do you say, it was what? A. That it was the correct place to put the bascule span, my lord, from an engineering point of view.

Mr. Donaghy: Q. Yes. Did you in settling this question have any regard to navigation or acquire any knowledge on that subject—navigation at this point, and the currents and so on? A. I made a complete study—

Mr. Griffin: Excuse me for a moment, I object to that. That is navigation again.

10 Mr. Donaghy: No, not about navigation especially, but currents.

The Court: It is obstruction to navigation, this is an entirely different thing.

Mr. Griffin: Here is what my friend said yesterday—or the day before:

“I don’t desire to examine Mr. Swan in answer to his engineer.”

That is the same point we had again and again.

Mr. Donaghy: “In answer to his engineer.”

20 Mr. Griffin: Yes.

Mr. Donaghy: I don’t think “engineer.” I might have used it, but that is not sensible.

Mr. Griffin: I am reading it from the transcript.

The Court: That is one thing, obstruction to navigation is entirely—I rule upon a different thing.

Mr. Donaghy: No, I was interrupted on that question.

The Court: Yes. He said this was the correct place from an engineering point of view to construct this bascule, and you asked him in so deciding did he take into consideration the requirements of navigation.

30 Mr. Donaghy: Q. Yes? A. Yes.

Q. Did you take into consideration the question of currents in the channel? A. I did.

Q. Now, will you inform his lordship what you learned in regard to that before settling upon this position for the bascule.

Mr. Griffin: I object to that, my lord. Your lordship has ruled that I could not get evidence in from a witness of what he learned, and I submit the same applies to this witness. He cannot tell us what he learned.

40 Mr. Donaghy: Q. I mean from personal actual observation, not from hearsay? A. I observed that many vessels passing up and down really hug the south shore of the narrows. It was before there was any bridge there at all. The current was not quite so swift there and it was farther to the north.

Q. I beg your pardon? A. The current was not quite so swift there as it was farther to the north.

Q. Yes, will you give his lordship some idea of the time and

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Direct.
 (Contd.)

effort you spent in studying this question of where the bascule opening should be? A. The total time occupied in preliminary investigations was approximately two months actually on the site.

Q. Now have you considered the alternative proposal that has been made by Mr. Muckleston, namely, that the type of opening should be a lift span placed where the 300 foot fixed span is in the present bridge? A. I haven't given it much thought.

Mr. Griffin: Excuse me one moment. This is certain, if my friend has any case at all in chief, he is now supporting it. If other types of bridge in competition with this are taken in as to the lawfulness of this one, then a discussion of that was part of the case which he must extend in chief. 10

The Court: That is in conformity with my former ruling. You may proceed, Mr. Donaghy.

Mr. Donaghy: Yes, my lord.

Q. Have you given any time to consider the proposal Mr. Muckleston made here for a limited form of opening span? A. Not a very great deal, because we found that the lift type of bridge was going to be more expensive than the type we had under consideration first of all. 20

Q. How did that come to enter into it—the consideration of the matter of expense? A. Because we were tied down originally to a definite sum of \$1,250,000 for the whole works from beginning to end.

Q. That sum was subsequently augmented to what, again? A. I don't remember the exact figures, but it was somewhere about one and three-quarter millions.

Q. From contributions from the Dominion and Provincial Governments? A. Yes, my lord.

Q. Yes. Now, on the point of merit, in regard to clearance, which type of opening for ships has the most advantage? A. You certainly want to have sufficient clearance to allow any class of vessel passing up east of the bridge. If you didn't have sufficient clearance it would have entirely barred certain vessels at all events from ever going there. 30

Q. And is it true that the clearance is unlimited through the bascule? A. It is.

Q. Now, you have already mentioned the point about this bascule having been extended as far north as you thought was safe, because you came to the edge of the rock. You remember that? A. Yes. 40

Q. What do say about putting a bascule where the 300 foot span is for instance—the fixed span? A. I have no doubt it could be done if you had sufficient money to pay for it.

Q. What do you mean by that? A. Some very large—a larger amount of money than we had or was available. I haven't gone into the actual details of such additional cost.

- Q. But you say it would be a very large sum of money? A. A very large sum, I would say.
- Mr. Donaghy: Your witness, Mr. Griffin.
- Mr. Griffin: Now, my lord, it would be quite impossible for me to finish by half past four.
- Mr. Donaghy: Try and finish, if you can.
- The Court: I beg your pardon?
- Mr. Griffin: It would be quite impossible for me to finish by half-past four.
- 10 The Court: Well, you may proceed as far as you can.
- Mr. Donaghy: I might mention here, my lord, I have a certificate from Dr. Nelles here that Mr. Swan is ill—in fact, he is having a hemorrhage and he is actually in court against the doctor's orders, as a matter of fact.
- Mr. Griffin: Well, all I can say on that question is to do my best in this connection.
- The Court: Yes, you may proceed.
- Mr. Griffin: I do not wish to go over the evidence and take up time and if the witness will answer me directly I will be
- 20 quicker.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Direct.
(Contd.)

CROSS-EXAMINATION BY MR. GRIFFIN:

- Q. You do not claim yourself to be a navigator? A. I beg your pardon?
- Q. You do not claim to be a navigator? A. No.
- Q. Then I take it you will concede that the considered opinion of practical navigators should be the right test on what is navigable? A. I would assume so.
- Q. Yes. Well, you would consider that a fair test, that is what I mean? A. I would say so, so long as they were experienced navigators.
- 30 Q. Yes, I said that. Therefore, if their requirement as a minimum is a 300 foot channel you have nothing to say against that as to the question of navigability? A. I would say that that was much quicker than was necessary.
- Q. I put it to you now, this really is the test, of course, I said if the considered opinion of practical experienced navigators makes the minimum 300, will you say they are wrong? A. Well, I will say that I don't agree with them.
- 40 Q. I know, but will you say—be frank, you are arguing matters and that will take time; but isn't it a fact that in the engineering world you would expect your opinion to be taken as against a seaman? A. I dare say.
- Q. I think you would fairly enough. Then I say to you, if not only one, but a large body of practical experienced seamen said that a certain width of span is required, is that not enough for you? A. No.

A. D. Swan
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

Q. I mean enough for you on the navigation question? A. I would use my own judgment to a certain extent as to whether their views were correct or in keeping with other places.

Q. I know, but if you found that their views were substantially unanimous, wouldn't that be convincing? A. It would depend on the men.

Q. On the men, yes? A. Yes.

Q. It would. I said they were— A. If they were thoroughly experienced I would have no hesitation in accepting their view on a purely navigation point of view. 10

Q. I am stating that to you, you can accept that. A. If they were thoroughly experienced, I said.

Q. If they were you would agree.

Mr. Burns: Surely that is a matter of comment, my lord, anyway.

The Court: It really is not cross-examination. Of course in cross-examination—I would say, Mr. Griffin, that in all matters there reaches a point where any man would exercise his common sense. For instance, you have a man coming here and stating that it was necessary to have a span 500 feet wide, he would say any sensible person knows they are not telling the truth. There comes a point, of course where you have to exercise your common sense. Suppose the witness thought these men were experienced he might say they are drawing a long bow, that is what it means. 20

Mr. Griffin: Shall I proceed, my lord.

The Court: You may proceed, of course, yes.

Mr. Griffin: Q. Then in regard to the position of the navigation channel, I take it you would in the same way accept the view of capable and experienced navigators? A. They would certainly have a certain amount of influence with me. 30

Q. Would you or would you not, witness—answer my question directly and frankly, would you accept it if you had it in front of you in the form in which it was clear, that capable experienced men were agreed on a certain thing, would you accept it? A. I don't know that I would accept of it, but it would have very considerable weight with me.

Q. I was trying to see if you would say that you would put your professional opinion as an engineer against their professional opinion as navigators in a matter within their sphere, now, would you? A. I would want to know what they were putting forward first of all. 40

Q. Well, I think I will leave it, because I think it would remain like that, an argumentative discussion all the way through.

Mr. Burns: You started the argument.

Mr. Griffin: Yes, very well.

Mr. Burns: It is a very proper answer.

Mr. Griffin: My friend has really no right to echo.

Q. Don't you think for example that a 300 foot span—to use a phrase of your own at one place—would involve a revision of shipping methods less drastic than an 150-foot span? A. Yes, I do.

Q. You would have given them a 300-foot span if you could have? A. No, I don't think I would have done that.

Q. Well, you have given them more than you did, if you could have? A. I might probably.

10 Q. I take it that you have said in effect that you limited that to this 150 because you didn't have more money? A. Well, we were doing the best we could.

Q. That is so, I say you would have given more with more money, wouldn't you? A. Oh, we would have given very much more if we had more money.

Q. Now, you have done a lot of work for Canada? A. A certain amount.

Q. And you have the interests of this port at heart? A. I certainly do.

20 Q. If you were asked by the Government of Canada today if this request of the shipping world for a span in the middle of the channel was reasonable, wouldn't you say yes? A. I would have a thorough investigation by competent men before I came to any conclusion on the subject.

Q. But as at present advised wouldn't you say yes? A. I would not.

Q. Now, I take it the greatest danger that a ship would have going through a draw—the greatest single danger is current? A. I would say so.

30 Q. And of all the worst are cross currents? A. I should think so.

Q. Now you have agreed, I believe I need not quote too much, if not necessary—that the current by the bridge is 7 miles an hour? A. Somewhere thereabouts.

Q. And this was even at the time of the first construction being increased by the current—by the dredging in the First Narrows? A. Undoubtedly in my opinion.

Q. You also agreed in one place—which I can give you if it becomes necessary—that the time of slack in the Second Narrows is very short? A. Yes, there is no doubt about that.

40 Q. And very varied? A. Yes.

Q. And the length that can ever be relied upon is not more than one-half to one hour? A. I couldn't put it exactly in minutes, but I accept your statement.

Q. I am going to find, so as to give you my source, from your letter. You knew this bridge, piers and trestles would reduce the sectional area? A. Yes.

Q. And that this would be by the bridge piers and trestles,

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 —
 A. D. Swan
 Cross-exam.
 (Contd.)

to use a continuation of your letter again, 10½ percent. at low water and 12 percent. at high water. Is that right? A. Under certain conditions. If there were no additional spans—I am speaking from memory now—

Q. Yes? A. A. That is, if there were no additional spans put in to the north of the 300 foot span, and that no additional dredging was done.

Q. That would be the position? A. Yes.

Q. That is right. So that in order that the improvements you were desirous of getting should result it required this dredging on 10 the north shore? A. Yes.

Q. Now, you got that information apparently from the same place that the engineers got it for the inquiry in November 1924, that is, you got your information from the Bridge Company? A. No, I got it from my staff.

Q. I see? A. And the other people got it from the same source.

Q. I see, then it came from the same source—the source was your staff? A. Yes, my lord.

Q. Now, you know from the start that this question of currents 20 was going to prove a serious question? A. Yes.

Q. And in fact it certainly proved so. You have difficulty in remembering some of these dates, but probably you have looked up some of them, and I will endeavour to assist you with all the information I have. The first of the work started in September, 1923. That was the north trestle, is that right, to the best of your belief? A. I told you I don't remember dates.

Q. Is that true to the best of your recollection.

Mr. Donaghy: Well, he says he doesn't remember dates.

Mr. Griffin: Q. I see. Well, that was right, that the first 30 pier was put in in February 1924? A. I couldn't tell you the dates at all.

Q. Now in any case it is within your knowledge— A. It is all on record, I would be glad to let you have it.

Q. I can't get the records in now. In this subpoena I have served I asked for them, but they are not here. A. I see.

Mr. Griffin: I have made my objection on that point already and don't wish to labour it.

Q. I am going to read from your letter and see if you agree 40 with this statement of fact—

Mr. Donaghy: What letter?

Mr. Griffin: Letter of the 3rd April, 1924 from the Secretary of the Harbour Commissioners to the District Engineer of the Public Works Department.

Mr. Donaghy: Have you got the letter with you, Mr. Griffin?

Mr. Griffin: I have got a copy of it.

Mr. Donaghy: I haven't seen it.

The Witness: I don't know.

Mr. Griffin: Q. What is it? A. I don't know.

Q. You don't remember? A. No.

Q. Was this a correct statement of affairs then?

"It appears that the tidal current in the Second Narrows has very considerably increased lately possibly due to the dredging of the First Narrows."

Is that correct in fact? A. I should think so.

Q. Is this correct— A. Pardon me, who is this letter
10 from?

Q. Mr. Harvey, Secretary of the Vancouver Harbour Commissioners to Mr. Worsfold, District Engineer for the Department of Public Works? A. Oh, yes.

The Court: The date, Mr. Griffin, you say?

Mr. Griffin: 3rd April, 1924.

The Court: 3rd April.

Mr. Griffin: Yes, my lord, 1924.

Q. "If the bridge is constructed according to the present
20 plans, it is quite possible there will be a further increases in the force of the tidal current probably to an extent which will make navigation through the opening span there difficult and possibly at times dangerous."

Did you feel that was true? A. I believe so.

Q. I was just drawing to your attention from that letter the facts— A. I was the man who raised the point.

Q. What? A. I was the party who raised the point.

Q. Anyway the fact was brought to your attention, and you
30 believed this to be true? A. It was not—I raised the whole question myself, because I was then endeavouring to get additional dredging and additional spans put in.

Q. Well, that is because the Commissioners suggested—that
is, the Commissioners are suggesting in view of your responsibility under the Navigable Waters Protection Act in matters affecting navigation that he should inquire into the points referred to above and confer with the engineer for the bridge as represented by his resident engineer, Mr. James, so that in the event of your concluding that difficulties to navigation would result from carrying out the present plans of the bridge you might make what representations were deemed advisable to the Department. Now, did
40 Mr. James get in conference with Mr. Worsfold on that point? A. I don't know what Mr. James did.

Q. Did he report to you that he had? A. I have no recollection, but I myself did.

Q. But you don't know when you did? A. No, I don't know the date.

Q. You don't know the date? A. I don't know the date.

Q. It was probably after this letter was written, was it not?
A. I don't know the date.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

The Court: How long was that after the bridge had been begun, Mr. Griffin?

Mr. Griffin: The first pier was put in in February, my lord.

The Court: The first pier was put in in February, 1924.

Mr. Griffin: Yes, 1924, that is the first date—1923.

The Court: And that letter was from the Harbour Commissioners to whom?

Mr. Griffin: To the engineer of the Public Works Department.

The Court: Oh, at Westminster, I see, yes. 10

Mr. Griffin: Q. But anyway you were certainly agreed, as you say—you were of that opinion yourself pretty strongly because you had written a letter—no, this was shortly after, because you were on record yourself, were you not.

Mr. Griffin: Have you produced that letter of the 19th of August, written by you to the Burrard Inlet Tunnel and Bridge Company. Does my friend produce that letter, please?

Mr. Burns: I don't know anything about it.

Mr. Griffin: 19th August, 1924.

Q. Do you know that letter, Mr. Swan? A. I don't know. 20
 You have it there.

Mr. Donaghy: Show it to him.

Mr. Griffin: I have only got a copy.

Mr. Donaghy: If you are trying to get the letter in the record, the proper thing is to show the witness the document.

Mr. Griffin: I am going to read extracts from it.

Mr. Donaghy: No, what my friend is doing, my lord, that is not the proper way to have a letter proved, to read extracts from a letter in a brief.

The Court: Of course it should be produced. 30

Mr. Donaghy: However, if he would show it to us or show it to the witness we would tell him right away whether it was all right.

Mr. Griffin: I have got it out of a document, my lord—this is the only way I can get it.

The Court: Has Mr. Donaghy got it here?

Mr. Griffin: No, my lord.

The Court: Well, show it to Mr. Donaghy.

Mr. Donaghy: Show it to the witness.

Mr. Griffin: Q. I don't want to labor it—there is your signature—you may recognize the letter of the 19th August. You can tell by looking at it. (Handing document to witness.) A. Yes. 40

Q. Well, I just want to ask a few questions on it. That letter states that before the bridge can be opened for traffic it is absolutely essential that a 150 foot steel span should be substituted for the timber trestle immediately north of pier 1, which is neces-

sary owing to the increased current at the Second Narrows. Is that a true statement? A. I consider it to be so.

Q. It says further,

“It is further necessary to instruct the contractors that the 150-foot additional span north of Pier 1 is approved so that they may get the advantage of the reduced price.”

Were they so notified? A. I couldn't tell you. I know there was a lot of delay.

Q. A lot of delay? A. A lot of delay, that we couldn't ac-
10 count for it.

Q. What would be the explanation of a statement to them that this had been approved of in August 1924, when the earliest possible approval in the files of this court is in March 1925? A. I think that date—

Q. You can't explain that? A. We wouldn't notify the contractors that it was approved until we had got the approval from someone.

Q. You notice it here, you advised that they be instructed it had been approved, did you not. You see here? A. Sure, I
20 wanted to advise them.

Q. Now, you say it is further necessary to instruct the contractors that the 150-foot additional span north of Pier 1 is approved. Was that true? A. It was most desirable to do so.

Q. But was it not approved. Witness, answer my question, was it approved? A. Presumably it was not approved at that time.

Q. It was not? A. Presumably not, from the letter.

Q. Then if the letter says so it is wrong? A. No, but the letter doesn't say so. I was trying to show the urgency of getting
30 the thing approved so as to be able to instruct the contractors.

Q. Now, why didn't you produce me your letter among this large lot that you have produced here, after the insistence that I have been making to get this correspondence?

The Court: That is not for you to ask him, you see. That is not this witness' function.

Mr. Griffin: Yes, my lord, this is his witness.

The Court: The persons responsible for the non-production of letters are not the witnesses, but the parties.

Mr. Griffin: Yes, my lord, but this witness wrote that letter
40 on behalf, you see, of his employer.

The Court: But I am still pointing out to you this man is only a witness, he is not the employer. You cannot hold him responsible for the conduct of the case.

Mr. Griffin: Yes, my lord, I ask him if he has this document.

The Court: Yes, you cannot ask him, you must ask the right person, and he is not the right person.

Mr. Griffin: Then I won't press that point.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.).

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

The Court: The witness does not control the conduct of the case, it is the plaintiff's solicitors and the counsel who control it.

Mr. Griffin: Q. Now, another letter of yours—a very interesting letter dated the 14th October, 1924, addressed to Mr. Johnston, Deputy Minister of Marine. Do you remember that? A. I don't remember the date. But I wrote him very fully and very often.

Q. And you remember that I was sort of nagging you yesterday, if I might say so, to get correspondence from you, isn't that so? A. From—

Q. The Public Works Department? A. The Public Works Department and the Board of Railway Commissioners.

Q. Yes, and I forgot to mention the Department of Marine evidently, didn't I? A. I don't know whether you did or not.

Q. Well, you knew that I wanted letters between yourself and the Government of Canada, didn't you? A. On my own initiative anyway, thinking that you might possibly ask for them, I produced those ones to the Marine and Fisheries Department.

Q. Well, now, don't you think I ought to have had these a long time ago? A. I don't know anything about that. I was never asked for them.

Q. Now in that letter it contained this statement, that you discussed—this is the point we were discussing—with Mr. Cameron, the Chief Engineer of the Public Works Department when in Vancouver, with Mr. W. G. Swan and the Harbour Commissioners, and that all agreed that unquestionably this additional 150-foot span is essential? A. Yes, my lord.

Q. And further that you agreed that it would be a great advantage if the second 150-foot span could also be arranged for, and so permitting the additional dredging being carried out, and as this letter says, decrease the current through the bascule? A. Yes, my lord.

Q. Then you agree the current through the bascule should be decreased if possible? A. At that date.

Q. Yes, October, 1924? A. Yes.

Q. You wanted it reduced? A. And we did do these things, and we did reduce the current.

Q. Now, the Mr. W. G. Swan to whom you are referring—the letter that you wrote says this, there is no doubt—this is the 8th of October, 1924—there is no doubt that the current has been increased from approximately 7 knots of original current to 8 knots under the new conditions at flood tide. Is that correct? A. I don't.

Mr. Burns: Yes, the new conditions.

Mr. Griffin: That means the conditions existing on the 8th of October.

Mr. Donaghy: No, the new conditions referred to the dredging in the First Narrows. There is no use concealing that.

Mr. Griffin: No, they don't.

Mr. Donaghy: Yes, they do.

Mr. Griffin: No, I don't think so.

The Court: Of course it is obvious that one of your own witnesses said so, Mr. Griffin, that undoubtedly the dredging operations in the First Narrows must inevitably cause an increased velocity in the Second.

10 Mr. Griffin: I am not denying it, my lord.

The Court: No, but I mean there is no doubt about it.

Mr. Griffin: I am not denying that, my lord. My friend raised a different point. He said that that letter had reference to it, I contested his statement that that letter refers to it.

The Court: Yes, well you may be right.

Mr. Burns: Will you give me the date of the letter, please?

Mr. Griffin: 8th October.

Mr. Burns: And the parties?

20 Mr. Griffin: Letter from Mr. W. G. Swan to the secretary of the Harbour Board.

Mr. Burns: 1924.

Mr. Griffin: Q. As a matter of fact, you had already decided on that one extra span, hadn't you? A. You mean I personally?

Q. Well, I am afraid I sometimes mix you up with the company. You had decided to advise it? A. I had been urging it right from very early dates.

30 Q. Yes; and they had no doubt, under your advice, notified the contractor to go ahead and do it, hadn't they? A. Not until it was approved. The contractors wouldn't have taken it unless there was some arrangement about the money.

Q. Now, the criticism that we have been referring to seems to have continued straight along, because we find a very strong letter in September, 1924 from the B. C. Tug Boat Owners' Association—25th September, 1924.

Mr. Donaghy: To whom?

Mr. Griffin: To the Vancouver Harbour Commissioners.

Mr. Donaghy: My lord, surely we must have an end to this sometime.

40 The Court: Yes, I cannot see why—you know it is really not fair to this witness—you make him appear as if he were really the employer, and he is not the employer. This man has no status except as a servant of this company, now he is being treated as in command of the whole affair.

Mr. Griffin: Well, my lord, he took that stand very much—

The Court: Well, of course he was the engineer in charge. An engineer in charge is a most responsible position, but he is not the employer.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
A. D. Swan
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

Mr. Griffin: Q. Were you informed that several accidents had taken place about that time, Mr. Swan? A. I don't know.

Q. What? A. I don't know. If there were any serious accidents I presume my staff here would inform me. But I have no recollection of any particular information.

Q. Was this brought before you, a letter from the Harbour Master, Captain A. Hartley Reed to the Vancouver Harbour Commissioners, 6th October, 1924.

"I beg to place before you my information—"

Mr. Donaghy: Now, my lord, I have to again object. The reading of letters between parties like the Harbour Board and some tugboat owners and that sort of thing, they are not even addressed to the Plaintiff, they don't come to our knowledge, and all that sort of thing, my friend produces these and reads them into the record and then turns to the witness;

"Now, did you hear of that"—

Having got the letter spread on the record.

The Court: It simply means that the witness was forced—you can ask him, Mr. Griffin, if he knows anything about it, if it came to his knowledge. If it didn't that is an end of it.

Mr. Griffin: Q. Did you become aware of criticism of the bridge span from the Harbour Master? A. No.

Q. Well, that's that. Do I take it that you are concurring with me that his opinion, if confirmatory of that of the mariners as to where the span should be, is entitled to great weight? A. It would have a considerable weight with me.

Q. And weren't you then asked to re-assure the Department at Ottawa by reason of this very great bulk of criticism which had been raised? A. I have no recollection.

Q. Well, then, I will have to remind you— A. I certainly wrote the Department in regard to the matter, both marine and Fishery, I think, and probably Dr. King, who was then Minister of Public Works.

Q. You haven't produced that one, but I have been able to obtain this one of the 14th of October, 1924, that you wrote to the Deputy Minister of Marine in which you say:

"I received a telegram from Mr. Ward, Secretary of the Burrard Inlet Tunnel and Bridge Company in Vancouver, stating that a protest against the construction of the Second Narrows Bridge had been sent to the Minister of Marine on September 26th by various parties, by property and other interests east of the bridge on the ground that the project was an obstruction to navigation, and Mr. Ward asked me to communicate with you in connection therewith."

Is that true. Did he? A. Undoubtedly.

Q. Do you remember it now?

Mr. Donaghy: Would you mind putting that letter in? A. You have the letter.

Mr. Griffin: I am not putting it in.

Mr. Donaghy: Now, my lord, I am going to ask to put it in.

Mr. Griffin: I am going to wait until I come to it.

Mr. Donaghy: My friend has questioned the witness on it and read extracts from it and it is essential that the whole information—that the whole letter should go in.

Mr. Griffin: I am only asking this witness—

Mr. Donaghy: I am going to ask that the whole letter go in.

Mr. Griffin: I want to read that letter to him, but it is not
10 a document we are producing.

The Court: Well, it is a very fine line you are drawing, Mr. Griffin. You are endeavoring to put a lot of evidence in there, which you may not wish to put in, because it is not exactly favourable to the witness, to bring out dates. How does he know that there is not more in it.

Mr. Griffin: There may be, my lord.

The Court: Yes, there may be.

Mr. Burns: He is perfectly at liberty to get his own copy there—you have got it. This copy was produced there.

The Court: There may be something else that appears to
20 have a different construction.

Mr. Donaghy: You see, my lord, the position is this, the witness has produced to my friend a copy of the letter, and my friend has that copy from this witness.

Mr. Griffin: No, I beg your pardon. That may be in the bundle that my friends have handed me today, but I haven't even had a chance to look at them.

Mr. Burns: The witness handed these over to you today because you asked for them before. Now, you read part of this letter, and you read it into this record, and you will agree we are
30 entitled to call for production of a document at any stage of the proceedings when the witness is questioned upon it, and my submission is that my friend should be called upon to produce this document. This course of reading extracts which may give a very wrong impression of the whole document—

The Court: Yes, you see, Mr. Griffin, that is not quite the right way to do, to read out extracts, to read specific extracts from a document and not leave open the whole thing, or put it all in. Really is that quite fair?

Mr. Griffin: Yes, quite so, when they reach anything of importance, but for the moment all that has been done is, I want to
40 know if he was aware of the accidents, that is all I want to prove.

The Court: You see again he has told you so over and over again, he has said that is so, and I myself was the person who took it up. He has not been endeavouring to deny it, he came right forward from the beginning—ab initio, and informed you, he said, "I raised the question."

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

What more do you want?

Mr Griffin: Very well.

The Court: I must say he has been exceptionally frank all through in this examination in making admissions—more than he is called upon in many instances.

Mr. Griffin: Q. The dredging that you were proposing on the north shore was substantially where the 300-foot span—where the two 150-foot spans were afterwards put in, was it not? A. Yes.

Q. What area did you intend to have dredged,—or advise to have dredged as at the time? A. I was only concerned with the part practically under the bridge. Naturally so as to make it effective it would have to extend some distance on either side, and that would come under the Public Works Department. 10

Q. Was that the dredging that is referred to in a document I will turn up in a moment, to be 450 feet wide and 35 feet deep and 1800 feet long, referred to in a letter there of W. G. Swan's, dated the 8th October—is that the dredging that is referred to? A. I presume so, but I had nothing to do with the actual dimensions of that dredging. I was only concerned with the part immediately under the bridge. 20

Q. But to be effective that would have to extend east and west and west of the Narrows. A. Yes, my lord.

Q. As to the breadth, what breadth do you recommend? A. I couldn't tell you now.

Q. Did you put it in writing? A. Not to my knowledge. I discussed it all verbally with Mr. Cameron the Chief Engineer of the Public Works Department.

Q. Would this be a fair statement of what was required: "The only possible way in which the present condition can be remedied lies, I believe in the eventual extention of the steel work by the use of deck spans probably 150 feet in length each to a distance inshore of, say, 450 feet from the existing north pier. The foreshore covering this 450 foot strip could then be dredged to a minimum depth of 35 feet at low tide. Such dredging of course would be carried out throughtout the entire length of the Second Narrows, which would mean the removal of several millions yards of material." 30

Is that what you think ought to have been done? A. Oh, I have never studied how far the dredging should extend at all. 40

Q. Well, anyway, to put it shortly if the dredging was not done then the anticipated decrease in current could not be anticipated? A. Quite correct.

Q. And I suppose you know that substantially speaking it has not been done? A. The part under the bridge for which I was responsible has been done.

Q. That is a very small area—extends a very little distance east? A. I don't know how far east they carried it.

Q. You don't know, and you are not in a position to check the statement of one witness who says that it carries on a couple or 300 feet of space before it reaches the B. C. Electric lines of pipe? A. I don't know.

Q. When did you decide to add Pier 4-A and 5 to the plan? A. I couldn't give the date.

Q. Can you give the year? A. Oh, it was—it was early in the negotiations.

Q. Well, take a few dates we have given, was it earlier than the public inquiry in November, 1925? A. Oh, it was before that, it seems to me—quite a long time before that.

Q. And why was it decided on? A. Because I wanted to avoid so much timber trestle.

Q. You wanted to avoid trestle? A. Yes, and to get a greater opening there.

Q. Then you didn't approve of the plan as originally made in that particular? A. Only to the limited extent that we couldn't get sufficient money to do something better.

Q. The same argument all the way? A. Yes.

Q. Yes, that was your plan then brought forward because you could not offer anything more for that price? A. That was correct, sir.

Q. Isn't it a fact that the bottom proved too hard for piling? A. Oh, no, we never tried to pile there. I was after the additional span very early.

Q. Now, I take it that if dredging was advisable on the north shore, the same if possible would be desirable on the south shore?

A. I don't think so, because we have 35 foot depth at the site of the bascule pier.

Q. I only mention this as a question of navigation, that if dredging on the north shore would be effective to reduce the current, the same would apply to dredging on the south shore, if feasible? A. I wouldn't like to put myself definitely down on that.

Q. You would not? A. I never considered dredging over on the south shore.

Q. You will go so far as to say that it would not be of any real value to do dredging on the north shore and put in fills on the south, would it? A. Oh, you don't want to do away with the advantage you were reaping by the additional dredging you had made on the north shore.

Q. That is what I said, you might have said yes and it would have been over. And were you consulted before that fill was put in? A. Which fill?

Q. The fill on the south shore? A. That was my original—in our original scheme of working out at the time that this Exhibit Number 2 was prepared.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
A. D. Swan
Cross-exam.
(Contd.)

Q. Please answer my question: Were you consulted before the work was done at all? A. Yes.

Q. Who consulted you? A. The Northern Construction Company. There is the plan showing it.

Mr. Burns: Q. This one? A. Yes.

Mr. Griffin: Q. Why didn't you come out here at the time of the public inquiry in November, 1924 to support this structure when it was under adverse criticism? A. Presumably I hadn't been asked.

Q. Were you asked? A. I have no knowledge. If I had 10
been asked I am very sure I would have been here, if I was in the country.

Mr. Griffin: Oh, I said 1925 for that inquiry, I meant 1924.

The Witness: All right.

Q. I want to read this statement and see if you agree with this:

"During flood tide—

A. Pardon me, who is the statement from?

Q. I would be very glad to tell you, but my friend does not want me to read from letters. It is from Captain Reed, Harbour 20
Master, addressed to the Superintendent of the Harbour Commissioners, dated 21st April, 1925. I merely want you to know where it is and then you can say whether you agree with it:

"During flood tide the current strikes the fill which has recently been placed on the south side running out from the bank, and has deflected" (Reading letter)

Do you criticize that statement? A. I don't know.

Q. This letter adds:

"This condition was not in evidence before the piers were placed." 30

I suppose you are not prepared to criticise that either? A. No.

Q. And he adds the opinion, which is that of a navigator, as follows:

"It is in my opinion regrettable that the draw span was not placed farther north."

Does that opinion carry weight with you? A. No, because I didn't know anything about the engineering end of the thing.

Q. But I mean as a navigator would it carry weight with you. I ask you to answer that? A. No. 40

Q. Is this bridge at right angles to the current? A. Very slightly off, as far as I remember.

Q. Well, then, the answer is it is not at right angles to the current? A. No.

Q. Is that right? A. Yes.

Q. Did you advise that this be so, or was this a condition forced on you by similar circumstances? A. No, that was my own opinion.

Q. That you should have it in that way? A. That the position in which the bridge is constructed was the correct one.

Q. Therefore you are responsible for putting it at an angle, is that so? A. Well, I agreed with it being put there anyway.

Q. Is this not true that the size of a pier has an effect on the distance to which it will throw the water on both sides when the tide is running? A. Oh, yes.

Q. Therefore shortly put, the cluster of piers formed by 3, 4 and 4-A will throw an eddy in the water that is deflected by their
10 faces to a farther distance than a pier of smaller size? A. Yes.

Q. So that in the bascule span it is a fact that the eddy or the thrust of water from that side, that is the south side, is greater than from the north side, because the pier at the south side is much wider? A. I am sorry, I don't take your argument.

Q. Perhaps I might put it, well, I don't claim it to be always that way—perhaps many of them. You have agreed that a pier with a broad surface throws water farther away when the tide in running than one with a smaller surface? A. Yes.

Q. Therefore as piers Numbers 3, 4 and 4-A are substantial-
20 ly one, much broader in the face than pier 2, it follows that they throw water farther from themselves than the other pier does?
A. Oh, no.

Q. You agreed to my proposition, I merely want to get its conclusion, that a broad— A. A broad pier will certainly disturb the water to a greater extent than a small one, yes.

Q. I agree; therefore, as I see it, the area of disturbance in the case of a broad pier, is a larger area of disturbance than with a little pier? A. Yes.

Q. Therefore it would obviously follow that if you have an
30 opening in which there is a wide broad faced pier on one side and a narrow faced pier on the other side, the centre actually of the current will not be in the centre of the place? A. Probably not.

Q. That is the only point I was trying to make. The changes that were made in 1925 were the result of the inquiry of November 1924, were they not. A. That is the raising of the bridge and the additional two spans and so on?

Q. Yes? A. Yes.

Q. Did you agree that those changes were all desirable? A. Certainly.

Q. Did you agree that the increase of height by five feet was
40 necessary in the best interests of the community? A. It was agreed it was.

Q. Yes; and might have been raised still higher, might it not, to advantage? A. Oh, yes, if they had the money to pay for it.

Q. Yes, and that business alone of raising, is that a very expensive matter or not? A. Oh, you can raise a certain height

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
A. D. Swan
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

without fundamentally increasing the cost of the remainder of the pier, but you can't carry it too far.

Q. To any extent? A. A few feet doesn't make much difference.

Q. Yes, and in the same way you could readily run that height up a further 22 feet or 24 feet at a very reasonable additional cost, couldn't you? A. I should think so.

Q. And even to 42? A. Oh, I don't know about that, that is a very different story.

Q. But anyway, every foot gained is a foot more for ships that can go under, is it not? A. Yes, I presume so. 10

Q. Therefore less impediment to navigation? A. I presume so.

Q. Do you think that navigators—I am getting something that you can recognize—that navigators are bound to be satisfied with conditions which are merely reasonably safe.

The Court: That is a legal question, you know, he is not answering that.

Mr. Griffin: No, my lord, I am using words that I think he recognizes. A. I don't recognize these words. 20

Q. You don't recognize those words? A. No. If it is from some letter of mine written a long time ago, say so.

Q. Would you state that navigators should reasonably be satisfied with conditions reasonably safe for from one half to one hour of slack water, is that all they are entitled to.

The Court: This is not the tribunal to decide that.

Mr. Griffin: No, my lord.

The Court: He is not the tribunal to answer these questions.

Mr. Griffin: Well, if your lordship does not think I am entitled to ask him— 30

The Court: Do you think that it would help me or anybody else. I hesitate very much to try and curtail counsel on cross-examination except where it is apparent that it is of no use.

Mr. Griffin: No, I don't want to press anything beyond reason.

Q. Were you advised that in the spring of this year there were joint conferences of all interested parties with a view to altering or getting an alteration in the character of the bridge? A. No.

Q. Were you taken into consultation on this? A. No. 40

Q. Were you advised that it was taking place? A. No.

Q. Do you think that this was the result—was good advice, which they finally came to a decision about—

Mr. Donaghy: No, my lord—

The Court: Well, clearly, you need not answer. It is clearly irrelevant.

Mr. Griffin: Well, I am going to read from a letter—

The Court: You need not go any further with that line of cross-examination, I rule it out. Clearly, I would not like another court to think that I permitted it, in case this case went any further.

Mr. Griffin: Your lordship does not allow me to read from this letter?

The Court: Nothing of the kind, Mr. Griffin, at all, I am speaking of the question addressed to the witness just now as to what he thinks of the results of investigations of other parties.

10 Mr. Griffin: I only asked if certain facts are reasonable, certain facts are true.

The Court: Put your questions then seriatim and I will rule on them.

Mr. Griffin: Yes, my lord.

The Court: Just put them one after the other, you see.

Mr. Griffin: Q. Yes, now for instance—

The Court: It is the form of your question, put your question and I will rule upon it.

20 Mr. Griffin: Q. Were you advised that the bridge company had had their insurance cancelled on account of the alleged risk of damage? A. No.

The Court: Now—oh, well. Do not get into social fastidities or anything of that kind, Mr. Griffin, because we must end somewhere, you know.

Mr. Griffin: Q. Would you be affected by the opinion of the Shipping Federation, for example, if they state this bridge is a menace to navigation, would that effect your mind? A. No, I would listen to what they have got to say.

30 Q. But you wouldn't think that was final? A. Decidedly not.

Q. Well, I won't go on with that. Your view was that the situation was one where an experienced engineer should be called in, I think you said, to advise, is that it? A. When?

Q. Just a few minutes ago, when you were speaking about the alterations in the bridge, I think I heard you say that was your view? A. Oh, I think there should be—if anything was to be done, that there should be a thorough enquiry into it by a competent man or men.

40 Q. Have you become aware of the fact that a project is on foot to remove the bridge and substitute a dam?

Mr. Donaghy: My lord—

The Court: You need not answer.

Mr. Griffin: Does your lordship rule that out?

The Court: I think—the question, I think, rules itself out. It is what I call a self-objecting question. It operates automatically to exclude itself, you see.

Mr. Griffin: Q. I notice in one of the telegrams you pro-

RECORD
British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. D. Swan
 Cross-exam.
 (Contd.)

duced me—you produced for my inspection dated 16th January, 1923—it is a telegram I think addressed to Mr. Loutet and you say; “Am in Ottawa with Northern Construction, have instructed Vancouver office to help them with all plans and information to meet requirements under Navigable Waters Protection Act, please instruct your lawyer comply with all requirements therein as this must be done by Bridge Company.”

Who in Ottawa gave you the information upon which you based that telegram? A. To the best of my memory it was the Chief Engineer. 10

Q. What— A. Of the Public Works Department.

Q. Of the Public Works Department, so that it was—it was the Public Works Department that demanded compliance with the Navigable Waters Act? A. To the best of my memory that was so.

Q. I notice—

The Witness: May I supplement my answer, my lord?

The Court: Yes.

Mr. Griffin: Yes, certainly, as far as I am concerned.

The Witness: Thinking back, I think there is a further telegram a few days later saying that the Chief Engineer had changed his mind and that it would only be necessary to comply under some other act which is mentioned in the telegram. That was two or three days afterward, I remember there was that alteration in his standpoint. 20

Q. Well, you didn't show me that one? A. Pardon me, if there is one it will be here.

Q. No, there is no such telegram shown here. Now, then—

Mr. Donaghy: There is a telegram from the Justice Department giving that ruling, amongst the ones I gave you. 30

Mr. Griffin: I haven't been shown that, and therefore I can't be expected to assume it, if such a telegram exists, it should have been produced and you should have let the witness see it.

Q. Now, the other telegram that you did produce and did show me is one dated 18th January addressed to Mr. Loutet, signed by yourself:

“At a further meeting today, the Chief Engineer of Public Works says as the bridge site formerly”—

A. That is it.

Q. That is the one? A. Yes. 40

Q. Well, that is mixing the two up together. Then to clear it all up:

“At a further meeting today the Chief Engineer of Public Works says as bridge site formerly approved 10th June 1913 only necessary now to ask amendment to former approval under Section 233 of the Railway Act in accordance with the change in the general plan. Please inform James.”

That is the one you refer to? A. Yes, that is the one.

Mr. Donaghy: You scolded him for nothing, he has given you the telegram.

Mr. Griffin: No, he did not, you told me it was from the Justice Department, which was not apparently correct.

The Court: It evidently does not assist us at all, you know, in any event.

Mr. Griffin: I just wanted to get my question passed upon—

The Court: That is quite irrelevant.

10 Mr. Griffin: Q. Now, the general plan therein referred to is Exhibit 2, is it not? A. I presume so, but I am not positive.

Q. It is plain from that, however—from that telegram, witness, is it not, that it was not filed as a plan of the site, was it? A. No, I don't know now.

Q. Is that not plain enough? A. I don't know now.

Q. Can you not read this telegram. You wrote it—that the Public Works Engineer says that as the bridge site was formerly approved in 1913 it was now only necessary to ask an amendment. Is that plain enough to you? A. Yes.

20 Q. Does that not therefore state that the site has been already approved? A. Yes, it appears so.

The Court: That is a matter of construction, that is not for him.

Mr. Griffin: He himself wrote this telegram.

The Court: Yes, that may be so, but that is not the point.

Mr. Griffin: Q. Well, however, what I mean is this, that if you have stated otherwise than that in your testimony before is it not clear you were wrong? A. In regard to what?

30 Q. In regard to the fact that Exhibit 2 was filed not as a plan of site, but as a plan of amendment or variation. Is that not plain? A. It certainly was not the first plan lodged.

Q. No; and isn't it plain from that telegram that the person on whose authority and on whose suggestion—that is the Chief Engineer of Public Works—that he told you that the plan of 1913 was the site plan, didn't he? A. Yes.

Q. And that the plan now to be filed was an amendment or variation of the plan, isn't that right? A. Apparently.

40 Q. And isn't it plain from that that you and he both understood there that way, that you were not filing a plan as a location plan. Isn't that obvious? A. I wasn't filing a plan that day at all.

Q. No, no, the plan that you were discussing, reading this telegram, is it not plain that you were discussing either, the filing of Exhibit 2 as an agreed plan or amendment, and not a plan of site? A. Well, it was a change in the general plan.

Q. That is Exhibit 2, is it not? A. I don't know.

Q. What other one can you suggest? A. I presume that

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. D. Swan

Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

it is, but it doesn't say—it doesn't give the number on here, for instance, but I should think that was quite correct.

Q. Quite correct? A. I should think so.

Q. Well, then, do you not agree with me that the Chief Engineer said you did not need to file a site plan? A. Yes, that is what he said.

Q. Well, all right. Now, then, I come back to this—I have to quote that, if your evidence states something to the contrary, then I take it you wish to amend the previous evidence? A. Yes.

Mr. Griffin: Well, I need not read it. That is all, my lord, I am sorry to have kept you so long. 10

The Court: Q. Just one moment. What was the object of the rock fill, witness, we have heard so much about. What was the object of it? A. On the south shore?

Q. Yes, as shown here on 27. We have been told that that is a substantial rock fill as at present located. Is that the rock fill at present on 27? A. Yes.

Q. We have that position, you assume that that is it? A. We had to put in a fill—

Q. Yes, that is your understanding, is it, of the rock fill as at present? A. Yes.

Q. Yes? A. That is correct.

Q. I understood so. A. Yes.

Q. Now, if you would just turn around a little bit like that. Now, what was the object of putting in this rock fill about which we have heard so much? A. Because they could not drive timber piles into the rocky shore, they had to put some filling through there to drive piles into so as to hold them, or if the piles were not driven into it, to form a basis for the timber trestles carrying the roadway. 30

Q. Yes, I see. It was a peculiar condition that was met there then, is that what you wish to be understood? A. Oh, yes, we intended to put that fill there right from the very start, my lord.

Q. Yes? A. I have a plan there that has not been filed, which shows that that was the way it was prepared, at the same time as Exhibit Number 2.

Q. Now, which plan is that. Just let us have that? A. That plan shows what we had under consideration at the time, and shows that fill—that old plan. That shows the profile of the approach, roadway, my lord, going right down, and there is the fill, but we had to extend it a little farther towards the north when it was decided to get the additional steel span in south of the bascule and that was why that filling was extended a little bit farther than was shown on Exhibit Number 2. 40

Q. Well, now, what is this Exhibit, what is this plan?

Mr. Donaghy: It has not been put in.

The Witness: This one has never been put in. I drew it—

The Court: Is there any objection to this going in?

Mr. Donaghy: None that I know.

The Court: Better show it to Mr. Griffin, because this plan may go in.

Mr. Griffin: That is the old plan, (Showing plan to counsel.)

The Witness: That was simply one of our study plans prepared at the time.

Mr. Griffin: Well, my lord, I object to this on every ground, especially on the ground of intense surprise. I have never heard
10 of it before, it has never been produced to me, it is not certified, it does not arise out of my cross-examination, it is all entirely new, and no opportunity to consult on it, take advice or do anything.

Mr. Donaghy: Then, my lord, let us leave it out.

The Court: Yes, exactly. Yes, I think the objection is well taken. The plan will not be admitted.

Q. Now, then, apart from the plan, can you explain to me the necessity there was for the building of that rock fill? A. Yes, my lord.

Q. Does the rock fill exceed the necessity of the case in its
20 dimensions or extent into the water? A. No, I don't think so.

Q. You have seen it since it was put there? A. Oh, yes.

Q. Is it more in any respect—is it of larger dimensions in any respect than it ought to be? A. No, my lord.

Q. Yes, that is what I want to get at. No, just one more question: Some witnesses have referred to the shoal that you encounter in the case of big ships when you go through the bascule going east, and one witness, I think it was Muckleston, drew a plan here projecting the line, at Mr. Griffin's request, 250 feet east of the bridge. Have you that plan here?

30 Mr. Griffin: Exhibit 17.

The Court: Q. He projected a line—you heard him doing that? A. Yes, my lord.

(Mr. Donaghy produces plan to witness.)

Mr. Donaghy: That is it—the yellow line.

The Court: Q. How far do you understand that the shoal begins. You have heard the evidence, how far do you understand that the shoal, which some witnesses have complained of, masters of these vessels, of those large vessels—how far do you understand it begins from the bascule? A. Oh, I am not sufficiently conversant with the position of that shoal, my lord, to tell you. It is a
40 long distance from the bridge.

Q. It is, yes. I know that, it is a considerable distance, you see here, from the point, but their point is now, when these large vessels are of course using the draw that it is—as they say, it brings them too close for safe navigation to the edge of the shoal? A. Yes.

Q. Which, of course, seems very plausible? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. D. Swan
Cross-exam.
(Contd.)

Q. But it occurred to me as to whether you in the construction of this bridge, could enlighten me—I mean the surroundings there, if anybody to your knowledge from the Department, engineers of the National Government, or any officials of the Bridge Company, or yourself, had had that state of affairs drawn to your attention with a view, you understand of eliminating it by dredging on the south shore just as well as dredging on the north. Did the question of dredging on the south shore to remove the shoal ever come up? A. I have no recollection of any question of dredging on the south shore coming under my—under my observa- 10
tion.

Q. Would you be in a position to offer any sound opinion from what you have heard of this case—naturally, of course, you did not hear the early part of it? A. No, I didn't hear any of the early part.

Q. Have you heard anything since you came that would enable you to have a sound opinion upon the question as to whether or no the material part of the objections to the bridge could be removed by dredging out the shoal on the south side? A. I wouldn't like to offer an opinion off hand, my lord. 20

The Court: No. Thank you.

Mr. Griffin: My lord, may I ask the witness—I think your lordship has got a misapprehension of one little point.

The Court: It is a very irregular thing to ask the witness a question after the court has done it. Now, tell me what you want to ask.

Mr. Griffin: I think your lordship is under a misapprehension in regard to the description of the shoal. The shoal, as I understand it, and as the plan I think supports me, is a continuous condition running straight from the bridge eastward for at least 1500 feet. 30

The Court: Oh, that is true, Mr. Griffin, of course—I understand that is what you mean, but, of course, the edge of the shoal water on the bank of course comes down there, but what I understood the witness to mean in the navigation of these large ships, that they are brought in this proximity at a point a long distance away.

Mr. Griffin: Yes, they begin to have the dangers some distance away.

The Court. Yes. 40

Mr. Griffin: But the actual condition of shoal is continuous from that point straight to the bridge—the super-structure. In other words it does not begin—

Mr. Donaghy: Close to the shore, the edges, of course.

Mr. Griffin: I am only making a submission, I am not offering to give any evidence, I am only making a submission that the plan shows clearly this continuous state of affairs straight along

shore without any special break, beginning near the bridge. If your lordship will look at 17.

The Court: Oh, yes, I understand that.

Mr. Griffin: That is the agreed plan between counsel, that it is correct as to soundings and line.

The Court: Oh, yes, I think so.

Mr. Griffin: Exhibit 17.

The Court: Yes, but I mean, don't you see, this, that really— as I understand here, you see, in the case of a large ship going through, we will say, 450 or 500 feet, when they go through the bridge they turn in near the shoal, that is the difficulty that some masters have explained to us, here, that they were afraid of getting over here apparently, setting over toward the shoal.

Mr. Griffin: Yes, my lord.

The Court: Well, that did not occur—of course, so far as that is concerned, I am thinking of the big vessels, but you know that did not occur when they were, so to speak, near the bascule, that occurred farther out.

Mr. Griffin: No, my lord, my submission is that it would occur the moment the stern of the vessel was near the piers, that the position was then, I understand instant.

The Court: That is a matter of argument, but this witness has told us he is unable to form any sound opinion, so therefore—in view of his not having heard the evidence, so therefore I will not trouble you any more.

Mr. Griffin: No, it was more your lordship's suggestion that brought me to interject that.

The Court: I see what you mean, Mr. Griffin, you are quite right in what you say, I see clearly your point, that they get into difficulty in that distance, but it was more at Knuckle Point that I was thinking really—I really had Knuckle Point in my mind more than the other.

Mr. Griffin: Well, your lordship remembers that Knuckle Point is near the place where the ships came in contact with the condition which has really been continuous both below and above.

The Court: Well, what I had in mind, Mr. Griffin, I suppose Knuckle Point was the point I wanted to ask about the effect of it, but he knows nothing about it, apparently.

(Witness aside)

40

(5:25 COURT THEREUPON ADJOURNED TO TUESDAY, DECEMBER 4th, 1928 at 10:30).

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. D. Swan
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Proceedings at
Trial.
(Contd.)

Vancouver, B. C., December 4, 1928, 10:30 a.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT)

The Court: Mr. Griffin, did you finish your case, or did you wish, I think you intimated to me, did you not, that you had not quite made up your mind as to whether you had any further witnesses?

Mr. Griffin: Well—

The Court: I did not know whether you had, Mr. Donaghy.

Mr. Donaghy: I will have if my friend says he is through.

Mr. Griffin: Then I tender one document produced by my learned friend, being the contract between the plaintiff and the contractors of the 1st of February, 1923, and thus complete the series of contracts. 10

The Court: Yes.

(DOCUMENT PRODUCED MARKED EXHIBIT NO. 49).

Mr. Griffin: Then I ask your lordship to make a note that a large number of documents which my learned friend's witness, Mr. Swan, produced yesterday were not left with me and I have not had a chance even to read them, therefore I cannot tell whether they are of any interest to me, or whether I can make any use of them at all. Before proceeding I would like to have Mr. Burns produce the application for the Railway Board orders in respect of which the subpoena duces tecum was served upon him. 20

Mr. Burns: With reference to the first point the documents are here, but I did not know of any express desire on the part of my learned friend to look over them. They are Mr. Swan's documents and I have just seen them. This is not voluminous, my friend could look at them in a few minutes. We had them in court yesterday.

Mr. Griffin: I was on my feet the whole time, and I asked for the documents from my learned friend and he did not make an offer to get them before. 30

The Court: Do you wish to see them now? It is the four applications that you are asking for?

Mr. Griffin: My friend interjected some remark about Mr. Swan's documents. I could not do it without having them to read and see what was in them.

Mr. Burns: These are they that I have in my hand. If I had known you wanted them you could have had them.

Mr. Griffin: Mr. Donaghy asked for them back and we handed them back. 40

Mr. Burns: There is nothing to it, my learned friend can have access to the papers any time he wants them.

Mr. Griffin: I have asked for access through every means in

my power and I propose to tender the letters I have written in the hope of getting them. In the meantime—

Mr. Burns: Pardon me, before that passes, these papers now referred to by my learned friend are all papers that he asked for. I was only directing attention to the papers produced by Mr. Swan.

Mr. Griffin: In respect to them particularly, they are the plaintiff's papers written on behalf of the plaintiff by the plaintiff's agent and the plaintiff did not take the trouble to communicate with its agent and produce them on an affidavit.

The Court: I cannot go into these controversies with solicitors. There are the documents and you may do what you like with them.

Mr. Griffin: Very well, I would like the opportunity of perusing them and I shall be glad to have them.

The Court: You made a specific request for the four applications.

Mr. Griffin: I asked for the application for the order of the 24th of July, 1923.

Mr. Burns: As to that, my friend not only subpoenaed myself but the secretary of the Bridge Company and the subpoena on the Secretary of the Bridge Company includes the four documents that he subpoenaed me for. Why that course was followed I do not know. At any rate I see no necessity for me answering the subpoena when my learned friend has subpoenaed the secretary.

The Court: There was no necessity for it.

Mr. Burns: I simply bring that to the court's attention. So far as Mr. Ward is concerned he is here with such of the documents as he can find.

The Court: He is the secretary?

Mr. Burns: Yes.

The Court: And has copies of the four applications?

Mr. Burns: Yes, he has what the company has, or I have, but besides that there are numerous other papers included in Mr. Ward's subpoena in addition to the four applications.

Mr. Griffin: Let him produce them now. It makes no difference to me which of the parties produces them.

Mr. Burns: Just a minute. With reference to some documents or some of the other documents covered by Mr. Ward's subpoena, we of course propose to take the position that they are inadmissible or irrelevant as they are brought forward by my learned friend.

The Court: A little louder.

Mr. Burns: There are a lot of papers covered by Mr. Ward's subpoena that we think are irrelevant along the line of what was brought to the court's attention before. I would suggest that Mr. Ward be called to answer the subpoena.

RECORD
 British Columbia
 Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

The Court: A subpoena duces tecum.

Mr. Burns: Yes.

The Court: And you say that he is here with some documents.

Mr. Burns: Such documents as he has been able to find. He has a large number of them here. Some of them we propose to contest that they are not relevant to this issue.

Mr. Griffin: I ask to have produced now without further discussion the other documents, the four applications for the Railway Board orders. There is no question that they are producible for inspection, and my submission is that if I wish to put them in, they become relevant and the order in a case of this kind is equally relevant. I therefore ask for the production of those four documents now. 10

The Court: Could you segregate these now?

Mr. Burns: Yes, it is the documents other than these applications that we propose to object to.

The Court: Yes.

Mr. Burns: My submission is that a subpoena duces tecum is an order calling upon the recipient of it to bring the documents into court. It does not include a right to the other side to inspection except when delivered in court. 20

The Court: The documents are brought into court and the question of whether they are receivable evidence is another thing.

Mr. Burns: Yes, in view of the fact that Mr. Ward's subpoena covers four applications in respect of the subpoena which was served on him I would suggest that Mr. Ward be called. As they go on there will be certain objections, but in view of the fact that my learned friend has subpoenaed me, the solicitor of the company, and the secretary of the company as well, I would ask that the documents be produced by the secretary. 30

The Court: That is the proper person, and you say that these four documents are here. You had better let Mr. Griffin see them.

Mr. Griffin: That is all I have asked.

Mr. Burns: Then these are produced to the court.

Mr. Griffin: It should be directed that they are produced for my inspection for the moment.

Mr. Burns: That is where I quarrel with you.

Mr. Griffin: Produce to me the first one. 40

Mr. Burns: I think, my lord, I would ask that Mr. Ward be called under his subpoena. I can deal with this matter.

The Court: It is not necessary. You see, Mr. Griffin, he produces them. Is he here?

Mr. Burns: Yes. I submit it is not a proper course for counsel to be made the subject of a subpoena in these circumstances. I am referring to what my learned friend is asking for now.

The Court: If Ward is here just tell him to come forward and bring these four documents in his hands and tender them.

Mr. Griffin: I am not asking him to tender them, I am asking for production to see if I want to put them in. I did not summon my learned friend as counsel, I summoned him as the solicitor of the company in whose actual possession these documents were, because as I understood the position they were applied for by him and as he was very strict about notice to produce and I was not going to give him the opportunity of saying that the right party was not summoned.

The Court: Mr. Burns' position is the right one. He says that the proper officer is the secretary and he received a subpoena to produce documents before the court and he produces the person subpoenaed with the documents. What do you want?

Mr. Griffin: The application of the 24th of July, 1923, to be produced, the application for the Railway Board order.

Mr. Ward: There is a letter here dated the 27th of June.

Mr. Griffin: Is that the document I asked for?

Mr. Ward: I have no means of identifying the date.

Mr. Donaghy: I submit that if he is going to be questioned he will have to be sworn.

The Court: Yes, if there are any questions asked he must be sworn.

Mr. Griffin: Do you produce the documents I ask for?

Mr. Ward: This document is not identified by the date you give me. I cannot produce it.

Mr. Griffin: Then I ask my learned friend to take steps to identify it.

The Court: What is the difficulty now? Can you pick out one document you have there in answer to the subpoena?

Mr. Ward: Yes, my lord, this first letter gives the numbers of the first two Railway Board orders mentioned in the subpoena as referring to that.

The Court: This is your copy of it?

Mr. Ward: This is my copy.

The Court: You did not ask for the original?

Mr. Griffin: No. He would only have what he has here.

The Court: That would be with the Railway Board.

Mr. Griffin: You produce this document?

Mr. Ward: Yes.

Mr. Griffin: Then I want to have a look at it.

(Document produced.)

Mr. Griffin: Then I will tender that document, my lord. It is a letter to the Board of Railway Commissioners by P. Ward, Secretary of the Plaintiff Company, dated the 27th of June, 1923.

The Court: The 27th of June.

Mr. Griffin: 1923. Will I read it, my lord?

RECORD

*British Columbia
Admiralty Dist.*Proceedings at
Trial.
(Contd.)

The Court: Yes.

(LETTER READ AND MARKED EXHIBIT NO. 50.)

Mr. Griffin: I would ask for the production of the application for the order of the 30th of July, 1923, No. 33950.

Mr. Ward: It is not in my possession.

Mr. Griffin: Then I would ask for the application for the order of the 31st of July, 1923, No. 33962.

Mr. Ward: That is not in my possession so far as I can identify it. There are other applications here, but I cannot identify them with those numbers. 10

Mr. Griffin: My lord, the only comment I make on these, it is quite plain that these documents ought to have been produced on the affidavit. We ought to have had a chance to see them and I want to make it plain that I desire to place a protest on the record in regard to that because our case has been ineffectually presented by the lack of production. Now, I will go into some other documents. Have you got the minute book of the plaintiff company?

Mr. Burns: That, my lord, we object to producing. This has been before the court before at which time it was ruled out on the ground of irrelevancy. 20

The Court: Yes, what is the relevancy of that?

Mr. Burns: I desire to inspect the minute book. The evidence indicates that there were directors' meetings dealing with the proposal of building the bridge, that tenders were received; the price in the tenders, and the change of plans from time to time, beginning away back in 1911 and carrying straight through and carrying radical changes in the plan from the swing to the bascule in the month of April, 1923. I desire to see the book and the arrangements the plaintiffs made in regard to that change.

The Court: Objection sustained. 30

Mr. Griffin: I desire to see any plans or proposed changes in the bridge across the Second Narrows that the plaintiff has.

Mr. Burns: We are willing to produce these, but the virtue and relevancy of this we do not agree with. (Produces). That happens to be a set of plans named by a man named Turner who did it out of his own free will and there was never any attention paid to it or anything else.

Mr. Griffin: My lord, I will tender that document also. This is a plan, a general plan of the Second Narrows Bridge submitted by the Western Foundation Company and C. A. P. Turner, together with specifications. 40

The Court: What is the object of this?

Mr. Griffin: Showing the other alternative designs available for the bridge construction.

The Court: That is not relevant. There may be hundreds of different plans like these.

Mr. Donaghy: I understand that he was a canvasser for the building of the bridge and voluntarily sent some prints to us.

Mr. Griffin: My friend should not give evidence.

The Court: There must be some limit to this, about these plans. Simply because any person voluntarily chooses to draw plans which they thought appropriate to the conditions there and voluntarily sent them to the company does not say that they are evidence here.

10 Mr. Griffin: There is no evidence that it was done voluntarily. I produce it from the custody of the party who had it.

The Court: Without any explanation that it has anything to do with the case.

Mr. Griffin: It is a plan of the location and it is in competition with the other ones.

The Court: Where is there anything to show that that was in competition.

Mr. Griffin: When I say that, it is one deemed to be an alternative design produced from the same party.

The Court: It is only deemed to be so if you prove it to be so.

20 Mr. Griffin: I have had no opportunity to see it before, and it has been my objection that it was not produced on the affidavit of documents so that I would be prepared with proper proof, and my position is that I tender it as a document produced from the custody of the plaintiff as being a design of a Second Narrows Bridge.

The Court: Objection sustained.

Mr. Burns: There are also other plans, a truss trunnion, cantilever swing, innumerable plans of the same character. I say innumerable, there are five or six of them.

30 Mr. Griffin: Here is another one that my friend produces, the Strouse trunnion bascule bridge proposed at the Second Narrows for the Burrard Inlet Tunnel & Bridge Company and designed by the Strouse—

The Court: You must not read that.

Mr. Griffin: That is what it says on the plan.

The Court: You cannot read that into the evidence. It is not evidence at all.

Mr. Griffin: I must give enough of it to define the document.

The Court: You can look at it and tender it.

40 Mr. Griffin: I now tender this because—

The Court: You have to tender it and then your learned friend has the right to tender his objection. You have no right to read anything from it.

Mr. Griffin: Here is a document produced from the defendants and on its face it states that it is prepared for them.

Mr. Burns: I object on the ground of irrelevance, the same objection as before.

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

The Court: The same objection and the same ruling.

Mr. Burns: I admit to my learned friend that we looked into everything. It may be that the admission might cover his difficulties.

Mr. Griffin: This that I now produce is also a bridge over the Second Narrows of Burrard Inlet, produced by this witness and identified as the Strouse cantilever swing bridge. This is the Strouse people whose cantilever span is in the bridge as built. I tender this one.

Mr. Burns: The same position, too. 10

The Court: You tender this?

Mr. Burns: The same position, my lord.

The Court: Yes, the same objection, same ruling.

Mr. Griffin: Are there any more of these?

Mr. Burns: There is some more.

Mr. Griffin: My learned friend then produces—

Mr. Donaghy: We do not, the witness does.

Mr. Griffin: Yes, the witness produces another Strouse trunion bascule bridge over the Second Narrows, stated to be prepared for the plaintiff company. A different design and I tender this also. 20

Mr. Burns: The same objection, my lord.

The Court: The same ruling.

Mr. Griffin: Then I ask for any correspondence between the plaintiff and the engineer employed by them in reference to all the various plans, that is to say, to get the advice that the engineer supplied the plaintiff in respect of such plans which they had prepared or were submitted to them.

Mr. Burns: We object to producing those on the ground of irrelevancy entirely. It is the same position exactly as looking into other plans and getting advice in connection with those plans. 30

The Court: Let me understand exactly what you wish, Mr. Griffin?

Mr. Griffin: I desire the correspondence if any between the plaintiff and their own or any other engineer discussing the plans which they had asked for from all sources, or even those if any tendered to them voluntarily in order, my lord,—for example, to give your lordship the assistance of knowing which of the various schemes thought to be by professional opinion feasible and practical in order that your lordship will have before you the basis of the decision as to whether or not the bridge as built is an obstruction to navigation. It seems to me that is a relevant and important thing. 40

The Court: Is this under the subpoena?

Mr. Griffin: Yes, it is merely a copy of the notice to produce that was given long previously. The notice to produce is the one referred to long before and therefore my friend had the request,

and the subpoena was the culmination of the result of the refusal to observe the notice to produce.

The Court: You see that is a very broad demand because with regard to a number, to begin with, a great number, a very large proportion of your demand in any event would not be, could not be given effect to because a large number of the plans to begin with had been ruled on and therefore were irrelevant, no proper foundation having been shown as to their relevancy and in such a case as that could not be accepted. It is difficult to know what you
10 want to give notice of, it is a very difficult thing to apply to.

Mr. Griffin: I appreciate that, but the notice to produce given on the 11th of September asks it in the same words and the plaintiffs have made two affidavits of document not complete as I submit and the result is I cannot be more precise in my mind, not having the information to make the basis so I have to go on presumption. I must ask in general terms the effect of the professional advice they had obtained on the designs of the various bridges they had considered. If for example in respect of one of these
20 plans your lordship ruled out, if the plaintiffs in their turn had taken advice from eminent engineers on it then the plan at once would become important, because right with the advice it would contain the basis of the proper decision by them as to what course they would pursue and therefore it makes the plan and letters at once relevant in view of your lordship's ruling. I will now formally tender the two affidavits of the plaintiff, the first dated the 28th day of July, 1928, and the second the 11th of September, 1928, and the correspondence which has passed between us in my endeavor to get more fuller production.

The Court: You cannot put that on the record. You cannot
30 exhibit that.

Mr. Griffin: I can exhibit the correspondence in order to show the correspondence passed and the reasonable efforts made between solicitors to procure production and it will be necessary to tender the correspondence which I do as follows: Letter from defendant's solicitor—

Mr. Donaghy: I object to reading this into the record of the proceedings. If my friend thought he had not a proper affidavit of documents his place was to move, and there is no use arguing it out by placing correspondence before your lordship.

The Court: I do not propose to deal with this, an interlocutory matter now. I have heard of no precedent for it before. The rules provide that if a notice to produce is not complied with properly—what is the effect of it? You know what the effect of it is in general—the other party cannot give it in evidence. You are proceeding as if it put them in an entirely different position. I think the rule is 357, not of our Supreme Court, but of the English High Court, to which the Admiralty Court practice resorts to if
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RECORD

*British Columbia
Admiralty Dist.*Proceedings at
Trial.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

there is no specific rule in the Admiralty Court, if I remember it correctly for the moment. You seem to think that it gives you a wider right, but it does not.

Mr. Griffin: I think it gives me considerable right at the trial if it turns out, at the trial if it is evidence.

The Court: Let me know what you claim your rights are under that rule.

Mr. Griffin: The rule I desire you to impose—

The Court: Where is it, just cite it.

Mr. Griffin: I have no special rule, I do not mean the rules 10
of court.

The Court: That is the point, you must have. You seem to think that by giving a large number of notices that you can place them in a position that I have not heard of opposing litigants being placed in. I want to know on what you rely.

Mr. Griffin: I tender the two affidavits and the correspondence.

The Court: I say at this stage that it is not proper to have them produced here. If you felt that the rule had not been complied with properly you should have applied beforehand and not 20
leave it to the last moment.

Mr. Griffin: I now ask for the correspondence between the plaintiff and the Minister of Public Works in reference to P. C. 718, the order-in-council of April 1923, meaning thereby correspondence with the plaintiff direct, their agents in Vancouver, Burns & Walkem, and their agents in Ottawa, Mr. N. G. Guthrie.

Mr. Burns: We have no objection to producing that correspondence, my lord. It is a large number of letters and there are a lot of detailed things covered by the correspondence. What bearing it has we do not understand, because it is only the action of 30
the different government departments we submit that is to be considered here, so far as our legal position, so far as the parties concerned, anything leading up to that, correspondence between the department and agents of the company we submit that it is not relevant.

The Court: Do you require to look at the correspondence to see what you wish to produce in evidence?

Mr. Griffin: That is all I am asking for the moment, the liberty of inspection of inspection.

The Court: And your learned friend is agreeable. 40

Mr. Griffin: Very well, let me have it for inspection.
(Witness produces).

Then I ask my learned friend to produce, if he has it, the plaintiff company's duplicate of the Northern Construction Company's plan showing the swing span. That document already is in evidence. It is the one produced by the clerk from the Land Registry Office, but under the Land Registry Act it has to go back

to him and I was hoping my learned friends would find one in order to save the expense of having a tracing made.

Mr. Ward: We have not got one.

Mr. Griffin: If we can get one from the Northern Construction Company it would save the copying.

Mr. Ward: Possibly.

Mr. Griffin: I ask in addition for the correspondence between the plaintiff and their solicitors and Mr. Swan, all of them acting on behalf of the plaintiff with the Department of Public
10 Works and the Railway Commission, either or both, in regard to the bridge that was really constructed.

Mr. Burns: I object to anything of that kind. The same remarks are applicable. The preliminary acts in connection with the construction of the bridge which are merged or absorbed in the final act of the Department.

Mr. Griffin: Is that all you produce, Mr. Ward, on that item?

Mr. Ward: I would like to be clear on that. That is under
item 12.

Mr. Griffin: 12.

20 Mr. Ward: Yes, that is all I have.

Mr. Griffin: Then, No. 14, have you got the Northern Construction Company's tender.

Mr. Ward: Yes.

Mr. Griffin: Let me have a look at that.

(Document produced). If your lordship will bear with me while I glance through this. The document produced does not seem to be of great interest, except that it refers to the plan which accompanies it. I would like to have the plan produced.

Mr. Burns: So far as that is concerned I submit that tender
30 is merged in the contract which was subsequently drawn and completed.

The Court: That is what I was thinking.

Mr. Griffin: I was not proposing to put the tender in. As I thought, it referred, though, to a sketch plan.

Mr. Burns: The same remarks apply to the plan, because it is part and parcel of the tender.

Mr. Griffin: No, because the plan may or may not be the same as the one that went in the contract. I want to see what it is. I therefore ask for the production of that sketch.

40 Mr. Burns: As a matter of fact, the plan is not covered by the subpoena to commence with.

Mr. Griffin: No, my learned friend, I was going to say, being unreasonably strict, but the suggestion that I must ask for documents I do not know the existence of when I ask for them, and they are tendered and it turns out that there is a plan, I submit that my request means both.

Mr. Burns: It is not part and parcel of the document we

RECORD

*British Columbia
Admiralty Dist.*

Proceedings at
Trial.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

are speaking of, and it is subject to the same remarks I made before, namely, that it is absorbed in the contract.

Mr. Griffin: I ask for it to be produced.

The Court: What is the object of it? It does seem to me that we are becoming submerged with a lot of things that are not really helpful.

Mr. Griffin: A lot of the documents I have discarded.

The Court: Were tenders called for publicly.

Mr. Griffin: I do not know.

The Court: When the contract came to be signed, of course, 10 it was signed upon the plan annexed to it, or it referred to it.

Mr. Griffin: Yes, referred to but not annexed.

The Court: It is the same thing whether the plan is physically annexed or made a part of it. Of course, the contract could not be anything without a plan.

Mr. Griffin: I should have an opportunity of deciding as to what I wished to do with it.

The Court: You had better produce it if you have it.

Mr. Ward: I do not know where it is at the moment. I have not looked it up. 20

Mr. Griffin: You have not looked that up?

Mr. Ward: No.

The Court: Strictly speaking, is it in the notice?

Mr. Griffin: That would be unknown to me.

The Court: Of course, there is the difficulty. You did not know of the existence and now you are asking for the document. You say in one case the contract includes the plan referred to, and so it is the case in the tender.

Mr. Griffin: I want the original tender of these other companies that made tenders for the construction of the bridge, such 30 as the Dominion Bridge Company, Canadian Bridge Company, Western Foundation Company, American Iron Products, and what others there are, what other tenders there were.

Mr. Ward: I made a search until ten o'clock last night and I was unable to find anything of the kind.

Mr. Griffin: The agreement between the plaintiff and McClintock Marshall in the month of March, 1922.

Mr. Ward: Here is an unsigned draft of it.

Mr. Griffin: I want to see it.

(Document produced). 40

Mr. Griffin: Thank you. I ask for the production of any work reports or progress reports of the construction of the bridge if there are any in the possession of the plaintiff.

The Court: To what does that apply?

Mr. Griffin: The only thing for the moment is to prove in a clear manner the date of the construction of each member, each pier or parcel of work.

The Court: Is that material?

Mr. Griffin: It may become so.

Mr. Donaghy: In what way?

The Court: When it becomes material you can make the motion. It is not material now.

Mr. Griffin: The argument may develop that it is. In the conduct of my case I desire to prove that.

The Court: Quite true, if you propose to prove it. Do I understand you to say that you intend to do so. That is another
10 matter.

Mr. Griffin: I intend to do so.

The Court: If you tell me as counsel that you attach some importance to these dates and the proving of these dates that is a different matter.

Mr. Griffin: That is what I have had to do ever since I called the witness Russell.

The Court: Quite clearly, you know.

Mr. Griffin: Perhaps you will reserve judgment upon that
20 until the argument.

The Court: That is what I say, if you base it on something you can put in the evidence in the order you like.

Mr. Griffin: Yes, then I desire to get these dates.

Mr. Ward: Engineer's reports, engineer's progress estimates. (Produces).

Mr. Griffin: Those are all the documents I have mentioned, unless there are some produced that I have not named. Those are all that I have expressly named.

Mr. Donaghy: Are you through with Mr. Ward?

Mr. Griffin: Yes, thank you.

30 Mr. Donaghy: Very good.

Mr. Griffin: I desire for a few minutes to recall Mr. Muckleston on an observation made by Mr. Swan at the conclusion of his testimony.

Mr. Donaghy: I object to that.

The Court: Just see what it is.

HUGH MUCKLESTON, Recalled, testified further as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

40 Q. Mr. Muckleston, in the concluding portion of his testimony the witness A. D. Swan stated something to the effect as I remember it that the fill at the south end of the bridge had been constructed no further to the northward than was required for the completion of this work. I ask you whether you concur in that statement or if not in what respect you consider that statement incorrect?

Mr. Donaghy: I object to that, because in the examination

RECORD

British Columbia
Admiralty Dist.

Proceedings at
Trial.

(Contd.)

Defendant's
Case

H. Muckleston
Recalled
Direct.

RECORD
*British Columbia
 Admiralty Dist.*
 Defendant's
 Case
 H. Muckleston
 Direct.
 (Contd.)

of this witness in chief by my learned friend he went into the dimensions of the fill in every respect and went into the question of where the trestle was built on it and followed it out on the plan, and is simply bringing him back to confirm it. It is not anything new that was raised in the evidence of Mr. Swan. At any rate, recalling this witness at this stage, at this point, I submit is the Defendant replying to my reply and it is something that is unheard of. Mr. Swan's evidence was in reply to the defence which my learned friend was putting up and he is now calling this witness to reply to the reply.

10

Mr. Griffin: My memory is that it was in reply to one of your lordship's questions, you elicited that fact from Mr. Swan that had not been brought out before, it was a new idea and was not dealt with by me in the evidence.

The Court: Yes, that is so, you may ask the question.

Mr. Griffin: Q. What do you say to that? A. I do not consider that the rock fill is an absolute necessity for the construction of that bridge.

Q. How, in your opinion, would anything otherwise serve the top fill, how would it be properly provided otherwise? A. Pier No. 5 might have been moved in to the low water mark, or even the high water mark, and the interval spanned by a truss.

Q. When you say moved in, you mean extended.

The Court: Give me that plan.

Mr. Griffin: Q. Your suggestion was to move pier 5 further to the south? A. Perhaps I had better say site pier 5 further to the south.

Q. Located further south? A. Yes.

Q. In line with the low water mark or even the high water mark and extending the span over it? A. Yes.

30

H. Muckleston
 Cross-exam.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Now, I think you told us from high water to the toe of this fill was about 260 feet? A. High water to the pier 5, yes, about that.

Q. Yes, about 260 feet. Now, by lengthening the span that you proposed to lengthen and producing it further south you would then have a span of what length? A. Well, it would have been 75 feet to the low water mark. The original span would have been possibly 60 feet more.

Q. That would bring the span on your figures to 210 feet? A. In round figures.

40

Q. Yes. Now, have you looked into this very carefully before coming here to give this opinion as to the change? A. No.

Q. You have not looked into it carefully? A. I know the situation very well.

Q. Are you prepared as a professional man to state that

this is a feasible and proper change. I want to know if you have prepared yourself before asking you my next question? A. It certainly is feasible.

Q. And you understand what it means, do you? A. Yes.

Q. Did you observe that there is a curve in that fill? A. Yes.

Q. And will you tell me how you are going to handle that span with a curve between the piers? A. Very easily.

Q. How? A. Exactly the same way as the bridge at New Westminster. There is a curve at the north end that is handled by a wide span or the span might have been located on the chord of the curve.

Q. You state that you are prepared to base your professional opinion on the proposition you made that you could produce this span. You made no mention of the curve. Had you forgotten altogether the necessity of putting a curve on the span produced? A. I knew it at the time. I said that you could put it on the low water or even the high water mark.

Q. It would have to be a curved span? A. No, the span would be straight, but it would be built on the chord of the curve.

Q. You are substituting this span for the trestle work? A. Yes.

Q. And following the same line you would have to have a curve? A. The span is not curved, the span is straight.

Q. But the trestle work is where you are producing the span and it takes in a curve, do you know that? A. I know it. There are thousands of bridges built on curves.

Q. Now, have you made an estimate of what the cost would be of a produced span 210 feet to take care of the curvature? A. The curvature does not add materially to the cost. The mere difference in length would increase the cost of the truss to double the cost of the 150-foot span.

Q. Could you tell me what the cost of the 150-foot span is? A. I have not the figures.

Q. Have you no idea? A. I could make a rough guess.

Q. Make a rough guess? A. Of the 150-foot span?

Q. Yes? A. The truss would run to close \$10,000 plus the floor system.

Q. And what is your total, \$10,000? A. Double that.

Q. About \$20,000? A. Yes.

Q. It would cost that for the 150-foot span? A. In round figures. That does not include the pier.

Q. What would be the cost of the span produced to 210 feet? A. Possibly \$40,000.

Q. That would be the total span? A. I think that would cover it.

Q. All right.

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
H. Muckleston
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

Mr. Griffin: No further questions.

The Court: Do you wish to ask anything more, Mr. Griffin?

Mr. Griffin: No, my lord.

The Court: Q. Do I understand you to say that excludes the cost of the pier? A. I said that it did not include the cost of the pier.

Q. That is what I said, excludes? A. Yes, the cost of the piers for the proposed difference would not be materially altered from what they are now.

Q. Now, you wish me to understand that you can build a span of 210 feet exclusive of piers for around \$40,000? A. Around \$40,000. 10

Q. That is all.

(Witness aside.)

Mr. Griffin: I tender one of the documents produced by the Plaintiff, to wit, a letter from Mr. A. E. James, resident engineer, to Mr. Ward, Secretary of the Plaintiff Company, of the 14th of January, 1925. That will be exhibit what?

Mr. Burns: Pardon me a moment. I would like to see it.

Mr. Griffin: It is one you produced.

Mr. Burns: I know, there is no objection to it. 20

(LETTER READ AND MARKED EXHIBIT No. 51.)

Mr. Griffin: There is a further letter to the same effect dated the 19th of March, 1925, from James to Ward as before.

(LETTER READ AND MARKED EXHIBIT No. 52.)

Mr. Griffin: There is one document that I have not had time to peruse. We will have to take time to get that at a later date. I have one or two interrogatories in those administered to the Plaintiff. I will give the numbers. I need not read them for the moment. It will not be necessary. Nos. 1 and 2, 10 to 13, 15 to 18, 19 to 22, 37 and 38. I will add also 31 to 34. That, my lord, is the case for the defence. 30

The Court: By that, I suppose you include the counterclaim also?

Mr. Griffin: That is also, of course, the Defendant's case on the counterclaim.

The Court: That is a different matter, if you wish additional evidence on the counter-claim, if you wish to open that that is a different thing.

Mr. Griffin: I understood all along the evidence was addressed to the claim and the counterclaim at the same time. 40

Mr. Donaghy: Have you closed your case?

Mr. Griffin: Yes.

Mr. Donaghy: Is it on the record that my friend says he has

closed his case.

The Court: Oh, yes.

Mr. Donaghy: Very good. I now call Mr. Donald Cameron.

DONALD CAMERON, a witness on behalf of the Plaintiff, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. DONAGHY:

Q. What is your profession, Mr. Cameron? A. Civil engineer.

Q. How many years experience? A. 56 years.

10 Q. What positions have you held in British Columbia since coming here to practice? A. I was first engineer to the District of North Vancouver before it was divided up and after that I was in partnership with Mr. E. A. Cleveland in carrying out works in the city and vicinity.

Q. Before coming to Canada what and where had you had experience in your profession? A. I had a good deal of experience after my apprenticeship in Scotland and then I was appointed City Engineer of the City of Exeter in Devonshire, and one of my duties as City Engineer was engineer to the port and
20 the Exeter Ship Canal.

Q. Had you anything to do with constructing any bridges there? A. The small bridges on the canal, renewals and instead of timber built them with steel.

Q. Now, had your firm any occasion to look into the question of a bridge across the Second Narrows about the time that the Wolfe-Barry plan was mooted. That is the plan that we have in here? A. Yes, it was at my suggestion, that is of my firm, Mr. Cleveland and myself that Sir John Wolfe-Barry was engaged on this work.

30 Q. And did your firm do any work in the way of carrying out observations or getting data regarding the site or proper location for a bridge over the Second Narrows? A. Yes, I was principally concerned with the foundation part of it, the boring of it.

The Court: Q. The Wolfe-Barry plan was about what time? A. 1912-13.

The Court: 1912-13, yes.

Mr. Donaghy: Q. Tell us what you did in regard to getting information as a professional man as to the proper place to put
40 the bridge?

Mr. Griffin: My lord, I cannot see to what issue this is properly directed. Unless my friend indicates, I am entirely in the dark as to what issue he is proposing to now address expert testimony to.

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

D. Cameron
Direct.
(Contd.)

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*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Direct.

(Contd.)

Mr. Donaghy: I am glad to be able to assist my learned friend in that. The defence set up by my learned friend as has been pointed on two occasions by your lordship, and myself, at paragraph 8, page 20, of the particulars, says that the opening in the bridge is in the wrong place and that the bridge was negligently constructed and that the design was wrong and many other things which I just forget right at the moment, but one I remember is that the open span is in the wrong place, and I am examining in regard to the channel and the course of navigation taken by ships would be proper investigation and data for this witness to speak of, if he knows. 10

The Court: To show that the bridge is properly constructed?

Mr. Donaghy: That it is in the proper place, that the opening is in the proper place from an engineering standpoint. My friend is attacking that.

The Court: You may proceed.

Mr. Griffin: May I make my point. We are in a different position now. My friend is endeavouring to show that the bridge was properly constructed under the statute.

Mr. Donaghy: No, surely my friend is not letting his imagination run wild. 20

Mr. Griffin: There is no need of making observations about me like that, keep to the case. My friend's point is that the bridge was legally constructed, is of legal construction. Paragraph 8 is merely one of the different averments of legality, that is, he has exceeded any part he had. That was part of his case, and on that part of the case he called Mr. Swan and he gave testimony that the bridge was in a certain place, the correct place, and Mr. Swan was allowed to swear this in spite of my protests, of course allowed in by your lordship's ruling, and Mr. Swan did give testimony that this bascule span in his opinion was in the proper place. Therefore, that point was gone into in my learned friend's case in chief. It is the same point on the claim and the counterclaim; was the bridge properly constructed? And my submission is that my learned friend cannot add to the case that he was making before. This is plainly set out in the transcript on the original day. I said that I could not be asked to go on and your lordship said: 30

"He has closed his case on what we will call seamanship, you see. There are two distinct branches to this case. There is one, of course, as to whether or no they have in any event conformed with the proper construction in accordance with the Act of Parliament—that is one thing. The other thing is an entirely different thing as to whether or no in the circumstances, however they arise, that it could be said you were guilty of bad navigation." 40

Whether it conformed with the Act of Parliament is another way of saying, was the bridge properly constructed if they put no im-

pediments greater than necessary, it is not authorized. Then the matter goes on:

“Mr. Griffin: He therefore has proceeded with all the evidence that he has on all points, reserving the liberty that your lordship gave him to apply for the adjournment that he thought fit later on; but in the meantime he has to give all his evidence.

The Court: Wait now. We will just see. Have you any other evidence, Mr. Donaghy, now? Have you any evidence except Mr. Swan’s that you wish to bring?

Mr. Donaghy: No other witness.

The Court: That is what I meant.

Mr. Donaghy: Yes, that is right.

The Court: Now, Mr. Griffin, that simplifies it a great deal.

Mr. Donaghy: The only other witness.

Mr. Griffin: The only other witness?

Mr. Donaghy: Yes.”

I go on. And I have it clearly in mind that there will be no witnesses but Swan to be attempted to be called later. My submission is that that applies to evidence of all kind, on both the claim and counter-claim.

The Court: What pages are you referring to?

Mr. Griffin: Pages 81 to 83, I read those passages.

The Court: I notice on page 82 a strange error in the transcript.

“That simplifies it a great deal and it does seem—I think we have got this far in this matter—of really very great importance as it is to the public and the bar.”

“Bar,” of course, should be “parties.” Make a note of that, Mr. Stenographer, that is not the public and the “bar.” It is the “parties.” I see how the mistake could arise, the “par” and “bar.” The meanings are entirely distinct.

Mr. Griffin: I want to emphasize this, I never would have consented to go on, to allowing my learned friend to call Mr. Swan afterwards if I had not been, as I thought, absolutely sure that no other witnesses were to be called at a later stage.

The Court: What do you say to that, Mr. Donaghy? You see Mr. Griffin’s position is that upon this point as to whether or not you are from page 81 and my observations there, your company, the Plaintiff company, has conformed to the proper construction in accordance with the Act of Parliament. I understood you to say there alone Mr. Swan was going to be called on that.

Mr. Donaghy: We have it clearly set out on page 78, about line 15.

The Court: Yes.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
D. Cameron
Direct.
(Contd.)

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*British Columbia
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CaseD. Cameron
Direct.

(Contd.)

Mr. Donaghy: Where I say:

"My lord, there remains the proof to be brought forward that this bridge has been constructed in accordance with these plans and so on. That I had proposed to prove by the evidence of Mr. Swan. That I shall not attempt to have any other engineer go over it because it would be a very lengthy and expensive matter, of course, to follow that out.

"The Court: I understand then what you mean is that what we will call the evidence, the facts, apart from the actual manner in which the bridge was constructed is concluded." 10

This is on my case in chief.

"The Court: You now propose to show that you did perform, you did erect this bridge in conformity to the plan.

"Mr. Donaghy: Yes, and the engineer is the one who can do that.

"The Court: Yes.

"Mr. Donaghy: Now, there is one other thing, my lord, that I wish to mention and reserve—"

And then I deal with the question of the orders-in-council. That is what I said that I was not calling witnesses on as to whether the bridge was built in conformity with the plans. I submitted Mr. Swan's examination to that and I dropped him at that, explaining at the time that I would be free to recall him in reply. Now, this whole matter was re-argued when I presented Mr. Swan in reply and we had the ruling on that from your lordship and my friend read the same extract. The position which my friend is submitting at the present time is that I gave an undertaking that I was not going to call any witnesses at all in defence and that sort of thing. There is not anything to bear out any suggestion of that kind. It is very clear what I was saying. I was speaking on my case and on the question of whether the bridge was built in accordance with the plans or not. Mr. Swan was the man to say that and I stated that I would not call any other engineer on that point and that is all that I did ask him when he came here in support of my case in chief and I quit at that. Now, my friend goes on and mixes the thing up from there on and says that I agreed that I would not call any evidence in answer to what he sets up on the counter-claim and defence and that we undertook that we would not have any witnesses on any subject at all. This matter has been proceeding. It is the same thing that I examined Mr. Swan on yesterday in reply to the defence as to the matters set up in their defence that this bridge apart from the plans, that the plan of it, and the whole thing is in the wrong place and the wrong situation and that the plans are wrong. That is a different question from proving that we conformed with the plans. The first question I asked Mr. Swan was, "You heard the evidence as to the plans for the bridge and the location where the plans put the 30 40

bascule are found in order.” I propose to go into that subject with this witness as I did with Mr. Swan. It is a straight reply to the defence raised in paragraph 8 of the defence.

Mr. Griffin: My learned friend seems to feel that we are to be governed by what he has stated on page 78. I submit that that is essentially an unjust way to read the testimony. It is important, because it is explanatory of it and that is where he got the chance to make it definitive, and it is boiled down on that account to a dangerous alternative. I go on with my two questions, sea-
 10 manship and regularity of construction, a statement which appears on page 79 partly and pages 81 and 82 and finally winds up at pages 86 and 87, the bottom of page 86 your lordship wound up the discussion in these words:

“Possibly there is this solution of it, it is only documentary evidence, any witness or witnesses is not open to them at all.”

The Court: You read from where?

Mr. Griffin: The bottom of page 86.

Mr. Donaghy: Read the connection, it is dealing with the orders in council.

20 The Court: You must remember, Mr. Griffin, we were not considering paragraph 8 at all at that time.

Mr. Griffin: I submit that we were in the sense that we were discussing what your lordship very accurately stated the position to be on page 81, at the top of the page. That is exactly what I am now submitting. There are two issues.

The Court: It now becomes apparent in the progress of the case that there are more than that, there is at least, if not four issues, that is the point.

30 Mr. Griffin: They are really subsidiary issues under the main issue.

The Court: You have made three very distinct issues unless you choose to abandon one. You have raised three issues. In the first place you say your navigation was good and that you are not responsible in any event whatever. That is something on which you have given a large body of evidence and it is not open to Mr. Donaghy to go into that, that is to say, upon that question as to whether in going through that bridge you exercised prudent care in a competent manner. That is not open, and I understand that you do not want to go into that.

40 Mr. Donaghy: No, I am not attempting to.

The Court: That is Mr. Griffin's first point and the second point is as to whether or no as a matter of fact this bridge was constructed in accordance with the plans and the Act of Parliament and the plans approved thereunder. That is the second one and with regard to that I understand you have given a large amount of evidence and called several witnesses to show the variation from the plans as approved by the parliamentary tribunal;

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 D. Cameron
 Direct.
 (Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 D. Cameron
 Direct.
 (Contd.)

you say there was no authorization for the details of the variations. In answer to that, Mr. Donaghy said the only person he proposed to call to show the construction was in accordance with the Act of Parliament was Mr. Swan and he has said so, and he now says that he has no further evidence on that. You have then a third point which is equally important. You say that in any event this constitutes an obstruction to navigation apart from the question as to whether or no it was built in accordance with the plans. Of course, if you say that you put nothing on that basis Mr. Donaghy will not have to call the evidence.

10

Mr. Griffin: I do not say so.

The Court: I assumed you would not. I make this observation because my remarks that there were two distinct branches of the case were entirely appropriate at that time. Since then you have put forward another reason which is a strong position and I do not understand that you wish to recede from the position you have assumed. That is distinct from the other two and on that Mr. Donaghy wishes to call evidence. On what ground can I prevent him doing so? If I were to do so it would mean a new trial.

Mr. Griffin: Then I had better state my view.

20

The Court: You have. You have gone upon the wrong assumption that there were two branches whereas there are three. I say for the third time if you wish to clarify the situation and say that you are satisfied to rest upon the two branches then I will tell Mr. Donaghy that it is not necessary to go into this. I do not think that you wish to do that.

Mr. Griffin: I have already said twice that I do not.

The Court: On this third ground on which Mr. Donaghy has not given evidence and to which my remarks were never at that time directed it would be a legal impossibility to rule that he was not entitled to bring forward his evidence. A new trial would be granted at once.

30

Mr. Griffin: Then I understand this what you call the third point is merely a branch of the question of the legality of the construction and is covered by the ruling, and my friend having stated at pages 81, 82, 83 and following it up at 85 and 86 that no other witnesses are to be called, I do not mean on mere points of fact, I am addressing myself to experts on bridge construction, and that no experts are to be called except Mr. Swan and on that I stand.

40

The Court: It is perfectly clear that you are entitled to call witnesses and proceed upon the ground I have indicated, the third ground. Mr. Griffin may style it a subsidiary one. Nevertheless it is one of great importance and on that evidence must be admitted in your defence as well as his attack. Confine yourself to that.

Mr. Donaghy: Yes.

Q. Mr. Cameron, the contention has been put forward in

this case that the bascule opening in the Second Narrows Bridge is too far to the south. Can you assist his lordship with any information on that subject, or with your views on that subject?

A. All I can say about that, Mr. Donaghy, is this, that so long as there is sufficient sea room for a ship to straighten up to take the passage in the bridge and so long there is sufficient water in the open span to prevent the ships at all stages of the tide to prevent the ships dragging the bottom.

The Court: Q. Try and speak clear. Your voice is not
10 quite as clear as it might be. There are so many colds at this season of the year. These gentlemen are entitled to hear as much as anybody else.

A. So long as there is sufficient water in the draw span to allow the ships to pass without losing steerage way I know of no compelling reason why it should be in midchannel.

Mr. Donaghy: Q. Now, at the time you said you made your observations—

The Court: Q. How did you express that exactly? You said so long as there is water at all times and so long there is a
20 sufficient opportunity for proper approach, is that what you said?

A. Yes, so long as a ship can get in the position of straightening up to take the passage in the bridge.

Q. You mean also at all stages of the tide? A. Yes.

Q. You speak both as to the lining up and as to the depth of the water? A. Yes.

Q. Yes.

Mr. Donaghy: Q. Now, in your study of the situation in 1912 and 1913 what did you find that would lead to the justification of placing the bascule span where it is? A. It is a difficult
30 engineering problem to span the Narrows anywhere as the rock does not extend further out than midchannel. It is at that point the brow of the escarpment or secondary escarpment went with a very deep erosion from midchannel north. At low water on the north shore the drill did not touch rock at 160 feet down and the main reason for putting the open span towards the south was to get a good solid foundation. Apart from that, one of Sir John Wolfe-Barry's partners who came out to study the situation and prepare the layout, he consulted several of the master mariners here.

40 Mr. Griffin: Your lordship is not going to hear that.

The Court: No, you must govern yourself.

Mr. Donaghy: Q. You need not go into that. That is not allowable. Did you yourself make any observations regarding the practice of mariners navigating there at that time?

Mr. Griffin: Surely that is a mere question of navigation and could not be directed to anything else.

Mr. Donaghy: It is a question of where the channel is and

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Direct.

(Contd.)

not a question of negligence with your ship.

Mr. Griffin: It is merely suggesting that the navigation is on the south shore and that had nothing to do with the bridge construction.

The Court: It is on the issue of the bridge interfering with navigation. How can we find out what the impediments to navigation are unless we know what the navigation ought to be.

Mr. Donaghy: Q. What did you learn from the observations that you took that navigators took, or their practice at that time when you made enquiries and observations? 10

Mr. Griffin: I submit that my learned friend has no right to ask about enquiries.

Mr. Donaghy: Strike that out, when he made enquiries. A. I was in one large boat through at that time, but I found—

Mr. Griffin: I cannot hear you. I am sorry.

A. But I always found that boats navigating the channel always kept to the south shore.

The Court: Q. When you say always, do you mean inwards or outward bound? A. Pardon?

Q. You told counsel that boats navigating the channel always kept to the south shore, do you mean inward and outward bound? 20

A. Both inward and outward.

The Court: Yes.

Mr. Donaghy: Q. Now, Mr. Cameron, I turn to another subject. Evidence has been given here of a northward or a northerly current setting from the south shore northerly through the bascule and also east of the bascule. I ask you whether or not you have made any tests to ascertain whether that contention that has been set up regarding the northerly current is correct or not? A. I have made only a surface examination, that is, by surface floats. 30
The dominant current in the channel is at the deepest part and that is more parallel to the north shore than to the south, west of the bridge. There is a bay on the south side and the current coming up through the bay and around the bay tends to join the dominant or main current that is in the middle of the channel and therefore you have got a tendency to the north up to where they join the strong current in the deep part of the channel.

Q. Now, what experiments did you make and when? What tests did you make? A. East of the bridge the tests were made to try and find out what current other than those showing on the surface existed in the Narrows. 40

Q. When did you make the test or tests? A. A test was made on the 1st of September, last.

Q. What did you do? A. As the tide currents at that time were similar to those on the 10th of March, 1927.

Q. Go ahead and tell his lordship what you did? A. I tested the currents by using floats, submerged floats.

Q. Will you describe them? A. At different depths, 25 feet, 20 feet, 15, 10 and 5 feet. They were made of batons and the end of the float was upright in the water. These batons were put down a quarter mile east of the bridge in midchannel about forty minutes before the time of slack water.

The Court: Q. High or low? A. Low slack.

Mr. Donaghy: Q. How many feet north of the 5 fathom line were they put down? A. They were put between the two, the ten fathom line in midchannel. That was the first trial with
10 floats and they came down the channel in regular order and passed through the south half of the 300-foot span, that is, north of pier 2.

Q. You put them in midchannel and they passed west under the bridge just north of pier 2? A. Yes.

Q. All right. A. Four of them were then picked up and put down about one-third of the distance of the width of the channel from the south shore, that is, 300 feet from the south side of the narrows.

Q. You mean from the shore line? A. From the shore line,
20 from the low water line.

Q. How far east of the bridge? A. A quarter of a mile, 1320 feet or abreast of the water works on the north shore.

Q. All right. A. These came down the channel, the three of them almost in perfect alignment, or straight, as if put down by a transit, without moving north and south, and passed through the bascule span close to pier 2. The shallow float; there was a slight breeze blowing across the channel and it affected the shallow float more than the other, because it passed on the opposite side of the pier to the deep float. The first float was in midchannel at
30 minutes from the time of low water and the current had a velocity of $3\frac{1}{2}$ knots. On the second trial out in the middle of the channel the current velocity was $3\frac{1}{4}$ knots.

The Court: What was that first velocity? A. The velocity of the current on the outgoing tide?

Q. Yes, what was that? A. $3\frac{1}{2}$ knots.

Mr. Donaghy: Q. The first floats you sent out were what velocity? A. The first floats in midchannel were at the rate of $3\frac{1}{2}$ knots.

Q. Did you make another test? A. Yes, that was the average velocity over the course. Objection might be taken to the form
40 of floats first used, that is a rigid baton and I had other floats prepared.

Q. I show you some others. Are these the kind you had prepared? A. Yes.

Q. On the second test? A. Yes, these are loaded at the bottom and are attached by a cord to the surface float.

Mr. Donaghy: I tender one of these as an exhibit, as a sample.

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Direct.
(Contd.)

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British Columbia
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CaseD. Cameron
Direct.

(Contd.)

Q. Go on and explain what these are and how you used them?

The Court: Q. What series of floats are these?

A. These are the ones used on the 13th of September, on the second test.

Mr. Donaghy: These are a little different from the first test.

A. Yes.

Q. What was the first one? A. The first one was a solid baton about that size, a little thicker than that float upright in the water lodged at the other end.

Q. Then you had this new device. Why are they this peculiar shape? A. In order to catch the current in all directions. 10

Q. How did you use this thing? Just the top of that floats in the water? A. This is the top. This is the one that I used on the 13th of September.

Q. Instead of the one we were marking, you find that what you really used on the 13th of September is the one you have there now? A. Without this part.

Q. Take it off. Now, we will have this marked. This is really what you used in the test on the 13th September? A. Yes, the rate of the tide on that day— 20

(FLOAT REFERRED TO MARKED EXHIBIT No. 53.)

Q. How did you get them down?

The Court: State the tide first, low water slack or high? A. The range of the tide on the 13th of September was 8.1, instead of 8.7.

Q. But the state of the tide when you put these floats out? A. I was going to describe that, my lord. It was at low water also.

Mr. Donaghy: Q. Now, describe how you used these? A. This is the surface float and this is the weight, and this cord it takes the real float. This is only to support the real float which is this part. 30

Q. The part with the iron ring attached to it? A. Yes.

Q. To the depth of the cord? A. Yes, 25 feet, 20, 15, 10 and 5 feet.

Q. That is to say, you had five floats like these? A. Yes.

Q. Of 5, 10, 15, 20 and 25 feet respectively? A. Yes.

Q. Did you put them all in the water? A. They were put in the water this time east of the eastern most line of the water mains, about 1,550 feet east of the bridge. The trial trip of the floats, they were placed by preliminary arranged signals with the bridge operator in the position that steamers take when approaching the bridge. 40

Q. Approximately how far north of the high water mark on the south bank? A. I did not take that. I went by the signal of the operator.

Q. Who is the operator? A. I am not sure now.

Q. The location that you took in the channel was what the operator indicated to you? A. Yes.

Q. He was standing on the bascule bridge? A. Yes, and these travelled down in the channel in the same way as the previous floats all passing under the bascule span.

The Court: Q. You say they all passed under the bascule span? A. Yes.

The Court: Mr. Donaghy, please ask him how they were placed, whether he placed them in line that way across the current or with the current.

Mr. Donaghy: Yes, just state how you placed them? A. The tug was placed in the position indicated by the operator and the floats were put in the water this time at half minute intervals and there was a space of 100 feet between each of them as they passed down the channel.

Q. It would be about the average length of a large ship then? A. Yes.

Q. That gave you a 500-foot line of floats? A. Yes.

20 Q. In line, one after another? A. Yes.

Q. Like a ship coming lengthwise? A. Yes.

Q. I see the point. A. They were picked up and owing to some difficulty in picking them up they were put in only eighteen minutes off low water.

Q. What happened to this line of floats? A. They passed through the bascule span and out west.

Q. Keeping their alignment or dispersed? A. Practically keeping their alignment.

30 Q. That is what I want to be quite sure of. Yes. A. The next time they were put down in the same position and it was within 18 minutes of the time of slack water low.

Q. Before? A. Before, and they travelled down in the same way giving no indication whatever of any undertow, or cross-current in the channel. As I would expect to be the case in a narrow, deep channel it would be inconceivable that there should be cross-currents.

Mr. Griffin: Well—

Mr. Donaghy: You are just telling of your experiments.

Q. When next did you make a test?

40 Mr. Griffin: I wish to have that struck out.

The Court: Oh, yes, strike it out.

Mr. Donaghy: Q. When was your next test made? A. I should say the velocity of the current shown by these floats was at the rate of 2.18, $2\frac{1}{4}$ knots as the speed of the outgoing tide within 18 minutes of the time of slack water.

Q. Very good. Now, your next test? A. The next test was on the 20th of October.

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Plaintiff's
Case

D. Cameron
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
D. Cameron
Direct.

(Contd.)

Q. This year? A. Yes, the tide started at four o'clock in the morning and these same floats were put down differently this time.

Q. Explain that. A. If my lord would show me that plan there.

The Court: Yes. He is looking at exhibit 27.

A. The cords were lengthened five feet in each case.

Q. The what? A. The cords of the floats, so as to give thirty feet instead of 25 and so on up to ten feet. One of the floats, the deep float, was placed close to the pier and the next float was placed in the middle and the other was placed at the south end of the open span. 10

Q. How far to the east of the bridge did you place these floats? A. Right under the bridge.

Q. You mean under the face of it, or the centre of it? A. Under the sidewalk of it.

Q. That would be the east front of it? A. Yes.

Q. Under the east front of the bridge? A. Yes.

Q. And across it? A. And across it. The other two were placed in the span and near the north pier, and the other— 20

Mr. Donaghy: Q. Near pier 4-A? A. And the other in the middle of the span.

The Court: Yes.

A. This was done as the flood tide began to make and each of the floats had attached to them lamps.

Mr. Donaghy: Q. You now produce the kind of float you used on this occasion? A. Yes.

Q. Very good. We shall have this marked as the next exhibit.

(FLOAT REFERRED TO MARKED EXHIBIT No. 54.) 30

The Witness: Standing on the bridge I was able to watch the progress of the floats and they all travelled east in a parallel line. The deep float went as far east I think as a quarter of a mile east and so did the others, but the southernmost float along the south shore at 200 or 250 feet grounded on the south shore.

The Court: Q. What was the depth of that one? A. That was a ten foot one and there it remained.

Mr. Donaghy: Q. Now, the others which did not ground, how far easterly did they go as you observed? A. I think they went a quarter of a mile east. The morning was very dark, my lord. 40

Q. Did you then pick them out of the water? A. They were then picked out of the water.

Q. As a result of this did you see anything to indicate a northerly cross-current from the south shore? A. No indication

at all of a current going across the channel of the narrows.

Q. At the time you made this last test what was the state of the tide when you started the floats going? A. We waited until the flood tide began to make, to show a ripple on the piers.

The Court: Q. When you picked them up.

Mr. Donaghy: When he started the floats.

The Court: I understood him to say the tide was beginning to make when he started the floats. Is that right?

The Witness: Yes.

10 Mr. Donaghy: Q. Have you told us what sort of a tide that was, what sort of a run out there had been? A. I think the range of it was 8.6 or 8.7 or in the region of 8 feet.

Q. Of a run out? A. Yes.

Q. Who assisted you in these tests? A. One of my sons assisted me and the boat man.

Q. Now, turning to the question of this fill at the south end of the bridge, have you considered that? A. Yes, I watched it from low water to—

Mr. Griffin: That is a straight engineering question and has
20 nothing to do with this matter now.

The Court: It is the same thing, it is one of the principal points if not the principal one, the improper placing of the rock fill at that place which is part of the construction of the bridge, and as to whether it is an impediment to navigation.

Mr. Griffin: That should have been closed up with Mr. Swan's testimony, I submit.

The Court: The same ruling.

Mr. Donaghy: Q. Go ahead? A. I watched its effect upon the tide from low water to high water springs. At high water that
30 day there was a lot of oil on the surface of the water and I could trace the effect of the fill out for a distance of 30 feet from the front of the fill.

Q. What stage was the tide at then? A. High water. The stream line circled the fill and then went straight up the channel.

The Court: Q. Did you say what the depth of the water was at the toe? A. At the front of the fill.

Q. You mean the front edge of the fill? A. The rounded edge of the fill as high as the tide came.

Q. Exactly. A. There is a bay on the east of the bridge in-
40 side of the fill and the flood tide turned this bay into a whirlpool. It was filled with wood, debris, and some of them circling around would be caught by the current and carried in and back again, but some of them were sufficiently caught to be carried right up the south shore of the inlet.

Mr. Donaghy: Q. Do you know what the height of that tide was when you made the observation? A. I think it was a 12-foot tide.

RECORD

*British Columbia
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Plaintiff's
Case

D. Cameron
Direct.

(Contd.)

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*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Direct.

(Contd.)

Q. What effect if any did you see this fill had upon the current at that time? A. That is the only effect I could see of diverting the current. The current simply swept around the fill and went straight up the channel. From my observations I am quite satisfied that no stream line at that time would go across even the land span of the bridge. The stream line went straight up the channel and the only effect at that time I thought it had upon the current under the bridge was to increase the velocity of the current, but considering what that increase would be I found it to be negligible, because it would be the sectional area without the fill and the sectional area with the fill. The difference would be so small that in the inverse ratio it would be almost negligible. At that time I was not aware of the ditching carried out on the north shore that offset the reduction in the area of the channel caused by the fill. 10

Q. Did you take in this fill at low water? A. It was not affected at low water.

Q. You made that observation and found that? A. Yes, but it gives this impression, the kelp, long streamers of kelp just east of the fill and the swirling whirlpool leaves the kelp streamers; they lie at right angles just inside the nose of the fill and lie at right angles to the current going past and give the impression that the current must also go in that direction. 20

Q. Now, did you make observations at the fill between low water and the change to high water? A. Yes, I have watched it, but I did not pay so much attention to that as to the extreme effect it had on the tide.

Q. At high and low? A. High and low.

The Court: Q. Just repeat that answer. I was writing something down? A. That I made— 30

Q. You said you were not paying so much attention to what, as to something else? A. To the half tide effect.

Q. You were not paying so much attention to the half tide effect? A. As to the extreme, the high water effect and low water effect.

Q. Yes?

Mr. Donaghy: Q. Now, from your observations, how far northerly from the line of the water on the south shore did the fill at any time appear to deflect the water? A. A distance out of thirty feet. 40

Q. From the shore? A. From the shore of the fill and I felt at the time that must be the extent of the fill if the line seemed to cease at the toe of the fill.

Q. That is, the deflection of the water off the shore line at the fill seemed to extend out thirty feet from the shore? A. It is not a case of deflecting it, but there is an action takes place, a stream line throughout at different directions from the fill.

The Court: Just one minute.

Mr. Donaghy: Your witness.

The Court: Would you prefer to go on now?

Mr. Griffin: There are only ten minutes. I cannot do much.

The Court: As you like.

Mr. Griffin: I would just as soon adjourn and make some notes.

The Court: Would it be better to adjourn now or—

Mr. Griffin: I am in your lordship's hand.

10 The Court: Proceed.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Direct.

(Contd.)

CROSS-EXAMINATION BY MR. GRIFFIN:

D. Cameron
Cross-exam.

Q. Wouldn't it have been reasonable to notify the other parties of these experiments so that they could observe them? A. Well, I did not consider that as part of my duty, Mr. Griffin.

Q. Now, that the matter has come up do you not think it would have been reasonable to allow somebody representing the ship to see those experiments and take part in them? A. Yes, I think it is right, but it did not occur to me at the time.

Q. In other words, it would avoid asking any questions as to the conditions that then existed? A. As to the conditions?

Q. It would avoid having to ask anything about conditions? A. Yes.

Q. And to see that your recollection of this matter was accurate? A. Yes.

Q. What was sunk in the water with these weights, is this it? A. Yes.

Q. The wooden part was sunk? A. Yes.

Q. And the top thing is this wooden float? A. Yes.

Q. Now, you were yourself, as you said, a member of the firm of Cleveland & Cameron? A. Yes.

Q. And you submitted a plan for the bridge yourself, didn't you, your firm either alone or in conjunction with Sir John Wolfe-Barry? A. Yes.

Q. Which did you do, submit one by your firm or in conjunction with Sir John Wolfe-Barry? A. The lay-out was made by an engineer in Sir John Wolfe-Barry's firm.

Q. Had you then the subject before him? A. No, I don't think he prepared the lay-out then. I had previously prepared the lay-out when I was engineer of the district, but that was long ago.

Q. What year was that? A. That would be 1909 or 1908-9.

Q. Was that for a swing bridge or a bascule? A. It was swing span.

Q. Was it in substantially the same place as in the sketch, or in Sir John Wolfe-Barry's plan? A. Oh, yes.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

Q. Who was that sketch submitted to, if anybody? A. It was used when a deputation went over from North Vancouver Municipality to meet the cabinet at Victoria.

Q. Did you have any sketch plan prepared before you advised the calling in of Sir John Wolfe-Barry? A. No.

Q. I take it that this large exhibit 21 is his design? A. Yes.

Q. Was it concurred in by your firm? A. Yes.

Q. And approved of by your firm? A. Yes.

Q. And I take it therefore your view is that it was thoroughly feasible? A. Feasible? 10

Q. Yes? A. Yes.

Q. And a tender was made upon it, was it not? A. Yes.

Q. Was that tender accepted? A. No, no, the cost was too great.

Q. The cost was about 2¼ million? A. No, more than that, at least 2¾ millions, did you say?

Q. I thought it was 2¼ millions. A. I think it was over 3 millions.

Q. The only information I have on it was out of the North Shore Press, the famous North Shore Press that I have quoted before. I want to see if you agree with me. Oh, I see these are later modifications. 20

The Court: Perhaps it would be better to give you a little more time. It is so near the time of adjourning now. We will adjourn.

(12.55 P.M. COURT WAS THEREUPON ADJOURNED UNTIL 2.15 P.M.)

(2.23 P.M. COURT RESUMED PURSUANT TO ADJOURNMENT.)

DONALD CAMERON, resumed stand. 30

CONTINUATION OF CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Mr. Cameron, I take it that you do not claim to be a navigator, do you? A. I beg your pardon?

Q. You are not yourself a navigator? A. No, I am only an amateur in the matter.

Q. Now, I gather from the navigation point of view the important thing is the size of the opening and its breadth? A. The opening of—

Q. The draw opening and its place? A. No doubt. 40

Q. And the question as to what would be a reasonable breadth and a reasonable place would depend upon these follow-

ing considerations; the currents to be expected, the winds to be expected— A. What to be expected?

Q. The currents which would be expected? A. Yes.

Q. The winds which one must expect, the size of the ship to navigate the opening, and the speed at which they must approach that opening? A. Yes.

Q. Those are, I think, a reasonable statement of the navigation bases, are they not, so far as you yourself know? A. Yes, limiting the wind, of course, because it is a very sheltered place
10 in the Narrows, the Second Narrows.

Q. I was not suggesting that the wind was of importance, but I take it in general it must be thought of, for what force there might be? A. Yes.

Q. So, eliminating the wind, we have the currents, the size and the speed of the vessel? A. Yes, and the handling of the vessel, of course.

Q. I take it you will agree with me that a wider space ought to be provided if the current is severe? A. Take a 60-foot beam ship, that would be a 400-foot ship, say, and when it is in the draw,
20 take the width of this room to be 36 feet, she would have a space on each side of her 12 feet wider than this room, between each side of the pier.

Q. I was not really going into for the moment the details of that. I only want you to concur with me as a basis, if there is a current in the place to be navigated you need more space than if there is no current? A. Yes, I agree with that.

Q. And if the current is irregular the same would be true? A. He must know what he is doing. The master mariner or the pilot must be the master of the situation. He must understand
30 what he is doing.

Q. In deciding what space he needs an irregular flow of current is an element to be taken into consideration, is it not? A. Yes, it is very much more important still as an estimate of the tide he is riding.

Q. I am not trying to argue with you, I am only trying to get out certain facts. I say if cross-currents are to be expected then you need more space to be reasonably safe, do you not? A. Yes, that is a self-evident proposition.

Q. Yes, and if the time of the slack water is very short— A.
40 On the low slack?

Q. No, what I only said to you is this: If the time of the slack water is very short then in the same way you need more space, because you must go through with some tide with you or against you, is that right? A. Yes.

Q. Then you will agree that if the vessels are restricted to a short time at slack water they are severely impeded for the balance of the daily period? A. I do not know that ships should

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*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Cross-exam.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

rely upon slack water. As an amateur, if you allow me, if I had to take a passage at the bridge, I would wait until there was an adverse current and that would give me steering power.

Q. I think you are not quite reasonable to me there. I did not ask that. What I asked was a very much simpler question, that insofar as the vessels cannot navigate other than at slack water, or thereabouts, the balance of the day to them is an impediment, is it not? A. No doubt.

Q. Now, if it be given in evidence, as to which I will not ask you, but if it be proved in the evidence that the time left for the navigation of big ships at this bridge is confined to the periods at slack water then they are confined to, at the most, four periods per day? A. Yes. 10

Q. And if two of those cannot be used on account of darkness that leaves only two periods per day, does it not? A. Yes.

Q. So far as those navigators are concerned the bridge to them is a great impediment the balance of the day.

The Court: You might tell him what is meant by big ships.

A. Unless they used searchlights.

Mr. Griffin: I ask so far as they are limited to two periods a day? A. I agree with that, unless they use searchlights and take the passage at night. 20

Q. I take it that you will be prepared to agree that the considered opinion of experienced navigators would be the right test as to whether they could navigate at night or not? A. No doubt.

Q. And also therefore the time at each slack water when a man can safely navigate that draw is a matter to be properly determined on the evidence of experienced navigators? A. Yes, of experienced navigators, yes, experienced in such waters as we have here. 30

Q. I mean experienced with conditions there? A. Experienced in—not altogether a blue water captain, but a man accustomed to narrow waters like we have on this coast.

Q. We mean the same thing by the word experienced, no doubt? A. Yes.

Q. Now, another consideration would be this, if as a matter of fact it were established that the approach to the navigable draw is itself dangerous that would be an element in deciding whether the opening is in a reasonable place, would it not? A. Undoubtedly. 40

Q. And on that again we must rely not upon engineers, I suppose, but upon navigators, is that right? A. Yes.

The Court: Of course, you have suggested that to several witnesses, you know, but I do not think the court can be restricted to what he says.

Mr. Griffin: No, but I would be entitled to the benefit of it so far as it goes.

The Court: It is a peculiar question, it is asking him to say what this court will be guided by. I understand he has some reluctance doing that.

Mr. Griffin: I do not want to press it.

The Court: If it is of any use you may proceed.

Mr. Griffin: I would like to have his opinion.

A. Will you repeat the question, please.

Q. If in the opinion of experienced navigators the approach to a certain place is dangerous that should be a powerful argument
10 in deciding whether it is reasonable? A. Undoubtedly.

Q. Speaking in general a bridge opening ought to be in the channel, should it not? A. Yes, but while I may not realize the difficulty of a navigator, I do know the difficulties of an engineer and they have, although they may count for very little in your estimation, they have their difficulties as well as the mariner, and this is one of them.

Q. If you would realize I am for the moment engaged in a matter which involves the interests of the mariner and I am not inviting you to express any opinion of an engineering kind, but
20 to give your opinion on a navigation question upon which you were the first to volunteer it. A. On general principles.

Q. On general principles an opening in the channel would be the best? A. Undoubtedly.

Q. And as you know the rule of the road—do you not? A. I do.

Q. Therefore, one in the middle would be the best? A. I do not know that it applies in this case altogether.

Q. Very well, leave that to the judge if the rule of the road does apply then one in the middle would be the proper place? A.
30 In any case there would be no two ships in the draw at the one time.

Q. You are arguing with me now? A. Pardon?

Q. As a matter of fact, a bridge engineer with nothing to guide you but the rule of the road you would put the opening in the middle? A. I do not understand why you say that.

Q. If the other considerations were the same would you not put your opening in the middle? A. Yes, if it is feasible to do it that is the place.

Q. That is all that I want you to agree with? A. But the
40 feasibility is the difficulty.

Q. Now, there is a certain amount of irregularity in the current created by approaching the shore of the Second Narrows, is there not? A. From the west?

Q. Either way, I am speaking generally, as you approach the shore of an irregular body of water you get irregularities in the current? A. Well, it is very different on both sides of the bridge. If you would select one side I could answer you.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Cross-exam.
(Contd.)

Q. I will confine it to the more obvious side, the eastern side? A. The eastern side the current I think is most regular.

Q. Where? A. On the ebb, I mean.

Q. I asked you about the shore. You want to answer in a way that I think you are not answering my question so much, but you are answering to what you think I am leading to. I mean this, the shore of the Narrows though having a general straight direction, it is not of itself regular? A. No, the shores are like the ordinary foreshore in such a place as the narrows.

Q. Therefore, I take it you agree that the thread of the maximum current is more or less in the centre? A. Yes. 10

Q. And as you approach the shore you get a certain irregularity caused by the contour of that shore? A. If sufficient to cause an eddy or return current, yes, but if it is not sufficient it makes no difference.

Q. Every bend in the shore will when the current is running throw a little thread of current out towards the centre, will it not? A. I have not observed that in the Narrows.

Q. You have not? A. No.

Q. Then it would not be correct that a ship approaching the south shore at an angle would find any tendency to be thrown out? A. If the tide is following her? 20

Q. Yes? A. Oh, yes.

Q. Why? A. Because of the following current streaming down through the Narrows.

Q. That is to say, the configuration of the ground would cause a sideways movement of the vessel? A. I don't say the configuration of the ground before the bridge was there, I have in my mind's eye, I remember the picture of the ebb tide in the Narrows. It came out smoothly and regularly from one end to the other, and I have never noticed an eddying current off shore. I surveyed the narrows as that map will show you. 30

Q. You surveyed it in conjunction with Mr. Hermon? A. Yes.

Q. Do you not agree with me that in approaching the shore in not exactly a smooth surface, that it does or does not create irregularities in the current? A. I don't think so, because the main current is drawing towards itself from the side. If the speed of these currents at different points across were plotted, you would find that they form a bullet-nosed shape curve and the centre currents are drawing the other currents after it. 40

Q. That is all that I meant. Very frequently we agree. It comes down to this then, there is a drawing of the current from the sides to the centre? A. Yes.

Q. To that extent there is a filament of current towards the centre? A. Yes, if the sides are more irregular, more than they are sufficient to cause an eddying current then what you are say-

ing would be true.

Q. You have agreed with me on other occasions known to yourself that there are whirls in the current east of the Narrows?

A. I know that there are to the west, but I never saw them to the east. I may not have noticed. There may have been there, but on the west side there is some evidence, no one passing through could fail to see them. That is on the ebb.

Q. On the ebb there is a marked counter clock-wise current to the west of the bridge? A. Yes, where the ebb current through
10 the Narrows strikes the dead water in the bay to the south.

Q. It creates a current circling in the bay or bight to the west of the narrows on the south shore? A. Yes.

Q. And that swings across the entrance to the Narrows to a certain extent? A. Yes, to a certain extent.

Q. Wait a minute. We will go on with that? A. I should say to the middle of the Narrows.

Q. I did not know that it went that far or not, because the tide turns as the flood begins that eddy drifts up the narrows to the eastward? A. That eddy so far as my observations go is
20 spilled.

Q. Would you like to say the observations of others who have observed it that it runs up to the south shore is not correct?

A. No, I am not saying that.

Q. You to a limited extent in preparing the first plan provided for an opening as near the centre, as you could, did you not? A. Yes.

Q. And in fact if you wish to scale this off you may do so. I have it done two or three times. The north span in the Wolfe-Barry plans is 110 feet north of the No. 2 pier of the bridge as
30 constructed, is that not correct? A. I never tried it. I suppose it is correct.

Q. Would you like to check those figures. I take them on advice from others. I am advised that they are at least 110 feet. A. Yes, that is probably so. At the same time these conditions were imposed upon us by the Department of Marine and Fisheries.

Q. In fact, if you had your own way you would have designed a bridge with the span right in the middle of the regular ship channel? A. No, further in-shore.

40 Q. Still further in-shore? A. Yes.

Q. Anyway, the Dominion Bridge Company followed your view or Sir John Wolfe-Barry's substantially? A. Yes.

Q. And so did the Canadian Bridge Company? A. Yes.

Q. Their plan is in? A. Yes.

Q. The Dominion Bridge Company's is not, but I will show you that now to see if you agree. You might please look at that

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 D. Cameron
 Cross-exam.
 (Contd.)

plan. You will probably remember it? A. This is the same lay-out practically.

Q. It is exactly the same, or a modification probably of the Wolfe-Barry plan? A. Very slightly.

Q. I am not advising you that I know of any difference myself. I do not.

I will tender that as another design, my lord.

(PLAN REFERRED TO MARKED EXHIBIT No. 55.)

Q. So that evidently all these three companies were at one in putting the opening as far to the north as they could with the 10 instructions which they had received? A. Of course, this way—

Q. Please answer my question and then you can go on with your explanation. You really were not listening to my question, evidently. I said all these three companies were at one in this one respect, that they were getting this opening as far to the north as they could with the means at their disposal? A. Yes, they were at one with Sir John Wolfe-Barry's representative.

Q. I take it therefore that swing bridges were the popular idea among the engineers in designing at that time? A. And so it is yet. 20

Q. Therefore this bascule idea is not in your opinion the best? A. Did you say it was not?

Q. I say in view of the fact that you evidently recommended the swing I take it is obvious you prefer that to this bascule type? A. Their representative preferred it and I agreed with him.

Q. Why not say then that you do prefer the swing type? A. I would prefer it, yes.

Q. And that type provides for an opening which I think you can safely take from me on that point, if you do not remember them, running between 220 to 260 feet? A. Sir John Wolfe- 30 Barry's bridge?

Q. I think the largest one is 260 feet? A. On the square of the channel 225 feet.

Q. 225 feet on the square of the channel? A. Yes.

Q. But an actual opening of 259 feet? A. The bridge opening is 249 or 250.

Q. And on the square of the channel 225 feet? A. Yes.

Q. That is considerably more than the bascule that you have today? A. As I mentioned that was imposed on us by the Department. 40

Q. And therefore you accepted something to which your mind as an engineer did not agree? A. Pardon?

Q. You therefore accepted from the Department a restriction you did not approve of? A. You accept that from the Department in a different spirit.

Q. I think you agree with me that you accepted it from the Department with reluctance? A. Yes, we thought that it was an effort to block the building of a bridge, for that swing bridge would be ten feet longer than any bridge built up to that time.

Mr. Donaghy: I do not know whether I understand the witness as to what he said was imposed. Was it the bascule or this other swing span. I am not clear on it.

The Court: Q. You said the bascule span? A. No, no, 10 the opening, the size of the opening.

Q. That is what you meant, the present— A. The width of the opening.

Q. The present size? A. Yes, not the bascule.

The Court: Clear that up, Mr. Griffin.

Mr. Griffin: Q. When you speak of something being imposed on you— A. I meant the condition as to the width of the opening to allow for the passage of ships.

Q. Which one are you referring to? Which plan? A. Sir 20 John Wolfe-Barry's plan, or the Canadian Bridge Company, which is the same thing.

Q. You say that that was imposed upon you by the Department? A. Yes.

Q. So that you really did not approve of that? A. Well, we did not approve of them, but we accepted the situation, the expense was very great.

Q. We will turn for a moment to another type. I suppose this lift type of bridge is quite feasible? A. That is more objectionable than the bascule.

Q. Answer the question. It is quite feasible? A. It is un- 30 mechanical to begin with.

Q. Please answer the question, it can be built? A. It can be built, but as I say it isn't feasible.

Q. I am not going to shut you off, first answer the question. Give me the courtesy of an answer to my question and then I will give you the opportunity of adding anything you wish in the interest of the bridge company. I do not wish to shut you off, but I do think that you ought to give me the politeness of an answer to my own question. I said the lift span idea is quite feasible? A. Yes.

40 Q. And Dr. Waddell is an engineer of great experience and standing. He was, was he not? A. Yes.

Q. I do not want—if there is any doubt about it, you know, and I don't. Was he not one of the leading bridge engineers of the world in 1914? A. I believe he was.

Q. So that his project would be prima facie feasible and practical? A. It is feasible, certainly it is feasible, because there is one such a bridge.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
D. Cameron
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
D. Cameron
Cross-exam.
(Contd.)

Q. There are many that I am told? A. Probably, I know of one only.

Q. And if that one is unsatisfactory—well, I won't go into that. They can be substantially any reasonable height? A. 200 feet? Yes.

Q. Say 175 to 200 feet? A. Yes.

Q. And it may be within reasonable limits almost any breadth, up to 400 feet? A. Yes, I suppose so.

Q. One of 300 feet breadth is clearly a very practical thing to make? A. Yes. 10

Q. And one of the height of 135 feet clearly is within the realms of practical bridge building? A. 135 feet height.

Q. Yes? A. They would not have that.

Q. Answer my question and leave the argument to the lawyers. That would be quite practical to build? A. No doubt.

Q. Then I will raise the ante, at 150 feet it is still practical? A. Yes.

Q. And at 175, the limit given by Dr. Waddell, we are still within the realms of practical bridge building? A. Yes, I do not know what the mariners would have to say to all this. 20

Q. There you are again, showing a disposition to argue the matter, a matter that could be left to the lawyers. Now, then, such a bridge—may I have the exhibit, the other one? A. I know what it is.

Q. The bridge as designed by Dr. Waddell, the design of which the evidence involves piers less costly than the one central pier of Sir John Wolfe-Barry's plan, does it not? A. I don't think that is possible.

Q. I will just go over the point with you. The pier for such a lift span, the piers are in water less deep for example, than the one which you had concurred in placing on the Wolfe-Barry plan? A. Yes. 30

Q. And they are of much less depth, also, than the No. 2 pier of the bridge as actually built? A. Yes.

Q. And therefore they are to be built under conditions very much less costly? A. Less costly, not very much.

Q. I will leave out the very much, less costly? A. Yes.

Q. And the condition of the foundations is practically the same as those concerning the bridge as built? A. Except that they are larger, of course. 40

Q. Except that they would have to be larger? A. Yes.

Q. That means larger in area? A. Yes.

Q. They would not have to be as high? A. No.

Q. Because the Wolfe-Barry plan had the highest piers of any? A. Yes.

Q. It involved a clearance of 45 feet above high water? A. Yes.

Q. And that itself is considerable extra cost? A. Yes.

Q. And involves, of course, a higher structure, and wider and stronger piers? A. Yes.

Q. Now, then, from this little discussion it is apparent that a bridge built either upon Dr. Waddell's design or upon that of Sir John Wolfe-Barry would impede navigation less than one built upon the bascule design actually adopted? A. Yes, before you pass from the cost of it—

Q. Answer that question first and I will go back to the cost?

10 A. There are the towers to be considered.

Q. Answer my question first?

Mr. Burns: He said yes, but we must do this—

Mr. Griffin: Q. You agree what I said about the impediment to navigation? A. Yes.

Q. I will give you a chance as I said to add anything you like in the interest of the Plaintiff? A. You said it was less costly, and the piers and swing in the bridge are more costly. They have to have high towers and that has to be considered.

20 Q. That is not as high. That is not what I asked you. I submit you are really adding something about towers which has nothing to do with the piers? A. They are on top of them.

Q. I know they are, and the bridges in many ways are different, the suggestion of Sir John Wolfe-Barry is for a bridge carrying two lines of railway? A. Yes.

Q. And Dr. Waddell's is the same? A. Yes.

Q. Whereas the bridge built carries one only? A. Yes.

Q. And either of the other two designs would be adapted to that extent, wouldn't they? A. Yes.

30 Q. You say the dominant current in the Second Narrows is more parallel to the north shore than to the south? A. Yes.

Q. Therefore it is not parallel to the south shore? A. No, but is more parallel to the dominant or main current in the deepest part of the channel.

Q. You said the dominant current was more parallel to the north shore than to the south? A. Yes.

Q. And that dominant channel is substantially amidchannel? A. It is nearer to the north shore west of the bridge than to the middle.

Q. That is a slight difference? A. Yes.

40 Q. And you agreed in your examination in chief, according to my notes, that the contour of the south shore west of the bridge leads to or inclines to a cross-current at the entrance of the Narrows? A. I would not call it a cross-current.

Q. What difference does it make. It is the set of the current to the north. A. It is a current, it is like the neck of a bottle, going to the middle.

Q. And that point where it strikes the neck of the bottle is

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Cross-exam.
(Contd.)

where the two cross-currents meet in the middle? A. No, the currents are not streaming across each other. Whenever they come to the main mouth of the channel they turn into the main channel. They curve before they come to the mouth of the channel, before coming to the bridge.

Q. But on the main basis proposition that the bay to the south creates a sweep of the tide along that bay northerly and easterly—that is true, is it not? A. From my observations the curvature is very small.

Q. You have not heard the evidence, have you? A. No, I have not. 10

Q. The evidence of many navigators have been given to the effect—I am now showing you the admiralty chart, exhibit No. 7, and I indicate this bay to the south? A. Yes.

Q. Is there not a sweep of the tide along this shore northerly and easterly? A. Run your finger along the narrows there. Before that, yes, there are the Narrows.

Q. You assert that it runs closer to the south shore than I think? A. The lay-out runs parallel to the south shore and then in the channel. 20

Q. You agree anything that increases the northerly set is at least undesirable? A. Undoubtedly if they are there at that time and it is—

Q. Do not argue. You have that dreadful spirit of arguing. I ask you as a witness whether it would be undesirable? A. Yes, certainly.

Q. Now, then, you agree that any filling or obstruction at that point will have that tendency? A. To a certain extent, yes.

Q. That is all I said and you agree this one has that tendency. You say that? A. Yes, so far, yes. 30

Q. And you saw it only on the surface? A. I saw it from low water to high.

Q. I said, you saw it only on the surface? A. I saw it only on the surface.

Q. Correct? A. Yes.

Q. Now, I will put this to you if you could be assured, if your mind is in a state in which it could be assured by responsible people who had felt it, that it was there, that the cross-currents were there on many occasions and your mind was convinced they were there, what other cause would you suggest than the fill or point of land? A. If I did not consider they were mistaken I would be bound to accept that statement. 40

Q. And if you were a navigator and felt in your ship a sheer and a very pronounced force in the water taking your vessel to the north, would you or would you not conclude that it had come from some current in that point? A. No, sir.

Q. Where would you think it came from as you approached

this bridge from the east and felt the ship sheering. What cause would you attribute? A. From the stern of the ship.

Q. How would it do that? A. The following tide.

Q. Supposing that you found it at every stage of the Narrows and otherwise, what would you say? A. I would say then that such a current existed, but from my observations I would say no.

Q. If I can get you in the position where you would be convinced of the existence there would be no doubt as to its cause?

10 A. I would be convinced against my will.

Q. I see that. That is palpable. I want to say— A. I would be bound to go by the best evidence.

Q. What was that? A. I would be bound to go by the best evidence.

Q. The fill at least is the only physical source from which it could come, is it not? A. No.

Q. What other physical source? A. No other source that I know.

Q. Why not answer the question as put, that the fill is the
20 only physical force? A. Not to send it across the channel, sir.

Q. Now, these vessels that you saw navigating on the south shore of the Narrows before the bridge was there I take it those were the light passenger boats going up and down the Narrows? A. That is so.

Q. I put it to you that they go east on the south shore to get the eddy that is there? A. They go east on the south shore?

Q. They did before the bridge, to take advantage of the eddies up that shore? A. I do not know the reasons exactly. I don't think it is that.

30 Q. That would be a good and sensible reason, anyway? A. No, because the strength of the current near the shore is so much less than on the middle.

Q. I am speaking of a case of an ebb tide of considerable force in the middle or north side and an eddy east on the south side. If that condition did exist it explains the boats taking the south side? A. I was only speaking of them going against the tide.

Q. The same thing there, the tide is a little stronger there than further out? A. At the south shore.

40 Q. If the tide is running out in the middle it will be running out on the south shore at least less strong? A. Yes.

Q. Therefore vessels stemming the tide would go to one side to get less of it? A. Yes.

Q. That explains their conduct if the tide is running out? A. Yes, that is on the adverse current.

Q. And if the tide was running out on the north shore and the middle and was in the form of eddies on the south shore that

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

would furnish still a stronger reason? A. Yes.

Q. And I suggest that is the real reason? A. I do not think the conditions exist, sir.

Q. The other witnesses have dealt with it. You are aware of the fact of the bay to the west of the bridge on the south shore and that considerable recent work in the way of improvements have been installed, an elevator and a wharf and many things? A. Yes.

Q. Those go to a certain extent to affect the current? A. Yes.

Q. Therefore, the conditions are not today the same as they were in March, 1927, are they? A. They should be easier.

Q. They would not be the same I said? A. No, not the same.

Q. It is a fact that there isn't any kelp on the north face of this fill? A. Pardon?

Q. It is a fact that there is not any kelp on the north face of this fill or only on the east and west faces? A. The kelp is right; is outside, the kelp line is below low water.

Q. I ask is there any in the direction north from the end of the fill following the line of the bridge? A. Any kelp north?

Q. In a direction from the end of the fill following the line of the bridge, or is the kelp that you have been referring to east and west of the line of the bridge? A. It is east of the line of the bridge.

Q. You took some experiments away back in 1923, didn't you, or thereabouts—1913? A. Yes.

Q. Did you not? A. I don't know whether I took any part in that. Mr. Cleveland took that.

Q. Your firm at that time? A. Yes.

Q. You engaged Mr. Maddison, the diver? A. Yes.

Q. What is his first name? A. I don't know his first name.

Q. Has he been in court during this trial? A. He is in court now.

Q. Did he not find conditions there difficult to conduct his work in? A. He reported, sir—

Mr. Donaghy: How can he say what the diver found. I propose to call the diver and I am going to ask him that?

Mr. Griffin: Then I will not bother any further with that. The court will deal with that then. I had better go on. Was not a wire set to enable him to do his work? A. A steel wire rope was stretched across.

Q. Your experiments recently that you took recently were on the 1st and 13th of September and 20th of October? A. The 1st and 13th and 20th, yes.

Q. If you want the tide table I will be glad if you have it. They are both in evidence, 1927 and 1928? A. I have only 1928.

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Q. Look at it for the purpose of verifying my question. Is it not a fact that on the 1st day of September low water slack in the First Narrows was 11 minutes after low water slack in the Second Narrows? A. I cannot tell you.

Q. Please look? A. At the tide table?

Q. Yes, at low water slack in the First Narrows, it was 11 minutes after low water slack in the Second Narrows on that day? A. After?

Q. After, yes. A. What page are you referring to? I have it here now.

Q. I have the figures right here and I will read them off to you. You can find them if you care to. Take the 1st of September?

A. The 1st of September?

Q. 1928? A. Yes.

Q. Just verify that fact. I do not want to extend the notes unreasonably? A. Slack is at 19.42. Slack on the 1st of September would be 19.36.

Q. Am I right that there is 11 minutes difference between the Second Narrows? A. 6 minutes.

Q. 13.04 to 13.15 is 11 minutes? A. But wait a minute, 19.36 and 19.42, that is 6 minutes, isn't it, 6 minutes later.

Q. My instructions are that it is more. We want to get this right? A. That is high water slack.

Q. I know. You have got 12.51, have you? A. 12.51, yes.

Q. Haven't you got to add 13 minutes to that? A. Yes.

Q. What does that make it? A. 13.04.

Q. Now, then, take the other one, you will find it is 13.15, isn't it? A. That is the afternoon slack.

Q. No, we are getting the same tide? A. Yes.

Q. Isn't it 13.15? A. Just a second. That is low slack, yes, 13.15.

Q. Then I was right all the time, 11 minutes difference? A. Yes, but we were talking of a different slack.

Q. Now, that we have straightened it out, there was a difference there of eleven minutes. We are talking of the same slack to which your experiments relate? A. Yes.

Q. My proposition comes to be all right. There is 11 minutes difference? A. Perfectly right.

Q. Then the proposition I began with, low slack at the First Narrows is 11 minutes after the Second? A. Yes.

Q. I want you to take the same question on the 13th, the same time that you were dealing with. We get a difference of 15 minutes? A. 11.58 and 11.43.

Q. And that is 15 minutes? A. The First Narrows is after.

Q. Fifteen minutes after, though? A. Yes.

Q. That is what I said. We are agreed that on the 13th of September the tide in question, low slack in the First Narrows

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

occurred 15 minutes after low slack in the Second? A. Yes.

Q. Go over to the 20th of October and see if you do not find the same exact condition? A. 3.45 to 4.01.

Q. 4.01 to 4.16? A. 4.16, yes. That is 15 minutes after.

Q. Therefore on all these three occasions to which your experiments relate water was running out on the first occasion, on the first, eleven minutes, and the second two occasions for fifteen minutes after it had commenced to flood on the Second Narrows? A. Yes, you would expect that.

Q. Now, then, take the 10th of March, 1927, and if the learned registrar will give you the tide table for that year which is in evidence—to save time there is another copy. Look it up, on that day, the 10th of March, 1927? A. 10.48.

Q. The next tide after that, the one at 18.22? A. 10.48 and—

Q. The times are 18.35 for the Second Narrows and 18.20 for the First Narrows, aren't they? A. Low slack?

Q. That is correct. Now, the result of that was— A. Just a second, sir, 18.20.

Q. And 18.35 at the Second Narrows? A. Yes.

Q. It follows from that one condition clearly on that day it was not the same as on the three days on which your experiments were taken? A. 18.33—

Q. 18.35 I am told? A. Yes, 18.35 and—

Q. 18.20? A. And 18.20, yes.

Q. So that on the occasion of the 10th of March low water slack in the First Narrows was 15 minutes before low water slack in the Second? A. No.

Q. 18.20 and 18.35, the difference between 20 and 35 is 15, is it not? A. Yes.

Q. And the low water slack in the First Narrows was the earlier of the two? A. Yes.

Q. After that, you agree with me low water slack in the First Narrows was fifteen minutes before low water slack in the Second Narrows that day? A. Yes.

Q. Therefore the conditions are vastly different, whereas on the first of three occasions the water was flowing out of the First and Second Narrows at the same time and on the 10th of March it was flowing out of the Second Narrows and not flowing out of the First Narrows? A. I don't know.

Q. Isn't that obvious from those figures? A. Low tide?

Q. The tide had ceased to flow out on the 10th of March 15 minutes before it ceased flowing in the Second Narrows, didn't it? A. Yes.

Q. Therefore the tide was pouring into the central harbour from about, for fifteen minutes after it ceased to outflow in the First? A. Yes.

Q. And the condition the other way on the three occasions you have referred to when the experiments were made was the case? A. Yes.

Q. So that the conditions were not the same? A. Not absolutely the same, probably not.

Q. A difference of 30 minutes in the flow? A. 30 minutes?

Q. 15 on each side of the dividing line, is that not right? A. Yes, that is so.

Q. And putting it shortly the effect of that would be on the 10 10th of March that the turn of the tide would be very rapid? A. Probably that is so, yes.

Q. It is a fact, one of your floats on the 1st of September crossed right over from the position opposite the bascule span and went right out the 300-foot span? A. No.

Q. You said so.

Mr. Donaghy: No, you have that mixed. He started in the middle one of the channel east. They all went through the bascule except one of them which went out by the north pier.

Mr. Griffin: No, a direction different from that of the other 20 one.

A. The first trial run, they were put down in the middle of the channel and went under the southern half of the 300-foot span. The second time—

Q. Never mind the second, on the first occasion, on the 1st of September, some of the floats went under the bascule, some went through the bascule and some under the 300-foot span? A. No, on the first one they went under the 300-foot span.

Q. If you said otherwise you were wrong and if I took it down, wrongly— A. Pardon?

30 Q. If you said otherwise you were wrong? A. Divide it by two.

Q. If your testimony is the other way on that point then you correct it? A. What I said on the first trial, they run in midchannel and all went under the 300-foot span, the southern half of it.

Q. If my memory is correct that you put it otherwise before you change it? A. No, you are now referring to the second.

Q. No, I am not. All I want to do is to say that if it turns out that my recollection is correct, do you wish to change it? A.

40 There were two runnings on the 1st of September and what you are referring to is the second run.

Q. On the same day? A. Yes.

Q. I see, that is what you mean. Very well, I will not press that, because evidently I may have been wrong. Did you make any observations under the bridge at dead slack water— A. Again—

Q. Did you make any observations under the bridge at dead

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

slack water? A. As to seeing whether it was slack?

Q. No, did you do any experimenting at the time when it was or appeared to be dead slack? A. No.

Q. All right, thank you. Are you aware of the fact that there are over 300-foot spans in existence as I am instructed? A. I was not aware of that.

Q. You are not in a position to deny that? A. No.

Q. And that the longest one of them is 468 feet? A. That is quite probable, yes.

Q. I want to show you a letter written by yourself to the 10 Plaintiff company on the 16th of March, 1912. Just look at that and just verify the letter and then I will ask you question that I want on it. All I want you to do for the moment is to verify if that is your letter. You can tell from the contents? A. Yes, 1912, yes, I do not remember it.

Q. I am going to read out the passage I want and see if you agree with it. You speak of the subject of a high-level bridge having been abandoned? Whose suggestion was that? A. 1912?

Q. Yes? A. I cannot recall Mr. Martin Griffin.

Q. Can you suggest any other suggestion of a high-level 20 bridge than the one of Dr. Waddell's? A. No.

Q. You cannot think of any other? A. No, I was not aware of that, at least, my memory does not carry me back to it.

Q. Now, you then refer to this question: "That when it was demanded to make the open span 250 feet it became necessary to review the whole situation. An estimate of the cost of the increase in the 50 feet of span was then made and found to be nearly \$200,000 extra to that of the 200-foot span." Was that a true statement of the fact that the difference was something less than \$200,000 to increase the span from 200 feet to 250 feet? A. My 30 memory does not help me, Mr. Martin Griffin.

Q. Speaking from this letter am I entitled to take it it is true when this was written by you at that time? A. Yes.

Q. Then the letter adds: "That the tide runs straight through the Narrows whirling a considerable distance to the west and a shorter distance to the east." Is that true? A. I remember that to the west, but not to the east.

Q. Finally you say, you are satisfied the open span of 200 feet would give more than ample accommodation for the prospective ships while the bascule bridge gives a clear opening without 40 overhead obstruction. Was that then your opinion? A. Would you mind reading that again?

Q. "We are satisfied the open span of 200 feet will give more than ample accommodation for the prospective ships." Was that your opinion at that time? A. Yes.

Q. Was it not in your opinion that a 200-foot span was what the present and future conditions at that time called for? A. Yes.

The Registrar: Are you putting that in?

Mr. Griffin: Not unless my learned friend wants it.

Q. Then it would follow from that if the conditions then called for a 200-foot span, in your opinion conditions in 1923 would call for at least as broad a span? A. Yes, on the same reasoning.

Q. On the same process of reasoning? A. Yes.

Q. What would be a fair allowance to allow for increase in the span due to the development in this port from 1912 to 1923?

10 A. I cannot answer that question.

Q. Do you agree that conditions in that number of years did call for an increased accommodation for shipping over what would have been enough in 1912? A. Yes, but at the same time the Panama Canal fixed the size of ships on this coast.

Q. You are aware of the fact that conditions are proving unsatisfactory to the shipping world. That is your knowledge, isn't it? A. Pardon?

Q. You are aware of course that the shipping world has been dissatisfied with the bridge? A. Yes.

20 Q. I will show you another letter. I am going to show you a letter written by the President of the Harbour Board so-called to the Deputy Minister of Marine and Fisheries of the 30th of May, 1928.

Mr. Donaghy: Just a moment. I desire to submit that this is not admissible, my lord. It is a letter between parties none of whom are our agents. We are not parties to the letter and have nothing to do with it in any way. My learned friend was acting along this line yesterday notwithstanding my protest. I think it is time that it should be brought to an end bringing in correspondence between parties outside the suit and not in any way binding us or affecting us.

30 Mr. Griffin: I propose to give the witness a chance to read the letter, and I do not propose to cross-examine on the letter.

The Court: The point is is it fair to the Plaintiff to allow letters to go in between parties not interested and—

Mr. Griffin: I want to put it and ask if those are correct.

The Court: You can do it, but not the way you propose to. It clearly would not be evidence against your opposite party.

Mr. Griffin: Then I will put this—I will put it differently.

40 Q. Do you consider that an amendment of the present bridge by making the 300-foot present fixed span into a lift one would, if carried out, make the bridge less obstructive to navigation? A. You are asking my opinion?

Q. Yes, wouldn't that make for an alleviation of the present condition? A. Undoubtedly. I prefer a swing span, but—

Q. Yes, I was not asking about a swing span; supposing this amendment I suggest was made, that is, a lift—you say either

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseD. Cameron
Cross-exam.
(Contd.)

one or the other would do? A. It would help, no doubt.

Q. Is this a reasonable suggestion to alleviate the present condition to make—to dredge the south side of the harbour to a sufficient width and depth and length to enable ships to pass through the existing draw at right angles instead of as at present 10 degrees off right angles with the centre line of the bridge. Would that suggestion if carried out alleviate conditions? A. It might. No doubt any free room would help, but the necessity of it is another matter.

Q. That is for his lordship. That is for the court. Do you 10
consider it from the standpoint of the court it is imperative?

Mr. Griffin: I will read the extract.

The Court: No, no.

Mr. Griffin: Dredging on the south shore.

The Court: Where is the dredging, where is it you are suggesting it to him. I could not make out what dredging he referred to, whether it was dredging at that particular locality or the dredging at the First Narrows to get a stronger current.

Mr. Griffin: It is dredging above the bridge.

The Court: That is east of the bridge. 20

Mr. Griffin: Yes. Of sufficient width, depth and length to enable ships to pass through the draw at right angles, etc.

The Court: Yes. What did you say, witness, everything would help? It would help.

A. Yes, that would help at low slack, high slack is a different matter. It would not improve it so much.

Mr. Burns: The witness also said as he was finishing his answer before that the necessity of that was another matter.

The Court: Yes, I had not overlooked that. The necessity for it, he said, is another thing. 30

Mr. Griffin: That is all, thank you.

Mr. Donaghy: My lord, I think the letter to the—

The Court: One minute, please.

Mr. Donaghy: Yes.

The Court: Yes, Mr. Donaghy.

Mr. Donaghy: I think, my lord, the letter to the chairman and directors of the Plaintiff from Cleveland & Cameron which my learned friend quoted extracts from should all go in.

Mr. Griffin: There is no reason why it should go in more than the others. The extracts are there. 40

Mr. Donaghy: Let me read what was suppressed in the thing. That is what I am pointing out, the danger of reading extracts.

The Court: This is the last letter from which he read extracts to the witness.

Mr. Donaghy: Yes, he was reading out extracts which were helping him and not us. Mr. Cameron writes:

“We still consider any width over 150 feet to be superfluous.”
That is omitted.

Mr. Griffin: No, that is not in the same extract. You had better put it all in, the different pages, the different extracts.

The Court: Put it in, both counsel agree.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Re-direct

(LETTER REFERRED TO MARKED EXHIBIT No. 56.)

RE-DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Cameron, mention was made of the new elevator?

A. Yes.

10 Q. That was built near the bridge? A. Yes.

Q. You refer to what is known as the Wheat Pool Elevator, I suppose? A. I don't know the name of it, but it is the closest one to the bridge.

Q. Where in relation to the bridge does it stand?

The Court: Look at exhibit 27.

A. Southwest of the bridge.

The Court: Exhibit 27 does not show it. It is on the Harbour Board plan.

20 Mr. Donaghy: Q. I show you exhibit 15, commonly called the Harbour Board plan. Will you look at it. Just leave that down for the moment. See if you can locate on exhibit 15 where the elevator is that you have referred to? A. The position of it, sir?

Q. Yes, would you mind marking with a red lead pencil where it is. Put an X where the elevator is. A. (Witness marks.)

Q. You marked it with a red line? A. Yes, just a red line over it.

Q. Now, is there a wharf in connection with that? A. Yes.

30 Q. Where is the wharf, will you mark the wharf, too? A. That is the wharf.

Q. Will you mark with a circle the building or concrete elevator, whatever it is, mark that with a circle in red, the building itself? A. (Witness marks.) I believe that is the position, Mr. Donaghy. I did not take very particular note of it.

Q. The wharf, what is it supported upon? A. Piles.

Mr. Donaghy: Does your lordship wish to see that?

The Court: Thanks, yes, let me see that.

40 Mr. Donaghy: The circle is the building and the straight line is the wharf on piles.

The Court: Yes, thank you.

Mr. Donaghy: Q. Now, Mr. Cameron, what currents does that affect? A. It would affect the flood tide.

Q. In what way and to what degree? A. It would still it.

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseD. Cameron
Re-direct
(Contd.)

It reduces the velocity very considerably.

The Court: Does what? A. Reduces the velocity of the current. It has to flow among the piles.

Mr. Donaghy: Any other tide? A. On the flood.

Q. Does it affect any other tide? A. No, I don't think so. I think the eddies and whirlpools that were caused were outside of that line.

Q. Does it affect all stages of the flood? A. At high flood most, of course, yes.

The Court: Did I understand him to say it affected the ebb or flood? A. It affects the speed of the flood current. 10

Q. Does it affect the ebb tide? A. No.

Q. It affects the flood tide, yes, thank you.

Mr. Donaghy: Now, in this letter that was written by your firm to the bridge company, being the last exhibit filed, where you referred to 150 feet here, would you mind looking at it?

The Court: The 16th of March, 1912?

Mr. Donaghy: Yes.

Q. Would you mind looking at that paragraph, about 150 feet. You observe that? A. Yes. 20

Q. Do you observe that you have given there—

Mr. Griffin: I suggest that my friend is leading.

Mr. Donaghy: I am just calling attention to these parts. Will you read the part relating to the beam of ships. Get your mind on that. A. Yes. "In the list of steamers given below the Olympic, at present the largest, would have over 50 feet clear space on each side passing through the opening."

The Court: It is all in.

Mr. Donaghy: I want to ask a question on it.

The Court: Counsel has a right to call attention to any particular paragraph as you have done. 30

Mr. Donaghy: Yes.

Q. Does that letter express your opinion now and did it do so at the time it was written? A. It did so certainly at the time it was written and a 200-foot span in my opinion would be ample now.

Q. Yes, very good.

The Court: Just three questions, witness, what do you mean by big ships? A. A ship with 400 or 420 feet length.

Q. 420 or 400 feet, did you say? A. 400 or 420. 40

Q. You mean from that size? A. Yes.

Q. About what would the tonnage of one of those vessels be if you know, such as you have in mind, gross? A. Running up to about 6,000 tons.

Q. Now, next, you gave us three days upon which you took tests by these floats? A. Yes.

Q. What was the state of the wind upon those three occa-

sions? A. The first occasion there was a southwesterly, what we call a nice sailing breeze blowing up the channel.

Q. What about the others? A. The other was dull, moist, windless.

Q. By a nice sailing breeze do you wish to convey the idea that there was anything strong enough to affect the ordinary tidal current? A. No, no.

Q. I did not understand so, but I wished to be sure. A. No.

Q. Third, then you have referred to the difficulty of construction at this particular point, I understand that all, so far as you know, from your evidence from the attention you have been paying to these matters, do you understand and am I to understand that all these bridges that have been before us without any exception have been proposed to be built at this identical spot. What I mean, within a few feet either way? A. Yes.

Q. So, I mean, all engineers and bridge builders and everybody who has proposed to build a bridge, every one of them, one and all, they have proceeded upon the assumption that this is the place to build if they were going to build a bridge at the Second Narrows, is that right? A. Yes.

Mr. Griffin: Will your lordship ask him if that wharf he refers to was in place in 1927.

The Court: Yes.

Q. When was this wharf you refer to, the grain pool wharf, when was that built? A. It was only completed a couple or three months ago.

Q. It was only completed a couple or three months ago? A. Yes.

Mr. Griffin: The only other question I would ask you to put, was the site selected by the company who decided on the matter and the engineers were only asked to draw the plans.

The Court: My question was much broader than that.

Mr. Griffin: Your lordship's question would leave—I understand the engineer who made the plan and the contractors who tendered were not given a choice as to the site, but merely tendered on a bridge to be built at that site.

The Court: I was not restricting it to that. My question was much broader than that. What I was asking, and I repeat it so as not to have any misunderstanding. You have been connected since 1912 with these proposals for bridges there. A. Yes.

Q. Put it this way, you have heard from what you tell us of numerous proposals to build a bridge? A. Yes.

Q. Have you ever heard anybody suggest, whether from the company itself or any other engineer whether private or one from the National Government or any other government suggest that the bridge ought to be built in any other place than substantially where it is erected today? A. Only on one occasion.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

D. Cameron
Re-direct
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 D. Cameron
 Re-direct
 (Contd.)

Q. Tell me that now? A. That was if I might show it to you, that was done by the late Mr. Keefer.

Q. Mr. Keefer? A. Yes, he proposed where you see that 262, just across there.

Q. You had better draw a line on the admiralty chart there to make this clear. Draw a line on the admiralty chart where you understand where it was? A. There.

Q. What makes you say that, did you get that from Mr. Keefer? A. I have a sort of recollection that I did, but it was in conversation with Captain Cates that—

Q. Do not go into that, you must not, you see? A. I was reminded of it by him. I believe it was from Mr. Keefer himself, but the first structure proposed across there was by the V. W. & Y. Railway, and it is in exactly the same position as this bridge is now.

Q. The first proposal you heard was from the V. W. & Y. Railway? A. Yes.

Q. When was that? A. A long way back, I forget how many years, my lord, they got the charter for that.

Q. Yes, that was before 1912? A. A long time before 1907, I think.

Q. That was the first proposal you heard and since that time with the exception of Mr. Keefer's suggestion that you should put it as shown on exhibit 7, the admiralty chart with the black line? A. Yes.

Q. You have heard no suggestion from any other quarter other than it should be built substantially where it is now? A. Yes, in fact except for Mr. Keefer's suggestion there is no other practical line than where it is at present.

Q. How far is Mr. Keefer's suggestion west of the present location? Mr. Keefer was the resident engineer of the Public Works Department? A. Yes, over a mile, my lord.

Q. About when would this suggestion be? A. I believe it would be made about 1912.

Q. Thank you. That is all.

(Witness aside.)

Mr. Donaghy: I will call Mr. Ivan Cameron.

IVAN JOHNSTONE CAMERON, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

The Court: I forgot to ask the last witness one question. Just recall him for a moment.

DONALD CAMERON, recalled.

The Court: Q. What would be the width of the water there? You would hardly call it the narrows. That really was not in the Narrows, Mr. Keefer's suggestion? A. No.

Q. What is the width from shore to shore that Mr. Keefer suggests he would cover. Just show him the admiralty chart again? A. From low water mark to low water mark it would be 5 cables, that is about 3,000 feet, 3,100 feet.

Q. Thank you.
(Witness aside.)

RECORD
British Columbia
Admiralty Diss.
Plaintiff's
Case
I. J. Cameron
Direct.

IVAN JOHNSTONE CAMERON, resumes the stand.

DIRECT EXAMINATION BY MR. DONAGHY:

Q. What is your profession? A. Civil engineer.

10 Q. How long have you been practising as such? A. Oh, I should say about twelve years.

Q. The previous witness is your father, is he not? A. He is.

Q. Did you accompany him on any of the occasions when he made tests with floats that he narrated here? A. On all three occasions.

Q. Now, will you state just what occurred on those occasions starting with the first one. I take it that it was the 1st of September this year? A. Yes.

20 Q. Tell us what was done? A. We got a boat, a gas boat and I took the floats on a gas boat up the Narrows east of the bridge in the first case. We dropped the floats in line with the pipe line wharf, that is the Vancouver City Pipe Line wharf in the middle of the channel as near as could be judged from the bridge. I put the floats in the water for my father to check them as they came under the bridge and we synchronized our watches to get the time.

Q. You have not told us where they floated? A. They floated as near as can be down the middle of the channel and went under the bridge.

30 Q. Under the 300 foot span? A. Yes, I could not see from the boat until I went below to pick them up. I saw several of them going under. I could not swear that all of them went under.

Q. Did you have any indication of a northerly current or southerly current or any sort of a current other than the one through the bridge? A. On the east of the bridge?

Q. Yes? A. I could see no sign of a northerly set at all.

40 Q. Did the floats indicate anything of the kind? A. The floats carried on in a straight line from the boat to the bridge. They may have curved slightly to the north but not more than two or three feet.

Q. The second test was made the same day? A. Yes, and it was made at a point I should say 300 feet north of the south shore, that is one-third of the width of the channel from the south shore.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseI. J. Cameron
Direct.
(Contd.)

Q. By the way, did you take your position from any directions you received from anybody in putting the floats in the water this second occasion? A. Yes, we were directed from the bridge, waved one way or the other.

Q. Was there a man on the operating part of the bridge directing you? A. In this case my father.

Q. The second time you told me, the time of the No. 1 and the time of the No. 2 was on the 1st of September? A. Yes, It was my father so far as I knew. There was somebody on the bridge who waved to us. 10

Q. To put you in position? A. Yes, the correct position.

Q. And gave you the signal when he got you where he wanted you? A. Yes.

Q. And you took that position and let the floats out? A. Let in the floats.

Q. Tell the order? A. I started in with the 25 foot float following at half minute intervals with the 20, 15, 10 and 5. They would float between 60 and 100 feet apart. I put them down timing them instead of estimating the distance. I timed them with a watch. 20

Q. What happened to these floats after being put in the water? A. That second row sailed down straight, very little change in it.

Q. In a line like a battleship arrangement? A. Yes.

Q. Where did they pass under the bridge? A. I could not just say where. They passed under the bascule so far as I know. When they were set out I started down with the boat to pick them up. They are not very easy to keep sight of.

Q. Was that made in the daylight or in the dark? A. In the daylight. 30

Q. The third time that you put the floats in the water was when? A. I think we are talking at cross purposes.

Q. Maybe we are. I have only had two occasions? A. The second trial was on the same day.

Q. Were you talking of another day? A. You mentioned the third trial. There was only two trials that one day.

Q. Let us not get it mixed up. There were two trials on the 1st of September? A. Those were the two.

Q. Have you told me of two? A. Yes.

Q. The third trial was made when? A. On the 13th. I 40 believe it was the 13th. Yes, September 13th was the third trial.

Q. Tell us what you did on that day? A. We made two runs on that day, but from the point that we dropped the second trial from, that is 300 feet out from the south shore—

Q. We will take the first trial on the 13th, you put the floats in the water? A. Put them in opposite the furthest east pipe line, almost one-third of a mile from the south shore of the channel.

- Q. Did anybody signal you to put them in? A. Yes.
- Q. Did you put them where you were signalled from to put them in? A. Yes, we were signalled with the light.
- Q. That was in the daylight? A. Yes.
- Q. Tell us how you put them in and how they went? A. They were put in the same way, the 25 foot one first and followed until we got the 5 foot float, and in this case it was these new floats that were used.
- Q. Those are the floats that were put in secondly in your father's evidence as an exhibit here? A. Yes.
- Q. With the new fangled device on the bottom? A. Yes.
- Q. How did they proceed with the current? A. Very straight. There was no sign of any side way deflection.
- Q. And where did they pass under the bridge? A. I could not just say exactly where they passed. I was busy putting them out.
- Q. Did you see where any of them went under the bridge? A. Some went under the bascule.
- Q. You did not see them all? A. No.
- Q. Did you see any passing under the bridge anywhere else than under the bascule? A. I would not be prepared to swear. One may have gone under the 300 foot span, but I am not sure.
- Q. Now, have we covered the two tests on the 13th? A. Yes, the same thing obtains in both tests.
- Q. Now, what other occasion did you make tests with floats? A. This was on October 20th.
- Q. What did you do then? A. We set the floats out just on the turn of the tide as near as can be estimated, as near as can be after slack water as we could see that the tide started to move.
- Q. To flood? A. To flood, and the 25 foot float was set just south of the north pier of the bascule, the 20 foot one was put in the centre of the bascule pier and the 15 foot one was just north of the south pier, that is the pivot pier, the big pier in the bascule, and the 10 and the 5 were set on the south side of the bascule span, that is, of the land span, the south span, and they were set in a row just under the sidewalk of the bridge as quickly as I could. When I put one in it started away. They went away one at a time as quickly as I could put them in they started up the inlet.
- Q. What happened? A. So far as I could see they kept straight up the inlet. The easternmost had a bigger light than the others and burned out rather quickly and I did not find that one again.
- Q. What time did you do the experiment? A. At 3:55 a.m.
- Q. It was dark? A. Yes.
- Q. On that occasion did you use this tin device with the last style of float? A. Yes, there was a little bulb on the top of that.
- Q. What did it do? A. It was just a little flash light bulb.

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 I. J. Cameron
 Direct.
 (Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseI. J. Cameron
Direct.

(Contd.)

Q. So that you could see the floats? A. You could see them for quite a long distance.

Q. Was there anything to indicate a northerly turn of the current? A. Not that I could see.

Q. This wooden device attached to the floats, this device with the flange on it is the one that would be at the bottom of the cord you had sunk in the water? A. Yes.

Q. What was the object of putting a flange on? A. So that it would catch the current. If there was a cross current it would be opposed by the same area if it came at right angles. 10

Q. What is your opinion as to whether or not the effect of the cross current would be indicated by the direction of the float? A. The bottom wooden piece would catch, would catch the current and it would tow that along, when it was put in the current flowing and it might take some little time to do that, but when the right weight is flowing, it will sail—it sailed away and made quite a ripple to get above the other one.

Q. As an engineer what would you suggest as to whether there is a northerly current flowing through at the bascule span and east of the bascule? A. The floats gave no indications of it. 20

Mr. Griffin: I have not been making any objections to this, but you understand I am taking the same objection as before, I do not want to keep repeating the objection and interrupting, but I make the same objection to this as to all the other testimony in reply.

The Court: You mean evidence in general—the general character of it?

Mr. Griffin: Yes.

The Court: Oh, yes, I understand that.

Mr. Donaghy: Q. What is your opinion as an engineer as to whether or not this device you used and the things that you did were sufficient to test whether or not there was this northerly current? A. I believe they certainly would show if there was a northerly current. 30

Q. Now in the last test you mentioned, the float that extended down a depth of five feet was the one nearest to the south shore, you told me? A. No, I think there is—I think you will remember that the floats were lengthened, I made a mistake in that. The floats were 30—30, 35, 20, 15 and 10.

Q. Yes, all right? A. Yes, I was mistaken on that. 40

Q. It was 10 feet, the one that was nearest to the south shore? A. No, it was 15 feet, the one that was nearest to the south shore.

Q. It was 15 feet, the one that was nearest to the south shore? A. Yes. It should have been a 10 foot one, but by mistake I got the 15 foot one at the last.

Q. Yes, nearest to the south shore? A. Yes.

Q. Now, it was in the span that is south of the bascule span?
A. It was, yes.

Q. What position was it in in that south span? A. About the mid-point.

Q. Yes? A. As near as can be, the mid-point.

Q. Now, when these floats proceeded easterly from the bridge, what formation, if anything, did they take as they proceeded along? A. Well, of course one being started before the other, they would go, what they would call in the army, in echelon, almost.

10 Q. Yes? A. That was a distance up the inlet—one was considerably ahead of the other, you see.

Q. Yes, what relative distance east or west of each other did they maintain, if any. I mean, north or south of each other?
A. Well, I don't think—they may have been coming together a little, but I wouldn't be certain on that point.

Q. You are not sure about that? A. No.

Q. Now, you say that the last test was made at the beginning of a flood? A. Yes.

20 Q. And the hour was what? A. 3:55—3:55 a.m.

Q. Yes? Now, to have it on the record, will you give me the time that a first test was made—on the first day of September?
A. On the first day of September.

Q. The first test on that day? A. The first float was dropped at 11:08.

Q. A.M.? A. A.M., Yes.

Q. When was the first float dropped on the second test on the first day of September? A. On the same date?

Q. The same date? A. At 12:21.

30 Q. P.M.? A. A.M.—well, P.M. it would be.

Q. Afternoon? A. Yes.

Q. On the 13th day of September what time was the first float put in the water? A. On the 13th, about—10:58 A.M.

Q. Yes; and you made a second test that same day, did you?
A. The second test—

Q. When did you put the first float in on the second test on the 13th of September? A. 11:14—11.14½ exactly.

Mr. Donaghy: Your witness.

CROSS-EXAMINATION BY MR. GRIFFIN:

40 Q. On the 20th October, did you say you dropped the first float at 3:55? A. 3.55, I believe so.

Q. In the morning? A. Yes.

Q. Was the tide then slack? A. The tide had just started to set in.

Q. At that time had it begun to ebb—the main flood? A.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

I. J. Cameron
Direct.

(Contd.)

I. J. Cameron
Cross-exam.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

I. J. Cameron
Cross-exam.
(Contd.)

Just about it, yes.

The Court: Q. 3:55? A. 3:55, my lord.

Mr. Griffin: Q. Have you got the tide table there. At what hour was low slack? A. This is 1927.

The Court: Q. What did you say the state of the tide was? A. It just had turned on the flood, my lord.

Q. At high? A. At low slack.

Q. Low slack? A. Just after low slack.

Mr. Griffin: Q. Just look at the tide table yourself and see what time low slack was at that time (handing table to witness). 10
You understand the tide table, do you? A. Oh, yes, I believe so.

Q. What time was low slack? A. That would be about 4:01, I imagine, would it not.

Q. Well, you said you understood it. What is the point, what are you calculating? A. I was just looking to see whether I was on the right page or not. 401, I believe—that would give 13 minutes after Vancouver Harbour.

Q. Now, are you sure of your ground now—satisfied yourself, no thinking now. Do you know? A. I know as far as that is concerned, yes. 20

Q. You are sure of it absolutely? A. As far as I can see, that is correct.

Q. But I mean you feel sure, do you? A. Oh, reasonably, yes.

Q. Yes, well, then if that is so, then the tide had turned six minutes before the tide table time, hadn't it? A. It evidently had.

Q. Yes, it may have been seven minutes before? A. Quite possible.

Q. Or eight? A. Well, I think it would be getting a little late at that time. 30

Q. I ask you, you just tell me when to stop—was it 9. A. 3:55, 4:01, I don't—

Q. Well, we don't need any pencil calculating, do we? A. Call it six minutes.

Q. Six minutes? A. Yes.

Q. Then it may have been ten minutes before 3:55? A. I am not in a position to answer; it may have been.

Q. You couldn't see below, could you? A. I couldn't see—I couldn't see below at all, no.

Q. Now, you dropped these floats beginning about 3:55 and they went away with a burst of speed? A. They did, they started up the inlet. 40

Q. Indicating—giving some indication on the surface as to what is going on below, indicating a certain strength below? A. Undoubtedly.

Q. Yes, right, then wouldn't that indicate to you as a professional man that there had developed some strength of flood

below the surface? A. Undoubtedly it would.

Q. Now, you were trying to put this down at the exact moment of slack water, were you not? A. Yes.

Q. You were trying your best? A. Yes.

Q. As far as you now know and believe you did get them down below at the first moment of slack water visible on the surface? A. No, the tide was visibly moving in when we got them down.

Q. Well, then, it may have turned even on the surface a 10 minute or two previous? A. It had turned on the surface—it had.

Q. It may have been one minute before, I mean. A. Before we put them in?

Q. Yes? A. Well, that is possible, yes.

Q. Or two? A. Well, it might—I wouldn't be prepared to say.

Q. Or three? A. I wouldn't be prepared to say.

Q. Or four? A. I don't think more than four.

Q. Not more than four? A. Not more than four.

Q. You wouldn't like to deny five, would you. Would you?

20 A. I don't think the question is—

Q. Would you deny it, that it was possibly 5. You are offering testimony under oath? A. Yes, I don't know. I wouldn't deny it no.

Q. Then if it is true, and it may be true very evidently, that the tide may have turned eleven minutes before the tide table, even on the surface— A. Yes, it may have.

Q. And two or three or four minutes still earlier underneath the surface? A. Well, that may be an assumption.

Q. Yes, I am making it because you have admitted the existence of a forcible flow which swept away your floats. Didn't that 30 occur? A. That did, but I don't see that it makes any difference in the actual time.

Q. Well, I just put it to you, you don't suggest that the tides start instantly, do you, to their full force? A. Why not.

Q. Well, do they. If you say they do, that will be all right? Go on? A. Quite possible.

Q. Well, do they? Do you know? A. I imagine it would.

Q. Therefore it would get to its full velocity in the first five minutes? A. What do you refer to as full velocity?

40 Q. Did the velocity start, its maximum, of course? A. Well, it is rather—

Q. I am leaving it to you as an engineer. You were claiming you came here as an expert? A. Well, you say its maximum, no, but at very considerable speed in a very few minutes.

Q. Within a very few minutes? A. Yes.

Q. You agree in that connection anyway the tide at the time does turn with considerable rapidity? A. It did undoubtedly.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

I. J. Cameron
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 I. J. Cameron
 Cross-exam.
 (Contd.)

Q. I suppose you don't know and can't tell me whether it does every day? A. No, I have had no experience.

Q. I suppose you don't know anything about bridges, do you? A. Not very much, no. I have had a little to do with bridges, but not a great deal.

(Witness aside.)

Mr. Donaghy: Mr. Maddison.

FREDERICK MADDISON, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

F. Maddison
 Direct.

DIRECT EXAMINATION BY MR. DONAGHY:

10

Q. What is your occupation? A. Submarine diving.

Q. How many years have you followed that occupation?

A. Oh, 25 years or more.

The Court: Turn around this way and speak louder. Does he live here?

Mr. Donaghy: Q. Yes, do you live in Vancouver? A. North Vancouver.

Q. North Vancouver.

Mr. Griffin: I make the same objection.

Mr. Donaghy: We will take it for granted.

20

The Court: Q. How many years did you say? A. 25 years or more.

Q. 25 years as a diver, marine diver, 25 years, yes? A. Marine diver.

Mr. Donaghy: Q. How many of these years have you followed your occupation in the vicinity of Vancouver City? A. I couldn't say exactly—a great many of these years I have followed—most of my time has been in Burrard Inlet and the first and Second Narrows.

Q. And that covers how many years? A. It will cover 15 30 years as a matter of fact—well, 15 or 20 years as a matter of fact, off and on.

Q. Do you remember when the Second Narrows Bridge was being constructed? A. I do.

Q. Did you act as a diver along the course of that site while it was under construction? A. I did, I was employed by the Northern Construction Company.

Q. By the contractors? A. By the contractors.

Q. Yes. What places along the site and to what extent did you go to the bottom of the sea during the construction period? 40

A. Well, I was to the bottom on most of the foundations and where the caissons were set.

Q. Yes? A. And also down to the caissons after they were once put into position.

Q. Yes? A. Handling rigging and so forth.

Q. Over what period of time, roughly, did you carry on such operations? A. Well, I was employed by the Northern Construction on the bridge from February 1925, till July 1925.

Q. In carrying on these different operations? Carrying on the different operations at different times, whenever I was needed to dive, you see.

Q. Yes, do you know where the pipe line—the waterpipe line of Vancouver City crosses the Second Narrows east of the bridge? A. I do. I examined—I inspected the location for the first pipe

10 line that was laid there.

The Court: Turn around this way and speak up? A. I say, your lordship, I inspected the location for the first pipe line that was laid across the Second Narrows.

Mr. Donaghy: Q. Have you had occasion in your work to learn whether or not the currents of the Second Narrows may flow in one direction on the surface and in another direction underneath? A. I have.

Q. What is your statement in regard to that point? A. Well, I say that the currents change almost simultaneously both

20 on the top and on the bottom.

Q. Yes. Have you ever found them running in opposite or different directions at the same time? A. No, no, I have not.

Q. What is your experience as to whether or not the tide in the Second Narrows underneath turns or does not turn simultaneously with the tide on the surface? A. Well, I think the tide turns simultaneously on the bottom as it does on the top, because I have several times walked the channel of the Second Narrows in connection with my work, and if the tides ran both ways—or the tide was ebbing out on the bottom and flooding on top, it would

30 be impossible for a diver to work at the bottom.

Q. I didn't quite follow that out—your reasoning. You might explain that? A. Well, if the tide is running two different directions at the same time it would be absolutely impossible for a diver to work on the bottom or go across the channel.

Q. Why? You just make the statement, you don't give a reason for that? A. Well, the current would be very great. For instance, if you went down at slack water on top.

Q. Yes? A. And you have the current running out on the bottom strong—

40 Q. Yes? A. The friction would be so great on you down there you wouldn't be able to stay there.

Q. Yes. Well, at what stage of the tide do you work on the bottom? A. We catch the slack tide.

Q. Yes, and work till when? A. We go down as early as we can on the slack tide, and on arrival at the bottom we stay there as long as we can until the tide starts to flow in the other direction.

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

F. Maddison
Direct.

(Contd.)

- Q. Then you come up? A. Then we come up.
- Q. Now, how long would it take you to go down? A. To what depth?
- Q. To the bottom? A. In the centre of the channel at the Narrows?
- Q. Well, at this place where you were going down, where the caissons are in the piers here? A. Well, we go down pretty quick, down in the centre. The quicker you can go down the better it is for you say in 87 feet of water or something thereabouts, where the centre caisson is there, I go down probably in about three quarters of a minute. 10
- Q. Yes? A. Either that or a minute.
- Q. And how long would it take you to come up? A. I generally took about two minutes to come up.
- Q. Have you gone down to the bottom where the bascule span is? A. I have.
- Q. How long does it take you to go down there? A. Oh, drop down there in 20 seconds.
- Q. I see, how long would it take you to come up out of the water? A. Just as fast— 20
- Q. From the bottom of the sea, in the bascule span? A. Just as fast as your man could pull you up, as a matter of fact, in there.
- Q. That would be how many seconds? A. Oh, about the same.
- Q. 20 seconds? A. Something like that.
- Q. Have you ever been in the bottom of the sea at the bascule span at slack water? A. I have.
- Q. Have you remained there until the tide started to flood? A. I have. 30
- Q. Have you then come to the surface? A. Yes.
- Q. And in about 20 seconds? A. Yes.
- Q. Yes. Were you able to learn from doing that whether or not the tide flooding in the Second Narrows where the bascule span is, flooded sooner at the bottom than it did on the surface, or later, or have you any experience? A. In my experience, my lord, I have always seen it about the same on the bottom as the top—simultaneously.
- Q. Did you make any tests lately by going down to the bottom of the sea at the Second Narrows Bridge? A. I did. 40
- Q. When? A. On—
- Q. What month was it? A. On October 20th, my lord.
- Q. October 20th? A. October 20th, 1928.
- Q. When did you go down to the bottom of the sea then? A. I arrived at the bridge with my diving apparatus and boat shortly after three A.M. in the morning and immediately anchored the boat into position about 300 feet east of the bridge, and in line

with the face of Pier Number 3.

The Court: Give me plan 27.

Mr. Donaghy: Q. Which end of the bascule was Pier Number 3 at? A. It is on the south end.

Q. All right; and you lined up? A. I lined up with the north side line of the pier 300 feet to the east.

Q. To the east of it? A. Yes.

Q. 300 feet to the east? A. To the east.

Q. What did you do? A. After getting the boat into position—

The Court: Wait now. He lined up, he says, 300 feet east of the Pier Number 3?

Mr. Donaghy: Yes.

The Court: That is the south pier of the bascule?

Mr. Donaghy: Yes.

The Witness: Correct. After getting into position there we had an indicator—

The Court: Did you get the exact time he went down. Perhaps I missed that.

Mr. Donaghy: No, I will get that—

The Court: He said about three o'clock.

Mr. Donaghy: I am going to ask the exact minute he went down.

The Court: Thank you.

Mr. Donaghy: Q. You got all ready then, did you? A. We got all ready then, after putting down our indicator.

Q. Now, when did you go down there? A. After we got everything anchored and ready for a test, I went down, I left—

Q. Do you know the exact time you went down? A. Yes.

Q. What is it? A. I do, it was two minutes to four.

Q. In the morning? A. In the morning.

Q. Did you go down to the bottom? A. I did.

Q. What did you find there? A. I found that the current was practically slack, but I remained on the bottom for two minutes and then the tide started to flood almost immediately after I got down.

Q. Yes? A. After I had been down there two minutes I came up to the surface.

The Court: Wait, please. Stayed there a minute? A. Two minutes.

Q. Two or three? A. Two minutes.

Q. Two minutes, yes; and then you say the tide began to—

A. Began to flood slowly.

Q. Yes. Yes? A. Then I came up to the surface again.

The Court: Pardon me, what is the depth of water exactly?

Mr. Donaghy: Yes.

The Court: From the surface to the bottom of the channel.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

F. Maddison
Direct.

(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. Maddison
 Direct.
 (Contd.)

Mr. Donaghy: Q. Yes, tell his lordship the depth? A. 43 feet.

The Court: Q. 42 feet? A. 43.

Q. 43? A. Yes.

Q. Down to the bottom, that is 43 feet from the surface, yes?

A. Then I came up to the top again.

Q. Then you say you stayed three minutes—

Mr. Donaghy: Two minutes, he said?

A. I said two minutes.

The Court: Q. Two minutes, yes, that is right, I have that; 10
 and then the tide began to flood slowly, you said, and you came up?

A. I came up to the surface again.

Q. Yes? A. Just to the surface of the water.

Q. Yes? A. And then I went down again to ascertain—

Mr. Donaghy: Q. Just wait, I am going to see what you found when you came up.

The Court: Yes, that is what I was going to ask him.

Mr. Donaghy: Q. What did you find when you came up to the surface? A. When I came up to the surface the tide was running just about the same as it was down below, I am referring 20
 to the tide running to the eastward.

Q. The flood? A. But I just came to the surface, I didn't come into the boat at all, I just went right down again.

Q. Well, don't go so fast. We want to get this down, you see. Well, you came to the surface and found the same state of flood that you found on the bottom? A. I came to the surface again—

Q. How long did it take you to come up? A. After being down the second time?

Q. How long did it take you to come up and go down? A. 30
 It took me something like about 40 seconds.

Q. To come up? A. Yes.

Q. All right. You found the same state of tide on the surface, and then you went down? A. Then I went down again.

Q. Now, what did you find when you went down again? A. Practically the same thing, only the current had increased considerably.

Q. How long did it take you going down the second time?

A. Just about the same time—I went down very fast.

Q. How long did you stay there? A. I stayed there about 40
 a minute or so.

Q. Yes. You found the tide increasing at the bottom? A. It was increasing at the bottom and also at the top as I came up.

Q. Did you come up again? A. I came up.

Q. Came up, how long did it take you to come up the second time? A. Oh, about the same.

Q. What? A. About 40 seconds.

Q. Yes, 40 seconds, what did you find when you came up the second time? A. Well, after I came up I came into the boat then.

Q. Yes. What did you find in regard to the tide? A. The tide was flowing—was flooding to the east.

Q. Yes? Was there any difference between its action at the top—on the surface, and its action at the bottom? A. I couldn't tell any difference.

Q. Now, I want to ask you another question: On these trips to the bottom of the sea that you have just narrated, did you find
10 any evidence of the northerly current? A. No.

Q. What direction did you find the current going in? A. Well, in working—

Q. On these trips that you have just narrated? A. Well, both east and west.

Q. You have heard in this case evidence about some northerly set, have you not? A. I have.

Q. Did it exist when you were there? A. No. I have never known of a northerly set all the time I have been diving.

Q. In all the time you have been down around the Second
20 Narrows? A. All the time I have been down around the Second Narrows.

Q. You have never experienced it? A. Never experienced.

Q. Now, you say you climbed into the boat at the end of this thing? A. Yes.

Q. What was done there? A. We had an indicator down there 24 feet deep.

Q. Let me see if we have it here. Who was with you on this boat? A. Well, there was my attendant is the only man that I knew was with me.

Q. What was the name of the person with you? A. My
30 attendant's name was V. Lander.

Q. Was there anybody else on the boat with you? A. There were three more men in the boat.

Q. Do you know any of them? A. I don't know them, not personally.

Q. What is this that I show you? A. That is a rudder.

Q. What use did you make of that and when? A. On the 20th of October we used this.

Q. After you got into the boat? A. After I got into the
40 boat.

Q. Yes?

The Court: What does he call this?

Mr. Donaghy: Q. What do you call it? A. A rudder or an indicator. I call it a rudder indicator.

The Court: Indicator, yes.

Mr. Donaghy: Q. What was this attached to?

The Court: What would this be—Exhibit 57?

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Direct.
(Contd.)

(ARTICLE REFERRED TO MARKED EXHIBIT No. 57)

Mr. Donaghy: Q. You used this indicator? A. We used this indicator.

Q. What was it connected to if anything, to use? A. It was connected—it had got a length of pipe on it. The indicator itself, and then from the bottom of the rudder up to the surface of the water was 24 feet and this—

Q. That is to say, you had a pipe attached to this over 20 feet long? A. A pipe attached to that over 20 feet long? A. Yes.

Q. What did you do with this pipe and rudder and indicator? A. We had a pipe attached to that, and it was made so as it would swing easily. It was in bearings—ball bearings. 10

Q. You had it in ball bearings? A. Yes.

Q. On the edge of the boat? A. On the stern of the boat.

Q. Yes? A. And then we had a tiller that laid directly in line.

Q. Wait until we get the tiller. The tiller is on the end of a long piece of pipe, is it? A. Yes.

Mr. Donaghy: I won't bother bringing it in, it is too cumbersome, if your lordship pleases. 20

Q. You put the tiller at the top end? A. The tiller was at the top end.

Q. Very good, we will need that? A. The tiller was at the top end, arranged directly in line with this rudder, you see.

Q. Yes, in direct line with the flanged indicator? A. With the flange on the indicator.

Q. So that the indicator would move whatever way the current was flowing? A. And the tiller on top would tell you exactly which way it was down below—the direction.

Q. Then you had this indicator then in what depth of water, how deep? A. I had it—where I was diving I was in about 43 feet or 4, and this indicator was down 24 feet. 30

Q. Yes, now did you proceed to operate it immediately you climbed out of the water—on the second time up? A. I did. The second time up I didn't notice it.

Mr. Griffin: My lord, one moment—this is information as to what took place on a day different from what in question, wouldn't be of any real value.

Mr. Donaghy: We have got the tide books to tell the state of the tide either way, that is, if you want to get the exact minute. 40

The Court: Yes, this evidence is very important, and very practical of course.

Mr. Donaghy: Q. Now, I asked you if you started to operate with this indicator as soon as you got into the boat after you came up the second time? A. As soon as I got into the boat the second time I immediately called the attention of one of the

crew—the gentleman who is sitting there now, I don't know his name, to take particular care and look—notice and look and see which way the tiller was pointing. That is the first thing I done when I got the helmet off, was to go and examine that, and I asked him to—

Q. Just a moment, is that the gentleman? A. That is the gentleman.

Mr. Donaghy: Your name is—Loutet. Mr. Loutet, very good.

10 The Court: What is the name?

Mr. Donaghy: Loutet.

The Witness: —to see that and examine the tiller, and we found it was pointing to the eastward the same as it was down below.

The Court: Q. It was what? A little louder? A. Pointing to the eastward, it was directed to the eastward.

Q. Yes? A. Showing the bottom, showing that the current was running in that direction underneath.

Mr. Donaghy: Q. At 24 feet below? A. At 24 feet below.

20 Mr. Donaghy: My lord, there is something further I have got to go on with. Does your lordship intend to sit after the half hour.

The Court: This witness will be some time?

Mr. Donaghy: I don't think we can finish with him this afternoon.

The Court: No. Well, just for my information, not to hurry you in the slightest, because I see every expedition is being made, have you many more witnesses, Mr. Donaghy.

Mr. Donaghy: Well, I think probably we may have, my lord.
30 I hope we will finish tomorrow with the case.

The Court: Yes.

Mr. Donaghy: That we will finish tomorrow, that is my aim.

The Court: Yes, your estimate is that the case at least will take all tomorrow, that is your idea of it?

Mr. Donaghy: Yes, I think so, yes.

The Court: Then of course there is the argument to follow.

Mr. Donaghy: Yes, my lord.

The Court: Thank you very much. Adjourn the court, Mr. Registrar.

40 (COURT ADJOURNED AT 4.36, UNTIL WEDNESDAY, DECEMBER 5th, 1928, at 10.30 a.m.)

(Wednesday, December 5th, 1928, 10:30 a.m.)

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. Maddison
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

F. Maddison
Direct.
(Contd.)

FREDERICK MADDISON, Resumed the stand.

DIRECT EXAMINATION CONTINUED BY MR. DONAGHY:

Q. Mr. Maddison, you said you had walked the channel. At how many places had you walked the channel? A. That is, you mean at the location of the bridge?

Q. How many locations? A. At two locations.

Q. Where? A. At the bridge and also on the pipe lines.

Q. Yes. Now, have you since the work of installing the piers in the bridge, that is, putting down the caissons and so on, for the work, the so-called obstructions to current, have you travelled the distance between each of the piers as they exist today, since? A. Yes.

Q. You have. Walked? A. Yes, walked it.

Mr. Donaghy: Your witness.

F. Maddison
Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Now, Mr. Maddison, have you any book or anything giving your diving time, giving you the occasions and times? A. During the—

Q. Answer that, have you a record of these times when you were under water? A. I haven't a record here of the times that I was under water, but I have a record here that I worked on the foundation before the caisson was set.

Q. That is on the Second Narrows bridge? A. On the Second Narrows Bridge.

Q. But that is the only thing you have brought with you? A. That is the only thing I have got with me.

Q. Have you got any record of the times you worked on the water mains? A. No, I have no records of the times, in my possession.

Q. Have you any record anywhere of that? A. No more—only I have recommendations, of course.

Q. No, I say have you a record of the hours and dates when you were down? A. No, I haven't records of the times and dates I was down.

Q. So all you have got is your memory of how often you were there and went down? A. Well, I have times that I done diving in the Narrows, in the Second Narrows Bridge.

Q. Yes, you have told me that, I am speaking now of the water mains. You have no records of any kind? A. Well, no records, no.

Q. That is what I mean. Now, what places in Burrard Inlet have you ever done diving. I think you mentioned the First

Narrows? A. Yes.

Q. And you referred to the Second. Anywhere else? A. Yes.

Q. Where? A. At the Ballantyne Pier, the foundations of the elevator adjoining the Ballantyne Pier.

Q. Yes, anywhere else? A. And in the C.P.R. pier.

Q. Anywhere else? A. Yes, years ago I done some diving in Coal Harbour for McDonald, Marpole on their bunkers.

Q. Is that all? A. Wallace Shipyards.

10 Q. Yes? A. Also on different occasions.

Q. Now, when were you employed by the City last? A. For the City?

Q. Yes? A. The last I was employed for the city, I left the city at that time, in 1914.

Q. And the last work you did for them was in 1914, was it? A. The last, yes.

Q. And what were you doing on that occasion? A. I was employed as a diver.

Q. Where? A. Also running a boat.

20 Q. Where? A. The First and Second Narrows on the pipe lines.

Q. Then the last diving you did for the city was at the Second Narrows? A. Well, I couldn't say that.

Q. Well, as far as you can remember? A. Well, it might have been in the First Narrows.

Q. And you don't remember? A. I don't remember the occasion, no.

Q. But 1914 was the year? A. Was the year.

30 Q. Then you can't tell me what was the last year you worked in the Second Narrows? A. The last year I worked in the Second Narrows, it must have been 1914.

Q. You say it was. Then do you say you are not sure even of that? A. Well, that is the time that I left the city, and my work was continually up in the Second Narrows and the First Narrows also.

Q. But you can't tell which was the last? A. Not definitely, no.

Q. Now, how many times did you cross the Narrows for the City at the water pipes? A. I couldn't say.

40 Q. You don't remember? A. Innumerable times.

Q. But you don't remember how many? A. I don't remember how many, no.

Q. Was it more than half a dozen times? A. Oh, yes.

Q. How many more? A. Well, I couldn't say.

Q. Now, what was the method of walking across, did you go in at one end and walk straight through to the other? A. I did.

Q. The boat followed you about? A. The boat following me about.

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Cross-exam.
(Contd.)

Q. And how long would it take you to do that trip? A. Well, sometimes we would make it successfully, and other times you wouldn't. Sometimes on a long run the tide would probably catch us before we got over.

Q. Then your answer to it is, sometimes you did it one time and sometimes you didn't? A. That is right, sometimes we did it one time and sometimes we didn't.

Q. And your job was to see that the pipe was in good order? A. Inspect the pipes and so forth.

Q. Now, what times in the tide did you choose for that work? 10
A. For to go across?

Q. What period of the tide? A. If it was low water slack when we were intending for to walk the channel we would catch—before the ebb started running out, as soon as possible we would go as quick as possible so we could hang on and hold on the side at that time until the tide stopped receding—until it stopped flowing, just as soon as it would permit we would go straight across—I would.

Q. Well, the answer to my question shortly would be that you would do your work at slack tide? A. Well, practically slack 20
tide.

Q. Or as near as you could get to slack tide? A. Yes.

Q. And mostly at low tide? A. Not necessarily.

Q. I say mostly? A. Not necessarily.

Q. I say mostly? A. Well, not mostly.

Q. Well, was it high slack? A. We would catch that time of the tide as a rule—

Q. You haven't caught my point yet. Were you aiming to do it at the low water slack or the high water slack? A. We didn't aim to do it at either one of those tides, because we can do 30
it at most any time. If it was a tide with a short run, of course they have a better chance.

Q. Yes, but you haven't caught my point yet. I wasn't speaking of the strength or length of the time, but whether you preferred it when it was at its height or at its low point? A. Well, we really preferred it at a medium tide.

Q. You mean half of the run—at half run? A. Well, say about a five or six foot tide.

Q. Well, I get you there—a small tide? A. Well, not a 40
small tide, a medium tide.

Q. A medium tide, all right, but I am wanting to get it, was it when it was nearing its lowest point or nearing its highest point?

A. Well, it didn't matter very much in that respect.

Q. Either? A. Either way.

Q. And how long before low water or high water slack would you endeavour to go down? A. Well, we would always be ready in lots of time and of course—

Q. But answer the question. It is very simple. A. I was very short too.

Q. What would be your aim, to go down how many minutes before low slack or high slack? A. Well, I couldn't say. We will just judge the current accordingly.

Q. Well, you judged it by the eye, did you? A. Well, no, we go down and feel the current.

Q. You might answer my question: What was your object, before you would start to go down, how many minutes before the
10 turn? A. Well, I couldn't state definitely, but we used to go down—or I would go down—

Q. That is what I am speaking of? A. In shore, where it was quite shallow and the tide doesn't have so much friction on you, and wait until such time as the water would get slack enough to start out.

Q. Oh, I see. You were just doing it by going in the water and feeling the force of it? A. That is way I do.

Q. And then if it was slack enough you went on your progress across the Narrows? A. Yes.

Q. On the average tide, as you describe it, how long would
20 that take you? A. The average tide, I go across—well, you probably would go half an hour for going from one side to another.

Q. That is half an hour to cross the Narrows? A. Well, there is no doubt—probably by the time I had reached the other side the tide had changed—probably might get stronger toward the centre, of course, but you get gradually going away from the strong tide after you get over the centre.

Q. So you could allow yourself for the passage across about half an hour? A. Yes.

Q. And in that half hour you would find the tide consider-
30 able increased before you passed the centre? A. Oh, yes.

Q. Then under those conditions you would be doing half of your journey there with the ebb tide and then half after the change with the flood tide? A. As near as you could get it.

Q. That is, the time of actual slack water proved to be short in most cases? A. Yes.

Q. Now, since that time you have done—that year 1914, you have done no diving east of the bridge until you made this experiment in October? A. I have never done any diving east of the
40 bridge since then—nor on the bridge site.

Q. Now, when you came to be employed by the Northern Construction, on what piers did you work for the Northern Construction? A. I worked on all piers—

The Court: Get me 27, Mr. Registrar, please. You were saying Mr. Griffin—?

Mr. Griffin: I asked him what piers he worked on.

The Court: Yes, we are on the pier now.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. Maddison
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. Maddison
 Cross-exam.
 (Contd.)

Mr. Griffin: Q. Do you know the piers by number? A. Well, I—I don't know whether I do or not.

The Court: You had better see this, witness. That is Exhibit 27, you may take that.

Mr. Griffin: Q. Put that down here on the desk here so I can see them too.

The Court: Yes.

Mr. Griffin: Q. There is Pier 1, 2, 3, 4, 4A and 5? A. Yes.

Q. Now, which ones did you work on? A. I worked on all them piers. 10

Q. What work were you doing on them? A. Well—

The Court: Which ones?

Mr. Griffin: He said he had worked on all piers, 1 to 5.

The Court: On all piers, one to five, yes.

Mr. Griffin: Q. What was the nature of the work? A. Well, the nature of the work was in construction and so forth and when diving was necessary I dived.

The Court: You are speaking of later on?

Mr. Griffin: Oh, no, we were speaking—I see we are misunderstanding each other. 20

Q. I was only speaking of diving work. On which piers did you do diving work? A. I done diving on all of the piers excepting the Number 5.

Q. Yes, so you dived at 1, 2, 3, 4 and 4A? A. That is correct.

Q. Well, now, what was the kind of work you were doing on the bottom? A. On the bottom, in the cylinder piers, it was necessary to go down in the cylinder piers in order to keep everything clear from the cutting edges, and also to clean up on the bottom so as to get rid of whatever concrete—get them as clean as possible. That is in Pier 1, and Pier—is that Pier 4 with the two cylinders? 30

Q. You know, you can read the plan as well as I can? A. I think so.

Q. Is that Pier 4 that you pointed to? A. Pier 4—or is it 4A, which?

Q. Well, look at it? A. Pier 4A.

Q. Well, you were pointing to Pier 5, though? A. No, it is Pier 4A.

Q. Is 4A a cylinder pier? A. It is. 40

Q. Speak up? A. Yes.

Q. Is Pier 4 a cylinder pier? A. No.

Q. Is Pier 3 a cylinder pier? A. No.

The Court: I cannot hear what you say, Mr. Griffin, or what he says?

Mr. Griffin: Yes, he was not speaking loudly.

The Court: Of course when you stoop over and speak over

a plan, right into the desk, I cannot hear, and then the voice goes into the desk instead of to me.

Mr. Griffin: Q. Were you working inside the cylinders or outside? A. I was working inside and outside both.

Q. Both. Well, I want you then to give me—

The Court: I suppose he means, Mr. Griffin, inside and outside the cylinders and the caisons.

Mr. Griffin: Yes.

The Witness: I wasn't working inside the caisons, my lord.

10 The Court: Not inside the caisons.

Mr. Griffin: Q. Were you inside the cylinders? A. I was inside the cylinders.

The Court: You were inside the cylinders, yes.

Mr. Griffin: Q. Therefore that applies to those piers which were cylinder piers, which is one, and he says that is 4-A.

Now, get up your record and tell me the days when you worked outside. Get out your record? A. I can only give you the record—the time that I worked—every time that I worked on the foundation, and on Pier 2, probably.

20 Q. That is the only one you have records for? A. That is all.

Q. Well, bring them out and give me the dates. Bring out your record? A. In September, 1924, September 4th, 9th, 10th, and 14th, I worked at that when they put down several hundred bags of sand in order to level the bottom to rest this number 2 caison.

Q. Keep that book out, keep it right ready for me? A. And it was necessary to go down and level off these bags of sand.

30 Q. I am only asking for the date, wait for the further questions later. There are four days? A. Four days.

Q. Are those all the dates? A. I couldn't say, I just kept a record of these, that is all I could find—that is all I have here.

Q. Tell me, are those all the days that you know of that you worked on Pier Number 2? A. I couldn't say that.

Q. Those are all you have a record of anyway? A. That is all I have down here, yes.

Q. As far as your memory goes those are the only ones, are they? A. No, not as far as my record goes.

40 Q. That is as far as the record goes? A. As far as the record goes, but not as far as my memory.

Q. How many days can you say from memory you were there? A. I can't remember.

Q. And your business was to fix things up where the caison was being set? A. Yes.

Q. Now, how long were you down on any one day? A. Well, I figured I was down—at the most we could get out of there was from 20 minutes to half an hour.

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Cross-exam.
(Contd.)

Q. Yes, now as far as my instructions go, these are the only four days you were down. Do you deny that? A. Sure I deny that because I know I was down more times than that, not probably on the bags of sand, but on different occasions.

Q. No, I mean diving, of course? A. Yes, diving, that is what I mean.

Q. At pier 2? A. Yes.

Q. At pier 2? A. Yes.

Q. And yet you can't specify one of them or tell when it was?
A. No, but I was there just the same. 10

Q. It was in the same month? A. Well, I couldn't say the time, even, maybe the same month, or it might not.

Q. What other month? A. Well, it must have been during the time of the construction of the pier.

Q. Well, when was that? A. I couldn't say that.

Q. Well, was it more or less the same time as these four?
A. Well, it was previous to that.

Q. Previous to that? A. Previous to that and after that also.

Q. Both before and after? A. Yes. 20

Q. But you can't tell how many times? A. No, I can't tell.

Q. What were you down there for on the other occasions that you have no record of? A. On the other occasions, well, I was down there picking up cables, rigging and so forth that we had the caison anchored to.

Q. Well, how long would that take? A. It would take the average tides we worked, we didn't take them all off in a day, you know.

Q. No, but the same time all the time—about 20 minutes to 30 half an hour? A. Something like that, yes.

Q. You were employed by the Northern Construction Company, were you not? A. I was.

Q. Did you go down before slack water on these occasions?
A. Well, I went down just as soon as the tide would permit.

Q. Well, that would be just before— A. Just before slack water.

Q. And come up as soon as it became too strong? A. As soon as it ever became too strong we would come up.

Q. And did you come straight up or were you stopped on the way up for decompression? A. I didn't stop on the way up. We didn't have time to stop to decompress on the works. 40

Q. What? A. I say we didn't have time to stop to decompress on the works, we would stay down there until the tide started to flow.

Q. And could you come straight up? A. Come straight up.

Q. They had a decompression chamber on the scow. A.

They did.

Q. Did you use it? A. I never used it.

Q. So when you started up you came straight up? A. I did.

Q. Were you pulled up, or did you pull yourself up to assist in getting up? A. In coming up?

Q. Yes? A. I would pull up, and if the tide was going too strong I would assist myself and assist the other man to pull me up.

10 Q. Did you have a shotted rope? A. I had a shotted rope.

Q. I suppose down below in the bottom you can't see much of anything? A. Yes, you can, you can see in clear water, you can see fine.

Q. When it is clear you can see down there? A. Yes.

Q. You didn't have a light? A. Not necessary in clear water.

Q. But did you have a light? A. Not on that occasion.

Q. I didn't say that occasion, these occasions, all the times you were down? A. All the times I was down I never had a light. The only light that I was supported by was on the outside
20 of the caisons, when we would catch the slack water in the middle of the night we would have the lights—they had a derrick there that was equipped with lights and they used to shine that over the top of the water, and it used to aid us considerably.

Q. Didn't you do some diving in 1912 for Cleveland & Cameron at the Second Narrows? A. I did do some diving, I don't recollect whether it was 1912 or '13, for Cleveland & Cameron.

Q. It was about that time? A. Along at that time.

Q. And at that time you had difficulty in keeping on the track, hadn't you? A. I did at different times.
30

Q. And they put a cable across to assist, for that purpose? A. No, only put a cable across when taking across the light line.

Q. But it was the cause of keeping you in the right place? A. The light line, it was for a guide for the light line.

Q. At that time you had no light there for the purpose of helping you? A. I had what?

Q. You had no electric lights over above to help you on that occasion? A. No, it wasn't necessary.

Q. So you found it difficult to keep the direction? A. Well,
40 in walking if you have no trace, nothing to trace, you have no line to keep on, why of course you are liable to drift off your course the same as you might do with a ship.

Q. How many times were you down on these occasions? A. Well if I recollect right, I think I was down on two different occasions.

Q. When you were diving at Number 2 pier was there any other diver assisting you? A. There was.

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Cross-exam.
(Contd.)

Q. Or accompanying you—what was his name? A. Finnegan!

Q. Mr. Finnegan, is he in town? A. No.

The Court: Pardon me one moment, Mr. Griffin. What was your last question, Mr. Griffin?

Mr. Griffin: Whether there was any other diver associated with him in that work and he said yes, one named Finnegan at pier 2.

The Court: Yes.

Mr. Griffin: Q. Didn't you do some diving there near the bridge in regard to the tug "M.T. No. 1," which was sunk? A. Yes. 10

Q. At Number 1? A. Yes.

Q. You didn't say pier 1. Pier 2? A. Pier 1.

Q. And you went down there to try and find her? A. Yes.

Q. And in the end she disappeared? A. I found her.

Q. What happened in the end. Wasn't she given up?

A. She was given up for the simple reason because we didn't have rigging that would lift her. I slung the boat, she had lodged in between the piles there, where we had all this work that had broken up— 20

Q. Yes? A. And I got the boat, slung the boat with two slings, and they had a derrick there, it was very old, and the equipment wasn't very good on it.

Q. They didn't get her up? A. Well, I mean that—well we raised her up to water line and then the chain broke—was broke in the upper pulley of the derrick, and she went down.

Q. Then did you go down again to find her? A. I didn't go down on that tide, it was too late by that time, the tide had changed.

Q. No, but did you go down again? A. I did, next day. 30

Q. Did you find her again? A. No.

Q. She had gone then? A. Why, yes.

Q. That is what I understood, that you tried to find her and couldn't. A. Well, I just looked around there, I didn't look very far, just walked around as far as the means would permit, or let you go.

Q. And you gave her up? A. Sure I gave it up. I had to give it up.

Q. Now, you made a statement that Mr. Donaghy could not understand and tried hard to get from you, and I could not understand either. Why can't a diver work when the currents are flowing in two directions? A. Well, he can't if the current is flowing in two directions with any velocity at all, he can't. 40

Q. Well, then, I understand you; but if the current were flowing in two directions gently you could? A. Not necessarily. If you are down in the bottom of the Narrows, we will say—

Q. Yes? A. If you will permit—

Q. Yes, but you might answer my question first, then you can give your explanation of it. I don't want to shut you off. Why can't you work as a diver, work in the bottom with a slight ebb tide even if there is a little flood on top? A. Now, if you will give me a chance to explain, I will explain it for you.

Q. First answer the question? A. I can't answer it.

Mr. Donaghy: Let him answer.

Mr. Griffin: Q. Well, answer my question first, will you?

A. I have to explain it.

10 Q. Will you answer my question, witness? A. Before I explain it?

Q. No, first answer it, and then you can explain it. His lordship I think will instruct you it is your duty to answer the question.

The Court: Yes, you are perfectly right, but it would be very much easier to let him go on and tell it, because it is very obvious—but answer the question exactly, you see there are strict technical rules, answer it exactly. What is it?

Mr. Griffin: Q. Now, the question is can he not work on the 20 bottom perfectly well with a slight ebb, even if it were a fact that there was a slight flood on top? A. Now, what do you call slight?

Q. Well, now, you understand it the same as I do. A. Well—

Q. Do you say you don't know what "slight" is? A. Well, with a slight ebb down in that depth of water, I can't, a diver can't work with very much current.

Q. I know that myself from what I have been told, he can't work with very much, but if there is not very much he can work?

A. Well, if there is practically no current then he can work, but 30 if there is an amount he can't work.

Q. Any current? A. Most any current.

Q. Now, you go on and give whatever explanation you like?

A. I will tell you the reason why that is the case, because when he goes down to a certain depth, we will say he is down in 80 feet of water with the currents coming in, that the friction is so great on your lines and with the air inside you have in your dress, that it is almost buoyancy and it takes very little current to move you—move you off your work immediately.

Q. So that the whole point is that if the current gets suffi- 40 ciently severe to take you off your feet then you can't work? A. You can't work.

Q. But up to that point you can work? A. Not necessarily.

Q. Well, what is to prevent you up to that point? A. You might get down and hang on to something for that matter.

Q. No, I asked a very simple question: Up to the point where the tide gets too strong for you keeping on the bottom, then

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. Maddison
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. Maddison
 Cross-exam.
 (Contd.)

you can comfortably work? A. Well, I can't work comfortably, you can work more comfortably in slack water, but as the tide comes in strong, of course it is less comfortable for you to work.

Q. I know, but with a light current in any direction you can work, can you not? A. It has got to be very light.

Q. I see. Very well, we will suppose it is slack at the time, then? A. That is at that depth, it is worse in the depth—if you are in 20 feet of water you can stand a lot more current because you haven't got that much friction against you with your lines.

Q. Now, down there on the bottom, we know where you are and how deep it was and all that, supposing it is slack down there, can you work? A. Slack water? 10

Q. Yes? A. Oh, yes.

Q. Now, would it make a bit of difference to your work on the bottom in slack water that there was a light tide on the surface? A. Certainly it would.

Q. Well, why would it? A. Because you would have the friction of your lines against you.

Q. They would float out with the same current— A. That would put so much more strain on you. 20

Q. Would it prevent you working? A. Why certainly it would prevent to a certain extent.

Q. It would prevent to a certain extent? A. Yes.

Q. That is what I was simply asking you, to that extent? A. Well, if it is very slow it probably wouldn't show under there very much.

Q. That is what I am trying to get, and you have been fencing with me all the time.

Mr. Donaghy: My lord, I protest at such language.

Mr. Griffin: I would protest against the answers that I am receiving. 30

The Court: Well, I suppose, Mr. Griffin, the witness will protest against the way you put the questions, you see.

The Witness: My lord, I am trying to explain everything as good as I can.

The Court: I think you are, witness, I think you are. I think you are perfectly fair. They are very technical questions, and it is not very easy for a man to answer them who is not accustomed to these refinements.

Mr. Griffin: Q. Now, on the 20th of October, why did you go there at three o'clock when the tide was not slack until four? 40

A. Because we wanted to allow ourselves time enough to get into the position. If we got there at slack water we would be too late.

Q. Well, you have said at three o'clock the boat anchored? A. We arrived there at three o'clock.

Q. You had the boat anchored at three o'clock? A. Well, we put ourselves in position.

- Q. That is what I mean, anchored. What was your object in being an hour ahead? A. Well, we are always ahead of time in that respect.
- Q. Please answer my question. What was your object in being an hour ahead? A. Just to get there and not lose time, to be ready.
- Q. Did you communicate with the Harbour Master before going there? A. I did not.
- 10 Q. You were down there about—apparently the first time just about two minutes, when you went down? A. About two minutes.
- Q. And you were in that case some distance east of the bridge, were you not? A. I lined up 300 feet east of the bridge—approximately 300 feet.
- Q. How was the distance calculated? A. Distance?
- Q. Yes? A. It had been lined out by two line lights ashore.
- Q. By somebody else, I suppose? A. By someone else, yes.
- Q. You didn't have a compass down there, did you? A. Not necessarily.
- 20 Q. Did you have one? A. No.
- Q. And you have no watch with you, do you? A. Not where I can see it.
- Q. Not where you can see it, so that the time you were down. I suppose you learned from the man on the surface after you came up? A. Learned what?
- Q. You learned how long you had been down from what they told you on the boat when you come up? A. Oh, yes, I have a telephone installed.
- Q. What? A. There is a telephone in there.
- 30 Q. You had a telephone, had you? A. Yes.
- Q. I take it that on that occasion then the period of slack water was very short? A. Very short, yes.
- Q. Apparently not more than a couple of minutes? A. Maybe not more than a couple of minutes.
- Q. Now I suppose in the same way the depth of water you got from the man on the surface who told you? A. Not necessarily.
- Q. How did you get that? A. You can measure it, you can sound the depth.
- 40 Q. You didn't? A. We didn't on that occasion, no.
- Q. So that you learned it from someone else? A. I generally notify my man to look at the gauge, and the gauge it gives you the correct depth at the time, you see.
- Q. Well, you didn't have a gauge there on this occasion? A. But it was taken by him.
- Q. Well, do you know that? A. Well, now, I couldn't say just for—

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Cross-exam.
(Contd.)

Q. He told you? A. I asked him that, yes.

Q. He told you? A. Certainly.

Q. Now, you understand the tide table, of course? A. I think so.

Q. Just look at the tide table on that day, will you please, there is one. (Handing book to witness) 1928 tide table? A. I have one here, 1928.

Q. Well, use your own then, that is all right. Just look up there low water slack in the First Narrows on the same tide that you were down, the same low water slack that you were down? A. 10
My lord, we are dealing with the Second Narrows in this case.

Q. I know, will you please do as I ask you, look up—

The Court: Yes, do what the counsel asks you you see. There is a reason for it, you know? A. The First Narrows?

Mr. Griffin: Q. Yes? A. On October 20th?

Q. At the same tide, say slack tide? A. At the slack tide it was 4:16.

Q. 4:16. Now, what was it at the Second Narrows on the same occasion? A. In the Second Narrows, that was 3:48, starting 13 minutes to the harbour time, that would give you 4:01. 20

Q. Correct, 12 or 15 minutes? A. 12 or 15 minutes.

Q. So that low water slack in the First Narrows was 15 minutes after low water slack in the Second? A. No, no.

Q. So it says? A. It says it is 15 minutes later on.

Q. Low water slack at the First Narrows was 4:16. A. 4:16.

Q. And in the Second Narrows it was 4:01. A. Yes.

Q. So that low water slack then in the Second Narrows was first, was it not? A. Yes.

Q. By 15 minutes. 30

The Court: That is what he said.

Mr. Griffin: Oh, perhaps I am reversed, yes, it is so easy to reverse them.

Q. So that the current running out through the Second Narrows was continuing on through the First Narrows for 15 minutes afterwards? A. The current through the Second Narrows?

Q. Yes? A. Was running out?

Q. Yes, that is to say, the First Narrows was continuing the run for 15 minutes after it stopped in the Second? A. Not necessarily, at low water slack, at 4:01, you can't go through all 30
the time, the tide backs—

Q. What? A. The tide backs up more than any other time.

Q. Let us see if I have got the correct result of that. So I am right, that the tide continued running out on that occasion through the First Narrows for 15 minutes after it had stopped running in the Second? A. 15 minutes later in the First Narrows.

Q. Please answer my question directly, so we can get it on the record? A. Well, I say the tide was 15 minutes later than the Second Narrows, 15 minutes later in the First Narrows.

Q. And that means that there would be an outrun at the First for 15 minutes after the outrun stopped in the Second? A. I suppose.

Q. Now, that would be quite a different condition than if these facts had been reversed, wouldn't it—a difference of tidal condition? A. I suppose so.

10 Q. Now, on the 20th October—look at the tide book again? A. Yes.

Q. And the run out that we are dealing with? A. Yes.

Q. Just verify for me that the run out on that occasion was eight hours and six minutes? A. From two to five 3:48 to seven after four—that is the run out from highwater.

Q. That is what I mean, the runout, that is the figuring there, eight hours and six minutes? A. Yes.

Q. That is correct, is it. Please say yes so I can get it on the record? A. 3:48, 4:01—six hours and three minutes—

20 Q. Am I right about the figures? A. No, you are not right about your first figures.

Q. Didn't it run out from 7:42 p.m., is that right— A. Yes

Q. —to 3:48 a.m.? A. It ran out from 7:42.

Q. p.m.? A. From 7:42.

Q. In the evening? A. In the evening.

Q. Yes? A. p.m. to 4:01.

Q. Well, get it right? A. a.m.

Q. 3:48? A. Well, if you look over that there you will see where you have it 15 minutes.

30 Q. We are not speaking now of the run in, we are speaking of the slack, we are speaking of the run out. These are correct figures, aren't they. That is the runout, 7:42 to 3:48? A. 4:01.

Q. Well, go ahead, add this 15 minutes, it won't affect my point a bit. Take it from Vancouver harbour, my friend with me says that won't affect it. Say at Vancouver Harbour, we won't bother about the 15 minutes, go ahead? A. Well, practically the same thing.

Q. Well, now, do turn it up. I want to get it correct? A. Well, this is Vancouver time, 3:48.

40 Q. What? A. Vancouver Harbour time it 3:48.

Q. Well, then, just subtract now, and get it right, that 7:42 and 3:48 is, as I said, eight hours and six minutes. Just verify that? A. It is not eight hours and six minutes.

Q. Yes, it is, that is exactly what it is. There is no use wasting the time of the court or mine.

Mr. Donaghy: It is a hard problem in mathematics.

Mr. Griffin: Yes, it is a very hard problem, we can't agree.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. Maddison
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 F. Maddison
 Cross-exam.
 (Contd.)

Q. From 7:42 to midnight, that is four hours and 18 minutes, is it not.

The Court: Of course you are right, Mr. Griffin, it is eight hours, why waste all this time.

Mr. Griffin: It is right, but I must have it on the record.

The Court: Well, your arithmetic is right. He is keeping in mind the difference that he mentioned, which he thinks is essential, but you are right, it is not.

Mr. Griffin: No, my lord.

The Court: I see what you mean, for this purpose you need 10 not trouble.

Mr. Griffin: For this purpose it does not matter.

The Court: That is right.

Mr. Griffin: Q. Now, witness, keep that, don't close it, and look at that again, I want to get another confirmation? A. Yes.

Q. Now, the run-in that followed was 8 hours and 11 minutes, just see that? A. That is, the run-in after the low water slack?

Q. Yes, eight hours and 11 minutes? A. It runs in till eleven five—11.5.

Q. Never mind making that calculation, verify these figures? 20 A. Yes.

Q. So it was eight hours and eleven minutes? A. Yes, that is eight hours—

Q. Therefore the total of those two tides is 16 hours and 17 minutes? A. Yes.

Q. Now, I want to verify the time of the tide tables of 1927, which I have given you, haven't I?

Mr. Burns: There it is.

Mr. Griffin: Q. Now, take the tide table of 1927 on the 10th of March, (Handing book to witness)? A. Yes. 30

Q. You will find that the run-out that finished at six o'clock in the evening was 7 hours and 47 minutes? A. Of the low water slack?

Q. Yes, the low water slack, about six in the evening, you have six, I think it was? A. 6:22 according to this book—the figures in this book.

Q. Yes, seven hours and 47 minutes was the run-out, was it not? A. Yes.

Q. And the run-in that followed, 7 hours and 32 minutes? A. Yes. 40

Q. Therefore making a total of 15 hours and 19 minutes? A. Let me see.

Q. Which is a difference of one hour from the tide—the run of the day that you are speaking of. These tides are not comparable, are they? A. In which way do you mean?

Q. I mean they are not the same tide? A. Well, they are not exactly the same, they are different in time.

Q. They are different in time by an hour A. Slight difference in height.

Q. And they might have a great difference in conditions that day? A. I don't think that that would make very much difference, if it was a difference of three or four feet in height, if it was three or four hours in time it might make all the difference—much more difference.

Q. What we are aiming at is that the bigger the run the less slack water there is? A. Yes.

10 Q. Isn't that true? A. Yes, the bigger the run the less slack you have, that is correct yes.

Q. So that you may have conditions fifteen minutes after the turn of the tide on one day quite different from those on another day the difference of a run was an hour, might you not? A. I don't quite get that.

Q. Well, I am trying to get at this point: That if you have two tides on two days, Monday and Tuesday, and on Monday there is a difference of an hour between the run on Tuesday, you might 15 minutes after slack water have quite a different condition on 20 Monday from that on Tuesday? A. In slack tides?

Q. Yes, I mean a different tidal condition 15 minutes before slack? A. Yes.

Q. Or after slack? A. You would have a little different tidal conditions.

Q. Now, witness, as a matter of fact, you were dismissed from the City, were you not? A. Well, I wasn't exactly dismissed from the City, I left the City of my own accord, as well as it was given that way.

Q. Answer me? A. Oh, I left of my own accord as well, 30 from the city.

Q. Did you leave because of dissatisfaction? A. Well, there was dissatisfaction. I didn't want to stay any longer.

Q. Give it to me plainly now, were you dismissed, or did you leave because of dissatisfaction with your work as a diver? A. No, no, it had nothing to do with my work as a diver.

Q. Then it was your not being of temperate habits then? A. Not necessarily.

Q. Be fair, answer my question frankly? A. Well, my brother at that time was Superintendent of the Water System and he was in trouble and I left along with him, that was the whole 40 thing.

Q. Wasn't it also due to your intemperate habits as a diver? A. No, not a bit.

Q. And also to your incompetence as a diver? A. No, no,

Q. Isn't it a fact that you were the principal cause of the break in the large water pipe in being pulled across the Narrows? A. I had nothing to do with the water pipe being pulled across the Narrows—under supervision.

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

F. Maddison
Cross-exam.
(Contd.)

Q. The First Narrows? A. The First or Second Narrows, I say each of them.

Q. Isn't this the straight true fact, that the pipe being pulled across got caught on some obstruction, is that true? A. Not necessarily, as I understand.

Q. But did it in this case. You know the occasion as well as I do, or better? A. Which occasion is that.

Q. An occasion in which the pipe got broken? A. We have had several—several pipes have been broken, a lot broken since I left there. 10

Q. I know, but this is the one we are speaking of, you will remember? A. Well, I can't say as I do remember.

Q. Well, do you remember being asked to try and find out what was wrong? A. Well, I was asked to do that on several occasions.

Q. But do you remember the occasion in which you told them all was right and they could go ahead and pull? A. No, I don't remember.

Q. And they broke the wire? A. I don't remember anything about it. I have got nothing to do with rigging up water mains at all. 20

Q. And when the pipe came in—was pulled in, it was found it was fouled with a black sandstone? A. Black sandstone?

Q. In the pipe? A. In the pipe?

Q. Yes, and obstruction in the end of the pipe? A. We generally have what you call a pilot on the end of your mains to pull it in—

Q. Answer the question, can you, right now, answer the question, was that true? A. I don't recollect.

Q. And that you were criticised for telling them to pull on a pipe that was in a position that it could not be pulled? A. I never was criticized. 30

Q. And you have done no diving at this bridge since 1924 when you made those dives— A. One on the 20th.

Q. That is right, one time? A. Yes.

Mr. Griffin: All right. That will do, thank you.

Mr. Donaghy: That is all.

(Witness aside.)

Mr. Donaghy: I call, my lord, Mr. James C. Loutet.

JAMES COX LOUDET, a witness called in behalf of the Plaintiff, being first duly sworn, testified as follows: 40

DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Loutet, are you employed on the Burrard Inlet Tunnel and Bridge Company? A. I am.

Q. Yes. Do you recollect the occasion of the 20th October

J. C. Loutet
Direct.

last when the last witness was at the Second Narrows making some experiments? A. I recollect it.

Q. Yes, were you with him? A. I was there on the skiff.

Q. Yes.

The Court: Turn this way, listen, and speak louder and clearly.

Mr. Donaghy: Q. Do you remember whether or not on that occasion any officers of the National Government were there? A. I couldn't say, no.

10 Q. No.

Mr. Griffin: I didn't get that date.

Mr. Donaghy: October 20th.

Mr. Griffin: Who were present with him at this place?

Mr. Donaghy: He was present and the diver.

Mr. Griffin: Oh, yes.

Mr. Donaghy: Were you on the scow or boat that has been mentioned? A. Yes.

Q. By the previous witness? A. The diver's skiff, I believe is the term for it. I was aboard that.

20 Q. Yes. Were you aboard when the last witness first went down? A. Yes, I was.

Q. At this craft? A. I was.

Q. About where was this craft at the time he went down?
A. We were lined up 300 feet east of the bridge, lined by two shore lights.

Q. Yes?

The Court: Q. What part of the bridge exactly, witness?
A. We were 300 feet east of the bridge, my lord.

Q. Yes, but— A. In line with Pier 2.

30 The Court: In line with Pier 2. Yes.

Mr. Donaghy: Now, you saw this exhibit which has been called an indicator? A. Yes.

Q. A large piece of steel, looks like an indicator, rudder?
A. Yes.

Q. By the way, I want to ask you, do you know where Pier 2 is?

Mr. Donaghy: And would your lordship mind if I show Exhibit 27 to this witness.

40 Q. Now, without looking at the numbers of the piers, show on that map what portion you were lined up opposite? A. Well, to the best of my recollection it was pier 4.

Q. Where you have your finger? A. Of course we got our direction from someone on the bridge—I believe Mr. Ward.

Q. Just don't go so fast. What did you point to with your finger, down to the portion that you were opposite? A. I pointed here.

Q. Yes.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
J. C. Loutet
Direct.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

J. C. Loutet
Direct.

(Contd.)

Mr. Griffin: Witness points to pier No. 2 then.

Mr. Donaghy: Yes, all right.

Q. That is the best of your recollection? **A.** That is the best of my recollection. We got our direction from the bridge.

Q. All right. Now, do you recollect the rigging up of this indicator on the craft, or the skiff as you call it? **A.** Yes, I do.

Q. That was rigged up in the manner that the last witness stated in court? **A.** Yes, it was.

Q. Now, what did you do there and then? **A.** Well, I watched the—what I call the indicator, that has been referred to I believe as the helm. I take it as a rudder and indicator, that is one of my terms, but if helm has been used I shall— 10

Q. Yes? **A.** I refer to the short end of pipe at the top, that is on the boat.

Q. The handle? **A.** The handle or helm.

Q. Yes? **A.** I pulled that over so that I could find if there was free movement in the bearing. It is pulled over on the pipe at first, and I wish to see if there was a free movement or if it was being interfered with in any way.

Q. Yes? **A.** And I could observe every movement and it swung back into the same position, lining up with the drift wood which was passing along the stream at that time. 20

Q. Yes, how many times did you pull over this rudder to see whether or not it would respond to current conditions? **A.** To the best of my recollection, three or four times.

Q. And did it on each occasion respond readily? **A.** On each occasion it responded.

Q. Yes, indicating the course of the current? **A.** Indicating the course of the current.

Q. You say there were pieces of wood floating by at the time? **A.** There were small pieces of wood there which gave me a good line-up on the direction of the surface flow. 30

Q. Yes; how did the rudder point with reference to the surface flow? **A.** Well, the rudder and helm I lined up before—I don't know what I might refer to it as—the pipe was put over into the water, and I recollect that the two, when we took the pipe out of the water, they were still in the same relative position.

Q. That is, the rudder and helm? **A.** The rudder and helm were in the same plane they were lined up in.

Q. They were fixed firmly? **A.** Fixed firmly. 40

Q. Now, that helm, as we will call it—perhaps I have been calling it a rudder, we will call that the helm, that is the top of that? **A.** Yes.

Q. How did it correspond with the indications of surface flow as you found them by the driftwood—as you took it by the driftwood and found the flow? **A.** It lined up exactly in the same direction as the driftwood was going.

Q. Yes? A. And I lined with more than one piece of driftwood, I lined a number of pieces of driftwood as near as I could to get the exact direction of flow.

Q. Yes, now this indicator or rudder was how many feet down beneath the surface of the water? A. 24 feet.

Q. What direction did the driftwood show the surface current to be going in? A. It showed toward the south shore.

Q. And how much, at what angle? A. It was very difficult to get the angle, I would not be prepared to give the angle.

10 Q. Slight or great? A. I should say a slight angle.

Q. Yes? During all the time that you were watching this stream, did it indicate any northerly current by pointing? A. No, at no time; when I moved it over it swung back to the same position showing an indication towards the south shore.

Q. What was the general direction of the current on the surface? A. I didn't quite get your question—the meaning of it.

Q. Well, what I want to get, was this current flowing east or west or north or south that you were anchored in? A. The current was flowing east with a slight tendency to the south.

20 Q. Very good. How, leaving that subject, did you, on other occasions, make any observations of tidal currents at the Second Narrows Bridge? A. I did. I made observations between the dates of 5th October and 23rd November.

Q. Yes? A. Excluding Sundays.

Q. Every day excluding Sundays? A. No, not every day, but on some occasions I might only make one observation, but mostly made two observations every day.

Q. You might—

The Court: From what date did he say? A. From the 5th 30 October, my lord, to 23rd November.

Mr. Donaghy: Q. This year? A. This year.

Q. Tell how you made the observations, where you made the observations and what you found? A. I made them from Pier "O", Pier 1, Pier 2, Pier 3, Pier 4-A. I had at Pier "O" and Pier 1, coloured pieces of wood, pieces about two to three feet long, attached to a long piece of marline. These were hanging down into the water, fixed from the light standard on these piers. I observed them at the time when the change was likely to take place, and I was able to observe them warp themselves around the pier as 40 they swung with a change of current—change of tide, you see. I also dropped in pieces of wood that might give the surface flow, and in case that the wind would affect them, I chose water-logged pieces also, that is, water-logged enough that they were actually under the surface, but still could be seen, yet sufficiently much water-logged to sink, and I was able to take my observation from them and judge the way the current was going.

Q. How did you find the current of the flood tide directed

*British Columbia
Admiralty Dist.*

Plaintiff's
Case _____

J. C. Loutet
Direct.
(Contd.)

which passes under the bascule span. How did it flow, say, when the flood began to make after slack? A. At the bascule span?

Q. Yes? A. I didn't—I am afraid I didn't get your question quite clear.

Q. Now, you took a stand on the bascule span, we will say? A. Yes.

Q. At the turn of the tide when it is beginning to flood? A. Yes.

Q. You understand that? A. Yes.

Q. Did you make any experiments at that time? A. Yes. 10

Q. What did you do, and what did you find as a result. What current did you find? A. I found an easterly flow of the tide, and at the first change—very slow change, unless on big runs. It just flowed very evenly in, increasing in velocity.

Q. Yes— A. I observed no apparent current or boiling at that point.

Q. Now, did you follow the float to see where it went— these floats that you put in? A. Well, I put in a float, that was really in the stream. I would put in a float for my observations of the tide having turned, I put in a float, pointed wood— 20

Q. Where did you put it in? A. In the centre of the south span.

Q. Yes, I see? A. That is, 75 feet from pier 4-A to the south.

Q. Yes? A. And immediately I dropped it in it would go quietly away underneath the bridge toward the eastward, that was flowing east gently, which gave me time to go around on the C. P. R. tracks and walk eastwards, following up my piece of wood. I timed it to the most westerly pipeline and estimated its distance off shore, I found with two exceptions that they had flowed nearer to the shore than the point at which I had thrown it in. On the two exceptions there was a fairly strong southwesterly wind, which I think had influence on the pieces of wood. The time I found, the minimum, for that wood to travel the distance was 20 minutes. 30

Q. Yes? A. I would not be prepared to say what the maximum was now, because that didn't concern me so much.

Q. How, that is one occasion on which you followed it by walking along? A. Yes.

Q. Is that the only occasion you followed in that manner? 40
A. On every occasion.

Q. On every occasion? A. Every day I made that test.

Q. By walking along? A. By walking along.

Q. Well, on any of these occasions did you find the northerly trend of the current that has been spoken of in this case? A. I wouldn't call it northerly trend. I have given these two exceptions, where I imagine it was affected by the strong wind.

Q. Yes? A. But I couldn't see any signs of a current there.

Q. Now, on each of these two occasions where did the float go? A. The float went possibly from ten to 15 feet farther to the north than the point at which I had thrown it in, that is relatively—an equivalent distance from the shore.

Q. Yes. Have you made those tests at the end of a long run out when the tide began to make on the return? A. Yes, I made it at various stages of the tide, both long runs and short runs.

10 Q. And on any of these tides did you find this so-called northerly current or any indication of it? A. No, I found no signs of it.

Q. Yes. Did you check to ascertain the accuracy of the tide tables at the bridge by observing conditions of float-wood and that sort of thing which could help you to decide just when the tide turned? A. I compared—I compared the time and I observed the change that—

20 Mr. Griffin: My lord, I wish to make an objection—not the general one I made, which I am repeating, but the question of accuracy of time tables was dealt with by the witness Jones in the opening of the case, and what is now being dealt with is simply confirmation of that further, and on that question we have direct confirmation—we have what the witness Jones made himself—a positive statement.

Mr. Donaghy: I don't remember Jones on that.

Mr. Griffin: Well, I will read it for my friend with the greatest of ease.

30 The Court: What you are asking him, Mr. Donaghy, or what you are proposing to ask him, was as to the difference between the actual fluctuations of the tide at the Second Narrows and what is recorded in the tide tables?

Mr. Donaghy: Yes, that is the point.

The Court: I think that has been covered.

Mr. Donaghy: Perhaps so. If it is, we will drop that.

The Court: Your objection is sustained, Mr. Griffin:

Mr. Donaghy: Very good, my lord. All right, your witness.

Mr. Griffin: No questions.

Mr. Donaghy: All right.

(Witness aside.)

40 Mr. Donaghy: I call, my lord, Mr. Hanes.

GEORGE SAMUEL HANES, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Hanes, what is your profession? A. Civil Engineer.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
J. C. Loutet
Direct.
(Contd.)

G. S. Hanes
Direct.

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Direct.
 (Contd.)

Q. Yes, and how long have you followed your profession?
 A. Well, for the last twenty years.

Q. Yes. Where did you graduate from? A. Toronto University.

Q. Yes. How long have you been practicing as a civil engineer in British Columbia. When did you first commence? A. Commenced in—the beginning of 1909.

Q. What positions have you held? A. City Engineer of North Vancouver, City Engineer of Windsor, Ontario.

Q. Yes. Now, you have heard the evidence here given in regard to the fill at the south shore of the bridge? A. Yes, I have. 10

Q. You know what I am referring to? A. Yes.

Q. Have you made an examination of that? A. Yes, I made a survey of the fill at the south end of the bridge.

Q. Yes, did you make a plan of the survey? A. Yes, I made a plan.

Q. Have you it with you? A. Yes.

Q. Produce it. Let me see it? A. (Producing plan.)

Q. Now, now, this is the plan of survey that you made of the fill, is it? A. Yes, that is it. 20

Mr. Donaghy: I produce this to have it marked.

The Court: Exhibit 58.

(DOCUMENT MARKED EXHIBIT NO. 58.)

Mr. Donaghy: Q. What is the scale on which this is drawn, Mr. Hanes? A. 20 feet to the inch.

Q. 20 feet to the inch? A. Yes.

Q. Would you just take this. (Handing plan to witness). Does this plan show the extent of the fill at low tide? A. Yes, it does.

Q. Looking at the plan, will you tell his lordship what the extent of this fill is under water at low tide, if any? A. Well, at low tide on the east line of the bridge the low tide mark comes out to the base of Pier Number 5, in other words— 30

The Court: Just wait now.

Q. At low tide, at— A. At low tide, at the east—

Q. At Pier—we will say at south pier Number 5 what did you see? A. At South Pier Number 5 at low tide on the east line of the bridge—

Q. Yes? A. The low tide level comes practically at the base of pier Number 5. In other words, the fill at that point does not extend below low water. 40

Q. Yes, that is on the east line? A. Yes.

Mr. Donaghy: Q. Very good? A. On the west line the toe of the fill extends probably 20 feet into low water.

Q. Do you mean 20 feet in depth? A. Horizontal distance.

Q. Horizontal distance. Can you give the depth at the south

end, and the depth at the north end of this horizontal extension at low water? A. Yes, the depth of water on the west line of the bridge at the fill is about eight feet.

The Court: Wait now, the depth—

Mr. Donaghy: I am asking him for the depth of the fill in the water at the north end and the depth of the fill in the water at the south end.

The Court: Yes.

Q. At what stage of the tide, at low water still, now, you
10 are always speaking of low water? A. Yes, low water.

Q. Now, then, at low water at the west line of the bridge at the end of the toe there is a depth of how much? A. Eight feet.

The Court: Eight feet.

Mr. Donaghy: My lord, my question was—

The Court: I beg your pardon?

Mr. Donaghy: At the south side of the water where it joins the fill, and then I was going to ask him at the toe later.

Q. What was the depth of the fill, or what we call the height
20 of the fill there from the bed of the sea to the surface of the water at low tide at the most southerly contact of low water with the fill?

A. Well, at the east line of the bridge at the point of contact, the water is about a foot deep.

The Court: Q. How much? A. About one foot.

The Court: One foot.

Mr. Donaghy: Q. Well, would you mind dealing with the west side? A. On the west side—

Q. We are dealing with the west side? A. About eight
30 feet.

Q. Eight feet? A. Yes.

Q. In other words there is eight feet of fill under the water at low tide? A. Yes.

Q. At that southerly part? A. Yes.

Q. Yes, now go to the northerly part, from the toe, and tell me how many vertical feet of fill you find there under water at low tide? A. Oh, I referred to at the southerly—

The Court: Yes, I think he has mis-apprehended you.

Mr. Donaghy: Q. Now, you go ahead and explain this to us and I will not ask questions at all. You know what we want. I
40 want to find how much obstruction this fill makes on the current at low water on the west side, explain it in your own language.

The Court: Precisely. Begin then at the toe. Begin at the toe of the fill, and at low water, above the toe of the fill, vertically, there is what depth—eight feet? A. Eight feet on the west line of the bridge, and about one foot on the east line of the bridge.

Q. Wait now. Yes, that is all right, now then proceed. A. On the west line of the bridge, where that depth exists, is around

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
G. S. Hanes
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Direct
 (Contd.)

the bend into the bay really on the south—on the west of the bridge, and therefore it does not obstruct the flow of the water through the Narrows to any extent.

The Court: Now, wait, that is not the point.

Mr. Donaghy: He doesn't understand.

Q. Would you make a cross-section of this thing so I can see it as a picture. It is evidently a triangle— A. Yes.

Q. Where is it? A. There is a triangle shown on this profile.

Q. Show it please. Show us where you have given that triangle here? A. At this point.

The Court: Oh, it is there, is it?

Mr. Donaghy. Yes, my lord.

Q. Very well, give me the measurements of that triangle at low water, give me the lines. Take the base first—the base line. What is the measurement of the base line? A. About 20 feet.

Q. 20 feet is the base line? A. Yes.

Q. Now, give me the vertical line, which would be the south line, showing the amount of the fill under low water? A. About eight feet.

Q. Eight feet is the vertical one. That is the south end, is it? A. Yes, on the west line of the bridge.

Q. Yes, we are talking of the west line? A. Yes.

Q. Now, give me the oblique line, that will be from the top of the south vertical line north to the northerly projection of a base line, what is the length of that line? A. Oh, it would be probably ten feet—about ten feet.

Q. Yes. Now, then, the dimensions of the fill, that is like a profile of it looking at the west side, would be a base line extending under the water—how many feet again? A. About 20 feet.

Q. About 20 feet. And the vertical line on the south side extending up to the top of the fill, how much? A. About eight feet.

Q. About eight feet; and then the oblique line adjoining the two ends? A. About 12 or 15 feet.

Q. Well, then I take it that represents the face of the obstruction that this fill would constitute at low water, does it? A. Yes.

Q. Or am I right in that? A. Yes, that is correct.

Q. That is correct. Now this base, then, we have talked of does that come down practically to zero at the northern projection? A. Yes.

Q. Yes. You see you mis-apprehended us, as his lordship pointed out to you, you said it had an eight foot vertical front there. You didn't mean that, did you? A. Well, at the north end—

Q. Under water at low tide? A. It runs out to nothing.

Q. Yes, so we have that clear. What do you say the effect

of this supposed obstruction on the west side would be upon the tide at low water, or upon the current? A. Well, I say that it has absolutely or positively no effect on the tide or current at low water either before or after low water slack. The current is imperceptible, and the water being so shallow, it does not in any way whatever deflect the current that is flowing through the Narrows at that particular time.

Q. Yes? A. The effect is not appreciable at all.

10 Q. Yes. Now, have you on this plan a profile showing the extent of obstruction on the west side at high tide for instance. Can you give that from this plan? A. Well, the plan itself shows no fill.

Q. Yes? A. The nature of the fill extends along westerly into the bay—westerly and southerly into the bay; it was always there before, and the fill simply parallels the original shoreline.

Q. Yes, well, I suppose at high tide the difference in dimensions, I take it, speaking as an amateur mathematician, that would raise the vertical line? A. Raise it—

20 Q. By the amount of the tide? A. Raise the vertical line by the height of the tide.

Q. That is all the difference there would be to that. Now, will you describe the contour of the ground at the place where this fill is, under a state of nature, or prior to the fill being put there?

A. The nature of the ground or the foreshore was simply level—a fairly level plane sloping gently from high tide to low tide in a uniform surface.

Q. And you have shown the course of it. Have you shown on this plan the curve of this location prior to the fill being placed there? A. Yes, it is shown on this hatched line.

30 Q. Let me see.

The Court: Q. Shown on the hatched line at the foot of the plan? A. Shown on the hatched line.

Mr. Donaghy: Q. On the hatched line, and marked “fore-shore?” A. Yes.

Q. That is in the lower right hand corner of this plan? A. As shown on the profile in the lower right hand corner.

Q. You have shown on this the high tide level and the low tide level at this point, have you? A. Yes.

40 Q. You have shown that as well. You have marked the toe of the slope and you have marked the rock “rip-rap” on its face? A. Yes.

Q. On the slope? A. Yes.

Q. And then you have marked the fill “earth fill.” A. Yes.

Mr. Donaghy: Does your lordship wish to see it. It is rather an interesting plan.

The Court: Yes.

Mr. Donaghy: The lower right hand corner shows the fill.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
G. S. Hanes
Direct.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 —
 G. S. Hanes
 Direct
 (Contd.)

The Court: It would be well, witness, to supplement—you can do it adjournment—add the measurements that you give there, you see, at the cross-section, out there, put your measurements in there which you were giving.

Mr. Donaghy: During the adjournment, my lord?

The Court: Yes.

Mr. Donaghy: Q. Yes, you can make them accurately during the adjournment. A. Yes.

Q. Now, take it even at high tide, in your opinion would this fill—I mean approaching high tide on the average, or at any time while the flood tide is making, or at any time during its course from its inception to its height, would this fill have any effect on the current say 600 feet east of the bridge, or 500 feet east of the bridge? A. No, it wouldn't have any effect in the slightest. Its effect is only local—purely local. 10

Q. Have you made any observations regarding the direction of currents passing through and under the bridge? A. I have.

Q. What have you done? A. Well, I took the soundings about every six months since the bridge was constructed, all the way across the Narrows on both sides of the bridge and therefore have had a chance to observe the currents. 20

Q. How did you take the soundings? A. With a lead sounding line—heavy lead from the deck of the bridge.

Q. Yes? A. Standing on the deck of the bridge.

Q. Yes, how long have you been doing that and how often? A. Well, every six months since the bridge was built.

Q. Yes? A. And these soundings were taken every 20—25 feet.

Q. Yes? A. Across the Narrows.

Q. Yes.

The Court: Since when does he say he was doing this? 30

Mr. Donaghy: Since the bridge was built, every six months since the bridge was built.

The Court: Yes, what year?

The Witness: Well, any time—

Mr. Donaghy: That is in 1925 it was opened, November 1925 the bridge was opened.

The Court: I think we have it that it was opened in November, 1925, was that before it was opened?

Mr. Donaghy: Yes, November 7th was the day I have a record of. 40

Q. Ever since then you have done this? A. Yes.

Q. Now, have you been doing anything else to ascertain the direction of currents passing under the bridge? A. Well, then I made observations of the directions of the current passing under the bridge with a transit, taking the directions and marking them on a plan.

Q. How would you observe the direction to line up with the transit? A. By dropping pieces of wood in the water and watching the direction that they were flowing and reading the angle with the transit.

Q. Yes. Have you done that at all stages of tide? A. No, not at all stages.

Q. What stages have you done it at? A. Well, medium tide.

Q. Medium tides? A. Yes.

10 Q. Now, at what stage of medium tides have you done that? A. Well, it is what I would call a medium current, that is, about half way between high and low.

Q. Oh, yes, at all sorts of tides you have done it at about the medium? A. That is what I have done, about the medium.

Q. Yes. Then you lined that up with the transit, did you? A. Yes.

Q. Did you make any sketch to see the result of these observations? A. Yes, I did.

Q. Let us have that? A. (Producing sketch.)

20 Q. Is this the sketch you made showing the currents as the result of your observations? A. Yes.

Q. Now, does that accurately show the result of your observation made by you in the manner you have indicated? A. Yes, this shows the observations I made of the ebb tides and of the flood tides.

Q. Yes; and the lines indicate the directions of tide currents. How do you describe the lines? A. The red dotted lines represent the direction of ebb tides, and the black lines represent the direction of flood tides.

30 Q. Well, you mark here blue dotted lines, is that what you call black lines? A. The blue dotted lines show the direction of flood tides.

Q. The depth of water shown in the plan which you produce, where are those records taken from? A. The depth of water are the depths as shown on the—what has been called the Parizeau plan.

Mr. Donaghy: Yes, your lordship has that, that is in already. We will have this marked.

(DOCUMENT MARKED EXHIBIT NO. 59.)

40 Mr. Donaghy: Does your lordship desire to see this map? The Court: Yes, thank you.

Mr. Donaghy: Q. You know where the bridge operator's stand is on the bascule span? A. Yes.

Q. Approximately how many feet above the deck of the bridge? A. About 25 feet.

Q. Yes. Do you know of an instrument there which is called

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British Columbia
Admiralty Dist.
Plaintiff's
Case
G. S. Hanes
Direct.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Plaintiff's
 Case
 G. S. Hanes
 Direct
 (Contd.)

an indicator or something of that kind? A. Yes, there is an indicator established at that point which they used for finding directions—vertical angles.

Q. Yes, it is fixed permanently on the iron work of the bridge there where the operator stands? A. Yes, it is fixed permanently on the span, and it is constructed so as to show the horizontal angles and vertical angles.

Q. Yes; has degrees marked in a circle, has it? A. It has degrees marked on the circle.

Q. On the circle? A. Yes.

Q. And a pointer—revolving pointer? A. And a pointer so that they can point it at any object, and clamps for clamping it so that—

The Court: Q. A little louder, please? A. They have a pointer on this indicator so that it can be pointed at an object, and then clamped so as to show the horizontal angle with the bridge and the vertical angle.

Mr. Donaghy: Q. Yes. With this indicator can one tell the number of degrees out from a line say east of the bridge? A. Yes, the position of the object can be definitely determined.

Q. Yes, the number of degrees with reference to the line of the bridge? A. Yes, the number of degrees can be ascertained in reference to the line of the bridge.

Q. Yes. Now, did you examine and make any test of this indicator to ascertain whether it is correct—tells correctly or scientifically? A. Yes, I think the instrument registered correctly.

Q. Yes. Now, did you make any observations yourself by means of this instrument on the bridge? A. Well, no—not observations, but I made a plan showing the angles—showing the lines at certain angles from that indicator.

The Court: Q. A little louder. Speak a little clearer, you are dropping your voice and mumbling. It is hard to follow you? A. I made a plan showing the angles—showing the lines at certain angles from the indicator position with reference to the channel to the east.

Mr. Donaghy: Q. Yes. Now, you showed these lines, I take it, at right angles to the centre line of the bridge, did you, or what? A. Well, the lines start with—show from six degrees to 23 degrees from the right angle to the bridge.

Q. Are these degrees north or south of the right angle? A. They would be degrees to the north.

Q. Of the right angle? A. Of the right angle.

Q. Now, you made a plan of these observations you made in that way, did you? A. Yes.

Q. Is this the plan? (Handing document to witness) A. Yes, that is the plan.

Mr. Donaghy: Just a moment. I will have this marked, if you please.

(DOCUMENT MARKED EXHIBIT NO. 60.)

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseG. S. Hanes
Direct.

(Contd.)

Mr. Donaghy: Perhaps your lordship would like to follow this while I question him about it.

The Court: Yes, thank you.

Mr. Donaghy: Q. Now, the red lines start—take it from the bridge, do they then start from the bridge going east? A. Yes, the red lines start from that indicator—

Q. Easterly? A. Location, and go easterly.

Mr. Griffin: What is that?

10 Mr. Donaghy: These red lines start from the indicator on the bridge and are produced easterly.

Mr. Griffin: Oh, yes.

Mr. Donaghy: Q. Now, at the extremity of these lines you have certain degrees marked there, like five degrees, seven degrees, ten degrees and so on up to 26 degrees. A. Yes.

The Court: Up to 23.

Mr. Donaghy: Q. Up to 23 degrees, is it? A. Yes.

Q. Yes. How far is that projection from the bridge and where is it? A. At the—eastward about 600 feet to the—

20 Q. Where is that with reference to the most westerly pipe line—these degrees? A. It shows there to the westerly pipe line.

Q. Well, these degrees are marked, is that where that projected red line would intersect the most westerly pipe line? A. Yes.

Q. I see, the degrees are marked where the projected red line intersects the most westerly pipe line crossing the channel.

The Court: What is the black line supposed to be, Mr. Donaghy?

Mr. Donaghy: Q. Yes, what is the black mark, Mr. Hanes.

30 The Court: The black line, is that the right angle line of the bridge or what?

Mr. Donaghy: Q. Yes, just tell us what the black line is. Look at it there.

The Court: What is the black line there indicating?

Mr. Donaghy: What shows the bridge line. Is the word "Bascule" marked where the bridge is shown? A. The black line—

The Court: No, you see there is the black line.

Mr. Donaghy: There is the black line at the centre.

40 The Court: Projecting from the centre.

Mr. Donaghy: From the word "bascule," yes.

Q. What is that? A. The black line is a line at ten degrees from the right angle of the bridge.

The Court: Yes, I see. Now, what I want you to do is this, during the adjournment, to draw a line—you say that is ten degrees from the line, to draw a line which would be at right angles to the bridge line.

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Direct
 (Contd.)

Mr. Donaghy: Yes, very good, my lord.

Q. You will remember that, Mr. Hanes? A. Yes.

Q. Now, the depth of water is shown—

The Court: Draw it in blue lead pencil so we will know which it is—a blue lead pencil right angle line to the bridge line.

The Witness: Yes, sir.

Mr. Donaghy: Q. Now, the depth of the water is shown on this last exhibit? A. Yes, the depth of water is shown on this plan.

Q. And these depths of water are the same as shown on the Parizeau plan, and which is in as an exhibit? A. Yes. 10

Q. Yes, very good. Now, did you make any plan showing the cross-section of the channel? A. Yes.

Q. East of the bridge? A. Yes, I did.

Q. Is this the plan showing the cross sections of the channel of the Second Narrows? (Handing document to witness.)

The Court: Just one moment.

Mr. Donaghy: Yes, my lord.

The Court: Just before you do that.

Q. Now, you drew this black line. That is so, is it not witness, that is your line? A. Yes. 20

Q. This black line? A. Yes.

Q. That is superimposed on the official survey of the Department of Marine, Mr. Parizeau? A. Yes.

Q. The surveyor. Now, just before you leave it, why did you draw that black line. What is it intended to convey? A. Well, I understood, my lord, that there is some—it is to be used in connection with some matters.

Q. Oh, I see, you just drew it to anticipate any observations which could be made upon it? A. Yes, my lord. 30

The Court: Yes, thank you. I was just wondering.

Mr. Donaghy: Q. Is this the plan you made of cross-sections of the Second Narrows. (Handing plan to witness.) A. Yes.

Q. Well, look at it. The lower part of the plan shows a cross-section of the Second Narrows how many feet east of the bridge? A. 600 feet east.

Q. The lower part of the plan? A. The lower part of the plan shows a section of the Second Narrows 600 feet east of the bridge.

The Registrar: Exhibit 61, my lord. 40

(PLAN MARKED EXHIBIT NUMBER 61.)

Mr. Donaghy: My, lord, part of the plan shows a cross-section of the Narrows, in there.

Q. Is that right, Mr. Hanes? A. The middle part of the plan shows the cross section 1100 feet east of the bridge.

The Court: Q. The middle part, some kind of cross section

at 1100 feet? A. Yes.

Mr. Donaghy: Q. Yes, and the top part of the plan shows what? A. The top part of the plan shows a cross section 700 feet east of the bridge.

Mr. Donaghy: Perhaps your lordship wishes to follow this while I examine him.

Q. Now, we will take the lower one—the lower cross-section, 600 feet east of the bridge, what is the area in that cross-section of the channel there at low water? A. It is 34,000 square feet.

10 Q. Is that the smallest area of the cross-section shown on the plan? A. Yes, that is the smallest cross-section shown.

Q. Yes.

The Court: Q. How many square feet? A. 34,000 square feet.

The Court: Square feet at low water? A. At low water.

Q. Now, what is the cross-section area at low water at the site of the bridge? A. 50,000 square feet.

Q. That cross-section is not shown on this plan? A. No, but I—I measured the cross-section and took it to be 50,000 square
20 feet.

The Court: Now, you see I didn't quite get that, cross-section, what?

Mr. Donaghy: The area under the bridge is not shown on this last exhibit.

The Court: No.

Mr. Donaghy: Q. Where did you get it from? A. From the plans of soundings which I have made at the bridge and plotted.

Q. Yes. Have you them with you? A. No, I have not.

30 Q. Could you get them during the adjournment? A. Yes.

Q. Will you bring them, then. That is three things you have to attend to? A. Yes.

Q. Now, the difference in area, of course, is quite apparent, that is 16,000 square feet between these two areas we are considering—cross-sections.

Now, what is the cross-section area of the piers that are in this channel where they are supporting the bridge? A. 5,300 feet—5,300 square feet at low water.

40 Q. Yes, so taking that from the cross-section area at low water under the bridge, and getting the remainder that is left, what do you get as a remainder that is left for the cross-section area of water? A. 44,700 square feet.

Q. Yes? As compared with 34,000 feet at the 600 line east of the bridge? A. Yes.

The Court: Q. Give me that again, therefore what, do you say, under the bridge what is the net? A. Therefore the net-cross-section under the bridge at low water would be 34,700 square feet.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Direct.
(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Plaintiff's
 Case
 ———
 G. S. Hanes
 Direct
 (Contd.)

Mr. Donaghy: Q. You mean 44,000. A. 44,700 square feet.

The Court: 44,000, yes.

Mr. Donaghy: Q. That is 10,700 square feet greater in area—greater in net area than what was the area at the 600 foot line east of the bridge? A. Yes.

Q. Now, having in hand these two things, what is your opinion as an engineer as to whether or not the maximum velocity of the current of the Second Narrows has been increased by reason of the construction of the bridge? A. Well, in my opinion the velocity has not increased because the same amount or volume of water has to pass through the 34,000—through the narrow part of the 600 feet east of the bridge, and it is not going through at any greater velocity than it did before, because the tides govern that. 10

Q. Then the velocity at the 600 foot line east of the bridge, you say that is not affected of course by the bridge? A. That is not affected by the bridge, because the tide has to go through the same as it ever did.

Q. The same as always.

The Court: Q. Now, don't drop your voice. You have got a very bad habit of beginning very well and then dropping away into a sort of indistinct murmur. Please do not do that. It is very difficult to follow you. These figures and things you have given have got to be followed with exactitude, and that is why we have to have you explain twice about it? A. Well, the velocity at the 600 feet—at that point 600 feet east of the bridge would not be changed in any way, because the same volume of water has to pass through that channel as usual, before or after the construction of the bridge. 20

Q. But now would the velocity there be greater or less than at the bridge? A. The velocity would be greater. 30

Mr. Donaghy: Q. At the 600 foot point? A. Yes.

Q. Because it is narrower? A. Because it is narrower.

Q. That is a narrower area, smaller area—cross-section area. Well, then, having that in mind, I asked you whether the construction of the Second Narrows Bridge would increase the velocity of the current of the Second Narrows at that bridge? A. There would be a slight increase between the piers, but for no appreciable distance on either side.

Q. Just what is your process of reasoning when you arrive at the statement you make, that this narrow cross-section 600 feet east of the bridge in some way controls or has something to do with the increase or decrease or standing or velocity under the bridge, what is your process of reasoning on that, from a scientific standpoint? A. Well, the velocity 600 feet east of the bridge remains the same, and the water going through under the bridge, if increased slightly would only be for that very—just for the portion 40

between the piers, but then it would immediately slack off again to the velocity that it would naturally have at any other tide.

Q. Is that by reason of it having a larger cross-section than the upper 600 feet away east? A. Yes, it has a larger cross-section under the bridge.

Q. Yes, I see. Did you make any mark on the last plan—that last Exhibit, cross-section plan, on the cross-section at 700 feet east of the bridge. That is the upper cross-section of the plan, did you make any mark there at the 700 feet. No, the 1100
10 foot one, did you make any mark on that cross-section showing the cross-section at 1100 feet east of the bridge, showing a boat on the five fathom line? A. Yes, I have.

Q. How was that marked there, so we will get it on the record, show it to me? A. I have shown on—

Q. Show it to me with your finger? A. (Indicating.)

Q. Yes. Now, in the middle of the plan, this middle portion containing the cross-section of the 1100 foot distance— A. Yes.

Q. You have— A. Shown the location of a ship over the five fathom line.

20 The Court: Ship's hull under water, is it? A. I show the ship's hull—the portion under water.

Mr. Donaghy: Q. Yes, it is between— A. It is immediately over the figure 200.

Q. And 200 at the top? A. And 200 at the top, yes.

Q. Yes. Now, that boat that you have marked there, how did you come to place that there, and what scale did you use, and what is it for, and how many feet is it, and how many feet is it from the five fathom line and so on? A. Well, I was requested to show the boat in that position so that it could be referred to at
30 another period.

Q. Tell us what that position is. Give the position so it can be intelligently understood? A. The scale of the plan is 40 feet to the inch.

Q. How many feet north of the five fathom line, that is the south shore five fathom line, is the ship shown? A. Well, the location of the ship as shown—the centre line of the ship is shown on the five fathom line.

Q. The centre line of the ship? A. The centre line of the ship.

40 Q. Is shown on the five fathom line? A. Yes.

Mr. Donaghy: Yes, all right. Very good, your witness.

CROSS EXAMINATION BY MR. GRIFFIN:

Mr. Griffin: Well, if your lordship pleases, I would like to adjourn the cross-examination of this witness until after lunch until I can get a chance to look at these plans. I haven't seen any of them, and I am only seeing them now—

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Direct.
(Contd.)

G. S. Hanes
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Cross-exam.
 (Contd.)

Mr. Donaghy: Just pardon me, I want to deal with another cross-section here. We were dealing with the 1100 foot one.

Q. By the way, I see you have another ship shown on this.

The Court: Oh, I was just wondering about that.

Mr. Donaghy: Yes, I forgot about that.

Q. There is another ship shown on there, isn't there? A. The location of a ship is shown on the cross-section 700 feet east of the bridge.

Q. Yes, it is shown by a design of the hull in the same way.

Q. Shown by a design of the hull, the portion below water. 10

Q. Yes, and where is that location? A. That—the centre line of the ship is shown 150 feet north of the five fathom line.

Mr. Donaghy: All right, your witness.

Mr. Griffin: As I say, my lord, of course these are all brand new facts, we haven't heard a word about this.

The Court: Have you any other witness you can go on with, Mr. Donaghy? Mr. Griffin says he would like if it is convenient to you, to have a little time to look over these plans; it seems very very reasonable.

Mr. Burns: Yes, my lord, we have. 20

Mr. Griffin: And the witness has something to add.

Mr. Burns: Yes, he has to do some work at the adjournment. It will be a little out of the way this, but it doesn't matter about the order. I will call Mr. A. L. McNaughton.

ALEXANDER LORNE McNAUGHTON, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

A. L.
 McNaughton
 Direct

DIRECT EXAMINATION BY MR. BURNS:

Q. You live in the City, Mr. McNaughton? A. I do.

Q. What is your occupation? A. I am employed by the Dominion Water Power Reclamation Service as assistant power development engineer. 30

Q. Would you turn more toward his lordship and speak a little louder.

The Court: What is the name of that company, Mr. Burns.

Mr. Burns: Q. Would you repeat that, witness? A. I am employed by the Dominion Water Power Reclamation Service as assistant power development engineer.

Mr. Griffin: Can you get all that cluster, Mr. Burns?

The Witness: Assistant power development engineer. 40

The Court: Q. You don't mean the National Government?

A. Yes, sir.

Mr. Donaghy: Yes, the Dominion Water Power Reclamation Service of the Department of the Interior of Canada—it is rather long.

The Court: Yes.

Mr. Donaghy: Take your time, witness, while you are giving your evidence. And how long have you been—

The Court: I might say this—I mean about the names, I am following indeed a very good lead, I am following a very good authority in referring to the Government as National because it was mentioned by Sir Richard McBride not so many years ago, and I thought it was a very good example, so there is no doubt about it, it is the National Government he is now representing—
10 I mean is now employed by. What is exactly his position, Mr. Burns.

Mr. Burns: Assistant power development engineer.

The Court: Yes.

Mr. Burns: Of the Department of Interior of the National Government.

The Court: Yes.

Mr. Burns: Q. For how long have you been engaged on that work, Mr. McNaughton? A. 13 years.

Q. And in connection with that work did you have occasion
20 to test, investigate and look into the matters of tidal velocities at any time? A. No, not tidal velocities. I have never had any experience with tidal velocities before, but—

Q. With water velocities particularly? A. Water velocities.

Q. Generally? A. Fresh water, streams.

Q. And the matter of investigating or getting records of tidal velocities would be of the same nature? A. It would.

Q. Now, did you make any investigation of tidal velocities of the Second Narrows recently? A. I did.

Q. When? A. On the morning of October 20th last.

30 Q. And where, in the Second Narrows? A. At the two points, at the centre of the bascule span and 25—

Q. Speak louder, please—at the centre of the bascule span?
A. At the centre of the bascule span and 25 feet east of Pier 4-A.

Q. Two different points? A. Yes.

Q. Now, when you say the centre of the bascule span, that is the centre north and south? A. That is what I mean.

Q. And how about the bridge, what would be the centre east and west, or would it be the east front of the bridge or west front of the bridge? A. On the east front of the bridge.

40 Q. On the east front of the bridge? A. Yes.

Q. In the centre of the bascule span? A. Yes.

The Court: He said 25 feet east, what from, Mr. Burns? What Pier?

Mr. Burns: Q. Of what pier? A. 25 feet south of Pier 4-A.

The Court: South of Pier 4-A? A. Yes.

Mr. Burns: Q. Yes, that would be 25 feet south of the

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

A. L.
McNaughton
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. L.
 McNaughton
 Direct
 (Contd.)

south span? A. Yes.

Q. And that again would be at the east front of the bridge?

A. Yes.

Q. Now, when was that done. Would you just explain what you did in the way of your investigations? A. The velocity measurements at the centre of the bascule span were started at 2:10 A.M., and were taken at ten minute intervals at one foot below the surface and 25 feet below the surface until 3:40 A.M.

The Court: Q. You say one minute to two minute intervals?

A. Ten minute intervals.

Q. I beg your pardon, ten minutes? A. Yes.

Q. Yes? A. Approximately ten minute intervals.

Mr. Burns: That continued from 2:10 until 3:40? A. From 2:10 to 3:40.

Q. A.M.? A. Yes. There was no measurement made between 3:40 and I think 4:01. From 4:01 measurements were continued at approximately ten minute intervals until 4:30 and at half hour intervals thereafter until ten o'clock in the morning.

Q. That was with reference to this point in the bascule span which I call point "A?" A. Yes, the centre of the bascule span, 20 yes.

Q. Well, then would you give the same information with reference to point "B?" A. At Point "B" measurements were taken starting, I think at 4:01 or 4:02 and continuing until 4:30, as many measurements as possible were taken at one foot depth and at 25 foot depth.

The Court: Q. At Point "B," now what point—the point "B" you mean is that point you gave us before, 25 feet south of Pier "4?" A. Yes, my lord.

The Court: What depth, Mr. Burns, has he given us. 30

Mr. Burns: One foot and 24 feet.

The Witness: 25 feet.

The Court: Q. From one to 25 feet? A. No, just the velocities at one foot depth.

Mr. Burns: Q. And at 25 feet? A. And at 25 feet.

Q. I will get you to explain—will you please explain the method there, just giving the history if you will.

The Court: Yes.

Mr. Burns: Q. You say these experiments and investigations were made from 4:01 till 4:30, up to that time? A. Yes. 40

Q. 4:30 at this point "B?" A. Yes.

Q. Now, then, would you explain to his lordship just how these experiments are done or how do you take the measurements of the tidal velocities at that point? A. The measurements were made with a Gurley-Price current meter.

Q. What is that, speak a little more slowly? A. The Gurley-Price current meter is a standard instrument that is used—

Q. Gurley-Price, is that the name of a man? A. No, it is the name of the firm.

Q. Of the firm, Gurley-Price, just what is the next words?
A. Current meter.

Q. Current meter? A. Yes.

Q. You see we have to understand everything that is said, Mr. McNaughton? A. Yes.

Q. Go on? A. This instrument is extended in the water, with a rod of steel with six cone-shaped buckets which is revolved
10 by the course of the current, which is greater—naturally greater on the concave side of the cone than the convex. The velocity is proportionate to the speed of the water, roughly. The rate of velocity is taken with a stop watch in conjunction with an electric device for counting the revolutions.

Q. A wheel? A. Yes.

Q. Is that the regular method of getting the velocity of water—running water? A. That is the standard method of our service, and also of the United States Geological survey.

Q. Well, then, how do you apply that to these two points
20 you speak of near the surface, one foot and 25 feet. A. The meter is attached to a hanger, the weight of the hanger is 15 pound or 30 pound in this case, 30 pound lead weight. The whole of this is extended from the bridge by a wire cable, and it is let down in the first case until it is one foot below the surface—until the meter itself is one foot below the surface. The velocity is then ascertained as I have described.

Q. Yes? A. And in the case when one meter is used, it is then let down to 25 feet below the surface; but mostly we were using two meters, and one was kept about 25 feet below the surface
30 and the other at one foot below the surface.

Q. Oh, you did two simultaneously? A. Practically.

The Court: Q. Now, I understand you to say that you used two meters simultaneously in this case? A. Not altogether simultaneous.

Mr. Burns: Q. Oh, well, then—

The Court: I do not know that he wishes us to understand that he was conducting his operations with two meters or with one.

Mr. Burns: Q. Well, just to what extent did you use two meters? A. We used three meters altogether.

40 The Court: Q. Three? A. I might say there were two of us conducting these experiments.

The Court: Yes, I see.

Mr. Burns: Q. Who was your assistant? A. Mr. Whitehouse.

Q. Mr. Whitehouse? Then at times you used one meter and other times you used two in order to get the one foot and twenty-five at the same, is that right? A. Yes.

Q. Now, what was the range of tide that you were working

RECORD

*British Columbia
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Plaintiff's
Case

A. L.
McNaughton
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 —
 A. L.
 McNaughton
 Direct
 (Contd.)

on? A. I have the tide tables here myself. The ebb tide—the height of the ebb tide was 10.4 from the tide table.

Q. Yes? A. And at slack water the height was 2.5; and at the succeeding—

Q. That is giving a range of 7.9? A. Yes.

Q. Yes? A. At the succeeding high water the tide tables give a height of 11.5.

Q. Yes? A. That giving a range of 9 feet.

Q. A range of 9 feet. Now, did you observe the currents of slack water at that time, that is, the actual occurrence of it? A. No, I didn't. At the time of slack water we were busy getting ready for operations at point "B." 10

Q. Yes, that is the reason that you didn't take any observations from what point—from three— A. From 3:40—

Q. 3:40? A. To 4:01.

Q. To 4:01? A. Yes.

Q. Now, did you compile a report of your work? A. I did.

Q. Is this it? (Handing document to witness.) A. That is it.

Q. Now, will you just give this information with reference to the report: You took certain observations and Mr. Whitehouse took certain observations? A. Yes, that is right. 20

Q. Is that shown in the report as to which did which? A. It is, yes.

Q. That is under the column headed "observer" the figure "M" is for you? A. Yes.

Q. I understand; and the figure "W" is for Whitehouse? A. Yes.

Q. So to the extent of your own personal observations this report is your work? A. It is. 30

Q. And to the extent of Mr. Whitehouse's personal observations it is his work. It is a compilation between the two of you? A. My own part of the report is given in there. I don't think Mr. Whitehouse was there at that time, until it was made up.

Q. I see, you completed the report, but Mr. Whitehouse took these other observations, which you got from him? A. Yes.

Mr. Burns: I ask to have that put in.

(DOCUMENT MARKED EXHIBIT NO. 62.)

Q. Now, taking this report, Mr. McNaughton (handing document to witness)—you might state as a result of that work, what conclusion did you come to with reference to any question of difference between the surface currents and undercurrents in velocity? A. Dealing first with point "A"— 40

The Court: What is this he is looking at?

Mr. Burns: Q. What is that, witness? A. I am looking at my chart of velocities.

Mr. Burns: That is the chart, my lord, accompanying the report.

The Court: That is accompanying the report, that will be 63.

Mr. Burns: Well, it is part and parcel—it is bound with the report, my lord.

The Court: Oh, I beg your pardon, yes. He is dealing now—he says that is the conclusion as shown in the velocity chart, is that it?

Mr. Burns: Q. You were referring to your velocity chart?

10 A. Yes.

Q. And what is your evidence. Explain it? A. Dealing first with point "A," the velocities at the surface before low water slack are higher than the velocities at—I mean if the velocities at the surface—the velocity of one foot depth was higher than that at 25 foot depth by probably an average of 33 per cent.

Q. Yes?

The Court: Now, just repeat that, you see. You speak indistinctly and you have got your back turned to me.

Mr. Burns: Would you move over towards his lordship.

20 The Court: Q. Just repeat that clearly. A. I said, my lord, that—

Q. Just turn around. You must have a really good voice, you have to learn you are in big room like this. A. Yes. Dealing first with point "A," the velocities at the surface, that is at low water slack are greater than the velocities at 25 feet depth by approximately 33 per cent.

Mr. Burns: Q. That is 33 per cent. of the velocity at 25 foot depth—to 33 per cent. of the velocity at one foot? A. Yes, 33 per cent. of the velocity at 25.

30 Q. That is 33 per cent. of that velocity greater? A. Yes. That is just a rough estimate.

Q. Just wait now, just wait. You are now at the surface, at point "A," and you say that—just exactly what time is this?

A. This—the observations previous to low water slack.

Q. And how much previous to the low water slack when you began? A. From 2:10 to 6.

Q. Yes, but I don't want exact figures, I want the time. How long was it? A. For about an hour and forty minutes previous to low water slack.

40 The Court: Yes.

Mr. Burns: Q. You spoke of the one foot below the surface as being the surface? A. Yes.

Q. In these remarks? A. Yes.

Q. Yes? A. After low water slack—

The Court: One foot below the surface—what?

Mr. Burns: He speaks of as the surface.

The Court: Q. Very well, then, one foot below the surface;

RECORD

*British Columbia
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Plaintiff's
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—
A. L.
McNaughton
Direct.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Plaintiff's
 Case
 —
 A. L.
 McNaughton
 Direct
 (Contd.)

and you term your 25 feet below the surface as what? A. When I am speaking of previous to low water slack, my lord?

Q. Yes, previous to low water slack. You have two meters in operation, is it? A. Yes, we did at that time and at that point.

Q. Yes, that is what I mean, at that point? A. Yes.

Q. Yes, No. 1 was submerged one foot below the surface? A. Yes, my lord.

Q. Also one was submerged 25 feet below the surface? A. Yes.

Q. Now, what is the difference in velocity, your own idea, between the upper and the lower, which is the greater, and by how much? A. The velocities at one foot below the surface are greater than the velocities at 25 feet below the surface.

Q. Yes, by how much? A. By approximately 33 per cent.

Q. Yes? A. Of the lower velocities; the upper velocity at 25 feet.

Q. Both going the same way? A. I can't say that absolutely, my lord.

Mr. Burns: Q. I didn't hear, what is your answer to that? 20
 A. I can't say that absolutely at all stages, that is only the velocity going very slow, I have no means of knowing what direction the current is at 25 feet below the surface.

Q. Well, but at the stage where the velocities are quite capable of being measured are you able to say whether they were going the same way or not, both of them? A. Down to a velocity say of 1 foot per second.

Q. Yes? A. I would be able to say from the angle of inclination of the meter—

The Court: That is what I was thinking of. A. Yes, with 30
 the velocity at 25 foot depth—the velocity of direction at 25 foot depth was approximately the same as the direction on the surface.

Mr. Burns: Q. Yes; that is down to a point of 1 foot per second, do you say? A. About 1 foot per second, it must be by about one foot per second.

Q. I understand that and below that, on account of the slowness of the current you are not able accurately to make a statement, is that what you mean? A. That is right. The cable makes it nearly vertical, that there is no observed inclination.

Q. Yes, but still that instrument is so fine that the velocity 40
 could still be recorded below one foot per second? A. Velocities are recorded, but not with the same accuracy.

Q. Well, then, coming on to slack water, what is the position with reference to the surface and under the surface? A. Well, I didn't observe the water surface from 3:40 a.m. to about 4:01.

Q. Well, when was slack water? A. As nearly as I can judge from the convergence of the lines of velocity it was about

3:50 a.m.

Q. About 3:50 a.m.? A. Yes.

Q. At that time, at 3:50 a.m. was there any perceptible movement of the water on the surface and the water underneath? A. I wasn't observing it at that time.

Q. Well, then, when the tide commenced to make, what was the position? A. After low water slack the velocities—

The Court: Perhaps this would be a good time to adjourn.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

A. L.
McNaughton
Direct.

(Contd.)

(COURT ADJOURNED AT 1 P.M. TO 2:15 P.M. OF
THE SAME DAY.)

10

Vancouver, B.C., December 5, 1928, 2:15 p.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT.)

Mr. Burns: If your lordship pleases, shall I proceed with the witness we left at the adjournment or will the cross-examination of Mr. Hanes proceed?

The Court: Just as you prefer, if you would like to finish with this witness.

Mr. Griffin: That would be all right.

ALEXANDER LORNE McNAUGHTON resumes the stand.

20 DIRECT EXAMINATION CONTINUED BY MR. BURNS:

Q. Now, Mr. McNaughton, you were dealing with the tide, ebbing towards low slack? A. Yes.

Q. Do you wish this? A. Yes, I would like to have the report. It is on the desk there.

Q. And you stated that the surface velocity during that time was greater than the 25 foot velocity. Would that obtain throughout the whole time of the ebb down to low slack? A. Well, I could not say before the time of my observations.

30 Q. No, I mean during your observations, of course? A. Yes, during my observations.

Q. Would you say that would obtain down to the point where there was no perceptible velocity, or would that 33 per cent. vary? A. The 33 per cent. is an average. It is quite variable.

Q. Could you give more definite evidence with reference to that then? A. On the last observation which I have at 3:40 a.m. the velocity one foot below the surface is half a knot per hour and the velocity 25 feet below the surface is 22/100ths of a knot per hour.

40 Q. And then that works up to what in order to get the average working back? A. My average is taken from an inspection of this plan and I do not intend it to be very accurate.

Q. It is an approximate average? A. Yes.

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 A. L.
 McNaughton
 Direct
 (Contd.)

Q. Then could you say as to whether at any time there was any perceptible velocity, as to whether you could size up whether the current was going the same direction or not. Did you see any evidence of the current below at the 25 foot point going in any other than the same direction, than the current at the 1 foot point?

A. I did not.

Q. Then after passing through slack water what is your evidence as to the difference between the surface current and the 25-foot current, from 4:01 or whatever that point was? A. Yes, 4.01 is the time of the first observation. At that time the velocity at the 25 foot depth was greater than the velocity one foot below the surface. 10

Q. To what extent? A. The velocity at one foot below the surface was 82/100ths of a knot, no pardon me, the velocity at one foot below the surface was 48/100ths of a knot per hour and the velocity at 25 feet below the surface was 7/10th knots per hour.

Q. How does that proceed to the end of your observation?

A. On the other observations the velocity at 25 foot depth was the greater, at others.

Mr. Griffin: I cannot hear you. A. At other observations the velocity at 25 foot depth was the greater and at some observations of the velocity at the one foot depth it was the greater. They alternated throughout the range. 20

Q. Alternated? A. Well, alternated is not the word, the line of velocity crossed several times in the chart.

Q. How long did those particular observations continue?

A. Until 10 a.m. That is approximately 6 hours and 10 minutes after what we observed as low water slack.

Q. And your report gives the details of what you are now stating? A. Yes. 30

Q. What have you to say as a result of your observations as to a comparison of the last hour of the ebb with the first hour of the flood tide with reference to velocity generally speaking?

A. The velocity of the last hour of the ebb decreased more slowly than the velocity of the first hour of the flood increased.

Q. To what extent would you define that. Is the difference greater or not? A. The velocity at the first hour of the flood is about two and one-half knots an hour. The average velocity at one hour before the water is slack is approximately two knots per hour, so that there is about 25 per cent. difference. 40

Q. You say that the average of the first hour of the flood would be 25 per cent. greater than the last hour of the ebb. Is that what you are stating? A. The velocity attained the first hour of the flood is 25 per cent. greater than the average velocity one hour before.

Q. You have not the average of the first hour of the flood?

A. No.

Q. So that the ebb tide would diminish at a lower rate of some kind as compared with the increase in the flood tide during the first hour of the flood? A. Yes.

Q. Could you figure that from your deductions, 25 per cent. or what? A. Yes, considering only the velocity attained one hour before and one hour after.

Q. Now, then, as to the rate of this velocity, what do you say as to the velocity, the speed of it, or the rate of the velocity say at slack tide and fifty minutes, 25 minutes each way from slack? A. What are the velocities?

10 Q. I mean what speed; I mean the rate of velocity, what would it be; what would be the greatest rate? A. 25 minutes?

Q. Each way? A. Yes, 25 minutes before low water slack taken at 3:50 a.m. the velocity on the surface is approximately one knot per hour and the velocity at the 25 foot depth is approximately $\frac{1}{2}$ knot per hour, a little less than $\frac{4}{10}$ ths I should say from the plan.

Q. That is on the ebb? A. Yes.

20 Q. Then, on the flood, take it for the 25 minutes? A. At 25 minutes the velocity attained would be approximately one knot and a quarter per hour on the surface and the same at the 25 foot depth.

Q. Now, then, will you give the same figures for the hour each way? A. One hour before low water slack the velocity on the surface is approximately $2\frac{1}{3}$ knots per hour and the velocity at the 25 foot depth is approximately one and one-half knots per hour.

Q. Yes? A. One hour after low water slack the velocity on the surface is approximately $2\frac{1}{2}$ knots per hour and the velocity at a depth of 25 feet is approximately $2\frac{4}{10}$ ths knots per hour.

30 Q. When did the maximum velocity of that tide; when was that reached after the tide had turned. I am speaking of the flood? A. Yes, the maximum recorded velocity was reached at 3 hours and 40 minutes after the tide had turned.

Q. And what was that? A. 3.6 knots per hour at a depth of 25 feet and 3.5 knots per hour at a depth of 1 foot.

40 Q. Would you let me see that book for a minute, please. Possibly you could give me the information. How many observations did you make at the point "A?" A. Ten observations before slack, that is ten observations at one foot below the surface and ten at twenty-five feet below the surface.

Q. Yes, speak up? A. Seventeen observations at one foot below the surface after slack.

The Court: Where, at "B" or "A." A. At the point "A."

Mr. Burns: "A" we are at, my lord. A. And 14 observations at 25 feet below.

Q. 17 at 1 foot below and 14 at 25 feet below the surface? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseA. L.
McNaughton
Direct.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case

A. L.
McNaughton
Cross-exam.

Q. Then how many observations did you take at "B?"
A. Mr. Whitehouse took all the observations at "B." He took also some of these at "A."

Q. I understand that is already covered. That is all.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Mr. McNaughton, I think I have only one question. I think you found that low slack to the best of your observation was 3:50? A. Yes.

Q. And I got it from another witness that low slack on the tide table was 4:01. I will not bother checking that? A. I have 10 done that.

Q. In other words, the tide turned at eleven minutes before the tide table time? A. Yes.

Q. Thank you.
(Witness aside.)

G. S. Hanes
Direct

GEORGE SAMUEL HANES, resumes the stand.

The Registrar: You are still under oath? A. Yes.

CONTINUATION OF DIRECT EXAMINATION
BY MR. DONAGHY:

Q. Mr. Hanes, on exhibit 60 you were requested to draw a 20 line during lunch time to make it blue, produced easterly at right angles to the bridge. Have you done that on this exhibit 60?
A. Yes, I have drawn a line at right angles to the bridge and marked it shown in blue.

Q. You were likewise requested during lunch to show on exhibit 58 the dimensions of the obstructive cross-section of the fill, that is, that would obstruct the easterly current to show the base and perpendicular and the angle. Have you done that on exhibit 58? A. Yes, I placed the figures on that.

Q. Just state what they are at low tide—the base— A. 25 30 feet.

Q. The base of the fill under water is 25 feet? A. Yes.

Q. Yes? A. And the depth at the outer edge is about 8 feet.

Q. The depth of the fill or the water? A. Yes, well, the depth of the fill.

Q. All right. How low is it below low water, the toe below the surface of the water? A. 8 feet.

Q. I just thought you were confusing yourself again as you did this morning. Does it run to practically zero at the toe? 40

A. It runs to zero at the toe.

Mr. Griffin: I did not hear that.

Mr. Donaghy: Q. Does it run to zero at the toe, at the toe of

the fill? A. Yes.

Mr. Griffin: What does zero mean, I do not understand this. I wish you would enlighten me.

Mr. Donaghy: I know what it is. Get a dictionary.

Mr. Griffin: You might make it plain to me. There is no object of leaving it in the dark.

Mr. Donaghy: Zero is nothing.

Mr. Griffin: You were speaking of the water. Perhaps his lordship knows.

10 The Court: The toe of the fill runs to nothing in the bed of the stream.

Mr. Griffin: I catch the point now.

Mr. Donaghy: Q. The south portion of the fill under low water, to what depth is it under low water? What is the perpendicular line of the fill under low water at the south part? A. Eight feet.

Q. At the south end. Is that shown here. Check me, as you know this is going in for the last time as accurate. What is the perpendicular line? A. It runs to zero at the south end.

20 Q. You are talking of the fill? A. Yes, eight feet running to zero.

Q. Where is the toe of the fill, I thought it was at the north end? A. The water is eight feet deep at the north end.

Q. Where is the toe of the fill at the north end or the south end? A. The north end.

Q. Do not confuse anything for goodness sake. You have told us that is zero. It becomes thicker or deeper as you go from the south? A. I understood the question, the toe of the fill runs out to zero. It runs out to eight feet of water at the north end.

30 Q. We are not asking for the depth of the water out there.

Mr. Griffin: Do not cross-examine your own witness.

Mr. Donaghy: I am only correcting it so that it will be understood.

The Court: Listen to what counsel is asking you. It is perfectly clear what he is asking you.

Mr. Donaghy: Q. I do not want to know the depth of the water north of the fill, I have no desire to know. Where the low water line is on the south shore, how high up the fill does the water line run perpendicularly, vertically? A. Eight feet.

40 Q. That is clear. Is that shown here? A. Yes.

Q. Where is the figure? A. Where my finger is.

Q. Where is the low water mark on this fill?

The Court: Put the letter L. W., so that we will know. A. It is marked already L. W.

Mr. Donaghy: Q. The perpendicular line is about eight feet at the south end? A. Yes.

Q. What is the base line of the fill under water? A. Twenty-

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Direct.

(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Direct
 (Contd.)

five feet.

Q. Read what you have shown here so we will have it on record. Read the figures marked in red showing the dimensions?

A. I have shown the dimensions on the part of the fill under water on the foreshore as it was at 25 feet. I have shown the vertical depth of 8 feet of water at the toe of the fill at the south end and I have shown 20 feet as the—at the low water mark, of a distance where the low water intercepts the foreshore to the outer edge of the fill.

The Court: Yes, we have it now. 10

Mr. Donaghy: Q. Have you made this computation at high water? A. Yes.

Q. All right give that. A. At high water the fill measures 155 feet from the high water mark to the pier cylinder, the south cylinder of Pier No. 5. That measurement is taken on the top of the fill.

Q. What is called the edge? A. Yes, the edge of the fill.

Q. Very good. Now, go on and give these dimensions, showing the face of the obstruction to the current going east? A. Well, at the south end of the fill at high water— 20

The Court: Q. Yes, yes, the south edge, call it that, that is what you mean? A. Yes, it would start at zero and running northerly the depth increases 13 feet, that is, from low water to high water 13 feet. In other words there would be a triangle 13 feet high and 150 feet long on one side and approximately the same on the other running out to zero.

Mr. Donaghy: Q. That would be the dimension of the obstruction? A. Yes.

Q. Now, to a westerly current, would those obstructions be as large in dimensions, that is, obstructing water, obstructing the westerly current which of course would strike the east bank of the fill? A. A current flowing west. 30

Q. Yes? A. The current flowing west—

Q. I take it if it was the same size of a tide it would be the same obstruction? A. No, to a current flowing west the obstruction is practically nothing, because the low water mark comes to a pier on the east side of the bridge and at low water the obstruction practically—

Q. In other words, it shows the sweep a little more northerly as going east there on the fill, the high water mark naturally? 40

A. The low water mark strikes the east side of the fill at Pier No. 5 and then it swings to the south of the bay west of the bridge.

Q. Are you talking of the natural low water mark? A. Yes.

Q. Regardless of the fill? A. Well, the fill follows the low water mark around with the bay.

Q. I am talking of the original shore line, please confine yourself to that regardless of the fill? A. Yes, I was speaking

of the original shore line.

Q. Have you shown on this plan the original shore line?

A. Yes.

Q. Where? How was it marked? A. It is marked low to the level—

Q. It is rather interesting, my lord. You might care to see that.

The Court: Yes, thank you.

Mr. Donaghy: Q. You are, I take it, the engineer for the
10 Bridge Company, too, are you? A. I am civil engineer for the
Bridge Company.

Q. And what uses is this bridge put to. What use is made of it since it was built? A. The bridge is used for a railway bridge, a vehicular traffic bridge and a pedestrian bridge.

Q. Connecting the— A. Connecting the south shore The City of Vancouver, with the north shore, the District of North Vancouver, and then the City of North Vancouver and District of West Vancouver.

Q. Is this bridge connected up with any railway? A. Yes,
20 the south end of the bridge is connected up with the C. P. R. and the north end of the bridge is connected with a line of railway which runs westerly into the City of North Vancouver and is being connected with the Pacific Great Eastern Railway by the construction of a subway which is practically finished.

Q. Is the bridge made use of for railway traffic and freight?
A. Yes, the bridge is made use of for railway traffic for hauling grain cars over to an elevator which has been constructed on the north shore and for handling lumber from the sawmills and timber—

30 Mr. Griffin: I cannot see to what issue this is relevant and therefore I take objection.

Mr. Donaghy: It is on an issue that comes up on a point of law and I do not want to argue the point of law now.

The Court: He says that it is being used for railway traffic for the purposes of laying a foundation for an argument at law.

Mr. Griffin: My point is that it is not on any of the issues raised.

The Court: It is exactly what was called to mind yesterday and he gave assurance that it is directed to that, and I take counsel's assurance. A. For handling timber to the timber export
40 docks and for handling general merchandise and coal and other public necessities.

Mr. Donaghy: Q. And the grain which is taken across to the elevator on the north shore, do you know whether that grain is being exported out of the harbour? A. The grain is exported on ocean going ships.

Q. Will you state to his lordship a general description of

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

G. S. Hanes
Direct.

(Contd.)

RECORD
*British Columbia
 Admiralty Dist.*
 Plaintiff's
 Case
 —
 G. S. Hanes
 Direct
 (Contd.)

the traffic, of the vehicular traffic that goes over the bridge? A. The vehicular traffic is quite extensive and is rapidly increasing. On busy days the number of autos crossing the bridge is as high as 7,000 automobiles.

The Court: Q. You must speak louder. You do mumble. I have spoken to you several times about it? A. On busy days the vehicular traffic amounts to about 7,000 vehicles a day, about 20,000 passengers.

The Court: The vehicular traffic is how much a day? A. On a busy day it is up to 7,000 vehicles per day. 10

Q. Yes? A. And about 20,000 passengers.

Q. 25,000 passengers? A. About 20,000 passengers.

Q. About 20,000? A. Yes, my lord.

Mr. Donaghy: Your witness.

G. S. Hanes
 Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Mr. Hanes, were you ever at any time a director of the Bridge Company? A. Yes, I was.

Q. What year? A. 1913, 1915 and 1916.

Q. All of the earlier years? A. Yes.

Q. Are you now? A. No. 20

Q. You were, were you, an officer of the Bridge Company—were you an officer of the Bridge Company at any time, an official like the president, the secretary or the manager? A. No.

Q. You have been their engineer, I suppose, right from the start? A. No, only since the bridge was constructed.

Q. Now, just for the purposes of the record I just want to show you—you remember the official opening of the bridge in 1925? A. Yes, I do.

Q. I suppose this little book is familiar to you? A. Yes.

Q. This is a little book commemorating the opening of the 30 bridge. I just show you this picture on page 12 purporting to show the condition of the construction on February the 27th. Is that a correct representation?

Mr. Donaghy: You should ask him if he remembers the date.

A. I do not remember the date of February 27th, but that is a photograph taken of the work.

Mr. Griffin: Q. Using the photograph, so far as it does to assist your memory, does that portray the state of the construction on or about that date? A. I could not say that it does on or about that date, but that is a photograph of the work carried out. 40

Q. Could you place the date? A. I could not, I do not know.

Q. See that embankment there. Is that part of the rock fill that we have been discussing? A. Yes, I think it is.

Q. I will just tender this to show that rock fill. I will mark it rock fill right on the bottom? A. That rock fill as shown is

around the bay to the west and south of the bridge.

Q. Yes, I see that. A. It is a long distance from the bridge.

Q. It is the one that we have been discussing, merely a continuation of it? A. Yes.

Mr. Donaghy: That is on page what?

Mr. Griffin: Page 12.

The Court: What exhibit is that?

The Registrar: This will be exhibit 63.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Cross-exam.
(Contd.)

(PAGE 12 OF BOOKLET MARKED EXHIBIT NO. 63)

10 Mr. Donaghy: That is only page 12. The whole book is not going in.

Mr. Griffin: I am not trying to get it in.

Q. Here is another one, page 18, showing the condition of the construction purporting to be on the 28th of April, 1925. Does that to your recollection show the state of the construction about that date? A. I could not say as to the date, but it is a photograph showing the construction.

Q. In November, 1925, were you familiar with this book?

A. I possibly have seen the book, but I had nothing to do with preparing it and perhaps I did not read it through.

20 Q. I am asking you as a public member of North Vancouver whether or not you are familiar with it? A. I had a copy of the book at that time.

Q. Did you find it to be correct in the obvious important details as to the dates of construction? A. I never gave it a thought because I was not interested in it.

Q. Have you the slightest doubt that these photographs taken by Mr. L. Frank and published in the book show the state of the construction on the dates that they bear date? A. I think they

30 show the construction at some period of the construction.

Q. Have you any doubt that the dates are correct? A. I could not offer an opinion on that. I do not know.

Q. I am asking if you have any doubt on it.

Mr. Donaghy: I submit that that is hardly a fair question.

The Court: He says that he does not know anything about it.

Mr. Griffin: Very well, my lord, I will leave it at that.

Mr. Donaghy: Pages 12 and 18 are the exhibit.

The Registrar: Yes.

40 Mr. Griffin: Q. I am now showing you a survey plan that has been put in as exhibit 58. On what day was the survey made which is the foundation of this plan? A. September 29th, 1928.

Q. All made on that day? A. Yes.

Q. During what hours? A. The surface measurements were made on that date in the afternoon.

Q. Between what hours? A. Between noon and five o'clock.

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Cross-exam.
 (Contd.)

Q. The surface measurements? A. Yes, the soundings were taken at another time.

Q. When were the soundings taken? A. I have been taking those soundings for years.

Q. To what soundings are you now referring to? A. The depth of the water at low water.

Q. With the exception of these soundings I see indicated here the balance of it, the whole survey was made on that one day?

A. Yes.

Q. Did you take the low water contour? 10

The Court: What is the date he said, Mr. Griffin?

Mr. Griffin: The 29th of September, 1928.

Q. Was the low water contour shown on this plan plotted on the ground with a rod and level? A. No, I had the marks of it on the rocks.

Q. Was it down with a rod and level? A. Low tide mark was taken with a rod and the depth of water was taken by soundings and levels.

Q. Did you plot the contour on the ground with a rod and level? A. I did it with a rod. 20

Q. How about levels? You would need a level to do that, wouldn't you? A. I did not run a level over the top of the fill, because it is above high water now and always has been.

Q. Take the plan part, did you mark this contour of the low water line on the ground, ascertain it and fix it with a rod and level? A. No, not with a rod and level but I visited those portions at low water and marked the point where it came in contact with the fill.

Q. Then you did not do it in the way that I described, and you did not put any pegs in? A. No. 30

Q. Shortly put you did it by tracing the direction with the eye on the ground? A. Your low tide mark indicates the rock fill.

Q. Just with the idea, by the eye? A. At that point, yes.

Q. And was its horizontal position then fixed by you with a transit and tape? A. The horizontal position was fixed by tape and measurement.

Q. Where was the point of measurement then from which you made your measurement? A. I produced the east line of the bridge back to high water mark and took the measurements from that. 40

Q. Have you got your measurements back to high water mark? A. I haven't it on the plan—

Q. Have you got them anywhere, these measurements? A. I have them in the original note books.

Q. Where are they? A. In my office.

Q. Where was the point from which you started on this

bridge? A. I produced the east line of the bridge back to high water mark and measured that distance and fixed the point and measured east and west from that to get the width of the fill.

Q. You measured the approach, started from this corner of the bridge. I will mark that "A." You started from the point "A?" A. Yes.

Q. And measured straight south along the line of the bridge to high water mark? A. Yes.

Q. And then from there you made the points in the fill where they join the high water mark north, east and west and you measured from those? A. Yes, a distance of 75 feet this direction. The distance is scaled this way.

Q. Having found that out you fixed the low water mark in relation to the high water mark? A. I got a point on the fill on the west side where the low water mark intersected the rock fill.

Q. From where did you measure that, so as to see if this plan is correctly laid out? A. I measured from this place where the low water mark intersected the rock fill at the back of the fill.

Q. Where are those measurements? A. It is drawn to scale.

Q. You have not the measurements there? A. They are in the note book. You don't put the measurements on the plan. The plan is drawn to scale.

Q. What was the state of the tide that day that you made these measurements, do you know?

Q. The low tide mark was fixed on a different day from the measurements on the surface.

Q. What day was the low tide mark fixed then? A. The last day of October, Wednesday, October 31st at 1:30 in the morning I visited that site and located that point.

Q. Wednesday, the 31st of October? A. Yes.

Q. At what hour, in the morning? A. Yes.

Q. That was dark then? A. Yes.

Q. How low was the tide that morning? A. It was .5 tide.

Q. You had the survey made previously on the 27th and 29th of September? A. Yes, I had checked it again on October 30th and everything was certainly correct.

Q. You take this low tide level as being what height? A. At elevation 84.77 that is the usual elevation taken at low tide.

Q. How did you fix it on the ground, mark it? A. That is the point that the elevation of the low tide intercepts the rock fill. The level is where it is on the rock fill.

Q. What way did you mark it on the ground so that it could afterwards be measured? A. I did not drive stakes to measure the same point again.

Q. So that when the tide came up to the place marked men-

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseG. S. Hanes
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Cross-exam.
 (Contd.)

tally it was all covered? A. Yes.

Q. When you made the survey the place selected as low water mark was under water? A. Yes.

Q. And it was only a matter of memory how far north it was from the place where you were standing on the 29th of September? A. Yes, there were no marks fixed to measure it. It is the same point again.

Q. I want you to answer the question to my satisfaction. It was only a matter of memory how far north to place it? A. Yes.

Q. You will agree with me that the slightest error in placing the low water mark effects this question very vitally? A. No, if there is five or ten feet difference, it would make no difference whatever.

Q. What is the percentage of the slope on that shore from high to low water, do you know? A. Yes.

Q. What is it? A. There is a slope of 13 in 130 feet.

Q. You are quicker at figures than I am, what percentage is that? A. About 10 per cent. or 11 per cent.

Q. Therefore, it is a 10 to 1 drop? A. Yes, roughly.

Q. Am I right in thinking on a 10 to 1 foot drop, every foot of level would make a difference. Would that only make 10 feet of a difference north to south on a 10 to 1 slope? A. Yes.

Q. So that we take it this way that every foot of difference in the level might put this out by 10 feet more or less? A. Yes.

Q. The day that you made the survey how long was slack water? A. Well, I was not surveying slack water particularly.

Q. I know. You could not give it to a moment, but it was a very short time? A. I could not answer that.

Q. Was it not a very short period of time? A. I could not answer that. I would presume so.

Q. So would I. It was quite a long run? A. I was not observing the peculiarities of the tide that day.

Q. Am I right in thinking the plotting of the fill had all to be done during the period when the tide was low? A. The only point—

Q. I wish you would please answer my question. I did not interrupt you a bit. You were nearly all morning and Mr. Burns had a free hand and now I want you to let us have our points out.

A. The point that I fixed in my mind as the intersection of the low tide with the fill naturally was done at low water.

Q. That was fixed on a different day. A. Yes.

Q. Please give your undivided attention to the next question. The day that you made your survey the toe of the fill was under water? A. That is the day that I made the surface measurement. I visited this site several times to arrive at the point to find out where the point of low water intersected the rock fill.

Q. You are not answering my question. I say this, am I

right in saying the day that you made the survey around the toe of the fill you had to do it, if you did it accurately, you had to do it at low water? A. The date I speak of, the 29th, I made the measurements at the top of the fill.

Q. This surface measurement at the top which is marked "toe of slope" that would have to be done when it was visible? A. Yes, but not that day.

Q. When was it done? A. I visited that site several times.

Q. When, what days were they? A. I have not the date.
10 I dated the plan the 29th because that is when I finished the plan and put my name on.

Q. They must have been earlier dates? A. Yes.

Q. Then the culmination of all these days you had to go at low water or you had to guess where the toe of the fill was? A. Yes, I went at low water.

Q. You do not know the dates and I cannot check the tides? A. I have not the dates.

Q. So no matter what the days were you made no marks from which you could delineate on the plan the distance out from the pier to the toe? A. No, I did not make any marks.
20

Q. Now, check me for a moment, take your measuring ruler, and run from low water out on exhibit 27, the length of the fill from north to south? A. Well, this—

Q. Now, do as you are asked. You have had a good opportunity to have your side of it out. Is that not right? A. This is not right.

Q. I am not suggesting that it is right or wrong. You have had your chance to make your point? A. I have answered any questions that I have been asked.

30 Q. Run off a horizontal line of the fill on exhibit 27 and tell me how many feet it is? A. This profile was made in an entirely different place.

Q. Would you please do as you were asked?

Mr. Donaghy: Speaking of exhibit 27.

Mr. Griffin: Q. Horizontally I want it. You are not doing it horizontally? A. That would be 250 feet.

Q. Even, I do not contend for so much as that. I think you are still wrong? A. This scale is 1 inch to 50 feet.

40 Q. Now, then, if you do as I ask, which is all you need to do—this is a much better ruler than that one of yours. Yours is not quite straight. I want it on the low water level. Run it off until you strike the low water line to the best of your ability and bring it out about there. Put your measure there and run the line out until you strike the white line along the level of low water. How far is that? A. That distance that you indicated to me would be 50 feet.

Q. Isn't it 75 feet. Do it again. It is an inch and 3/5ths,

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Cross-exam.
(Contd.)

isn't it? A. No, it certainly is not.

Q. From the toe of the fill, measure out from the toe? A. From the toe?

Q. Yes, certainly? A. That is an inch and a quarter.

Q. Well, we are not far apart. That represents how many feet? A. About 62 feet, but that profile is made not in the line of the bridge, but along the roadway which angles off to the west.

Q. You gave the distance, measuring along a straight line of the bridge 155 feet to high water mark? A. Yes.

Q. And of course if—you did not measure that to the toe, but to the south cylinder of Pier 5, didn't you? A. Yes. 10

Q. So that it would be longer if it was measured to the toe of the fill? A. Yes.

Q. And if you measured it following the slight curvature underneath the roadway, if you make your measurement along that line it would be still longer? A. Yes.

Q. In other words, it would reach the figure of 250 feet given by another witness? A. No, certainly would not. That 260 feet is the fill made in the bay to the west and to the south of the bridge. The roadway for vehicles curves around with the original shore line of the bay and that 250-foot rock fill is in the bay. 20

Q. It runs into high water mark? A. The fill that was made runs half a mile around the bay and is not shown on the profile.

Q. At the point where you strike high water mark following the line of the roadway it would reach 250 feet? A. Yes.

Q. That is all that I am asking you. Now, some discussion came up—you have been down there dozens of times and have seen that place? A. Yes, several times.

Q. And when you are looking westward at high tide at least there is a heavy wash against that fill, waves and splashing? A. If the wind is blowing. 30

Q. And if there isn't any wind blowing? A. There is no wash.

Q. You get an obvious current against it? A. When the tide is running the tide strikes there.

Q. And it is also obvious to anybody from your own plan that the same thing will occur with an ebb tide with that rock fill there along the southern shore, won't it? A. When it is about low, to the mark, about low tide level. 40

Q. And at low tide level it is there to the extent that you have said, 25 feet, it is there just the same? A. Yes.

Q. And it is a question for his lordship to decide how much it affects the current? A. Yes, I have been at the east side of the bridge and the low tide level comes on the face of the pier, and farther west it amounts to 25 feet at the westerly pier.

Q. The low tide level on your own plan only comes and

touches the backward or southerly pier of three cylinders which form Pier 5, is that right? A. No, the low tide level comes in line from the east, in line with the pier for all practical purposes.

Q. But that surely is the fill where the low tide crosses behind these piers—it crosses according to your own survey just on the very south margin of the south No. 3 cylinder, on the south of those three cylinders? A. That is correct.

Q. At any stage of the tide according to you except extreme low tide there is an obstruction of the current there? A. Yes.

10 Q. Now, a word more about the other plan that you have drawn. That is exhibit No. 60. Just hold that in your hand for a moment. Before I start on that, has any material been dumped over the C. P. R. embankment to the west of the bridge since March, 1927? A. From my knowledge I think a fill was made to hold the foundation for the Alberta Pool Elevator.

Q. Has there been throwing over of dirt and material over the railway embankment between that and the bridge? A. No, I know of nothing that has been put in the Inlet except the foundation and work in connection with the Pool Elevator.

20 Q. Is it not a fact that the low water mark west of the bridge is the same now as in March, 1927? A. I think so.

Q. In your opinion has the elevator and the elevator wharf made any difference in the tides? A. Well, I never studied that question at all.

Q. Then you don't know if that is right? A. No, I have never studied that situation.

30 Q. Now, just take that exhibit 60 in your hand for a moment. I want you to measure along your 10 degree angle line to the north of right angles. Am I right at a distance of 300 feet from the centre of the bascule a ship progressing along that line will be within 100 feet of the 5 fathom line?

The Court: What, the black or the blue line?

Mr. Griffin: This will be the black line.

Q. Measure along your own black line 300 feet from the centre of the bascule?

The Court: On exhibit what?

Mr. Griffin: It is 60, my lord.

Q. Is that right? A. This rule is not to the scale of the map so I am just a little puzzled for the moment.

40 Q. I think for this purpose you will find that the dividers will help. We are not doing calculations for astronomy, but only for navigation. See if I am correct that it is 100 feet off the 5 fathom line? A. Yes, I think that is correct.

Q. Now, then, go out to 600 feet and see if you don't get exactly the same result? A. Yes.

Q. And at 900 feet you get only 90 feet off the 5 fathom line? A. Well, I would say 90 to 100 feet.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 G. S. Hanes
 Cross-exam.
 (Contd.)

Q. And at 1200 you still only get 100 feet? A. Well, roughly 100 feet.

Q. And even when you get out to 1500 feet you have got 140 feet.

The Court: At 1200 feet it is less than 100. A. I said roughly 100 feet, sir.

Mr. Griffin: That is all I contend for. 1200 feet it is 100 feet and 1500 feet 140. He is verifying that. A. Well, I will say 200 feet at that distance.

Q. There must be a mistake. I will have to correct that. I 10 want to see. I do not want any mistake about the distances. We have agreed on them up to date. Now, witness, I think you are wrong again. There is 500 feet? A. Yes.

Q. There is the black line, 1, 2, 3 times. Now, take the 5 fathom line. That is not the 5 fathom. Are you measuring from the 25 feet all the time? A. No, it is right there.

Q. Is that right? Agreed? A. Yes, 150 feet.

Q. Even at the 10 feet I am right? A. Well, about 140.

Q. You would like to even fight for about 5 feet difference?

A. 140 feet is the measurement. 20

The Court: Q. At 1500 feet you say that it is 140 feet? A. Yes.

Mr. Griffin: I will not bother any more along that line.

Q. I want you to measure along the right angle line, the blue line to which his lordship referred and tell me whether this is correct that a ship along that line will cross the 5 fathom line at 625 feet from the bridge? A. Will you please state the question again?

Q. At 625 feet on the blue line, that is the line at right angles to the bridge, is that correct? A. What is the last part of the 30 question?

Q. The question was, does the ship strike the 5 fathom line at that point? You see clearly it does, witness. A. Yes.

The Court: 600 and— A. At 625 feet.

Mr. Griffin: Q. Now, one more. I want to carry this discussion along the blue line to 1100 feet from the bridge. Am I right that the water there is 15 feet deep? A. Yes.

Mr. Griffin: All right. No further questions, my lord. This does not seem to be a cross-section of the fill at all.

Mr. Donaghy: No, he was ordered, or at least I asked him 40 and your lordship concurred that he should bring back after lunch the plan of the cross-section of the Second Narrows at the bridge site. I asked him if he had the plan and he brought it.

Q. You brought it? A. Yes, that is the plan showing the cross-section from which I arrived at the area of the cross-section.

Q. Under the bridge? A. Yes, under the bridge.

Mr. Griffin: Is my learned friend putting this in?

Mr. Donaghy: Yes.

Q. This is the plan showing the cross-section of the area at the Second Narrows at the bridge? A. Yes.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

(PLAN PRODUCED MARKED EXHIBIT NO. 64)

Mr. Griffin: Q. Just a word about this document and the other one exhibit 61. These cross-sections on exhibit 61 are taken simply from the soundings on Mr. Parrizeau's plan? A. Yes.

G. S. Hanes
Cross-exam.
(Contd.)

Q. They are not your own work?

The Court: Q. Mr. Parrizeau's plan, that is the marine chart? A. Yes, my lord.

Q. That is the marine chart? A. Yes, known as the Parrizeau plan.

Mr. Griffin: Now, the further one put in as exhibit 64 that is made from your own soundings with a lead along the bridge line? A. Yes.

Q. Does it include the area dredged out under the bridge on the north side? A. Yes.

Q. Do you know the cross-section area at 1100 feet east of the bridge? A. No, I did not figure it at that point.

Mr. Donaghy: Thank you.

Mr. Griffin: Thank you.

(Witness aside).

Mr. Burns: I will call Mr. Whitehouse.

ARTHUR CECIL WHITEHOUSE, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. BURNS:

A. C.
Whitehouse
Direct

Q. Mr. Whitehouse, you are the Whitehouse mentioned by Mr. McNaughton in giving evidence here today? A. Yes.

Q. You were assisting him in connection with this investigation as to tidal velocity at the Second Narrows? A. Yes.

Q. You heard his evidence? A. Yes, I did.

Q. With reference to that report, being exhibit 62, what part of those observations or that investigation did you do. Take the point "A" first? A. I took all the 25 foot velocities from 2:10 a.m. to 3:40 on the ebb tide and the surface or 1 foot velocity and the 25 foot velocity from 5 a.m. to 7 a.m. at the point "A" and both the surface and 25 foot velocity at the point "B" from 4:02 to 4:34 a.m.

Q. The point "B" is 25 feet— A. 25 feet south of pier 4-A.

Q. You did all that yourself at the point "B"? A. Yes.

Q. How many? A. There are five surface velocities and 5 20-foot depth velocities.

Q. Was the depth there 20 feet? A. The surface and 25.

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseA. C.
Whitehouse
Direct
(Contd.)

Q. 25? A. Yes.

Q. Did you use one meter or two meters, do you remember?

A. I think I used two meters there, I am not sure.

Q. At any rate, the times of the respective readings or observations are set out in that report? A. Yes, varying about two minutes.

Q. Wouldn't that tell you? A. Yes, the times are set out there. I can tell you whether there were two meters there or not. Yes, there were two meters used at that point.

Q. Now, you did all of point "B" and as I understand it 10 where the observer's initials are set out at the point "A" the "W" refers to you? A. Yes.

Q. You corroborate Mr. McNaughton with reference to the accuracy of the work, do you? A. Yes, I do.

CROSS-EXAMINATION BY MR. GRIFFIN:

A. C.
Whitehouse
Cross-exam.

Q. Mr. Whitehouse, there is only one question I want to ask, did you hear the evidence given by Mr. McNaughton? A. I did.

Q. He gave the evidence as you remember that at 4:01 the surface tide was running at a speed of .48 knots and at 25 feet at .70 knots. 20

A. At point "A" was that?

Q. I have forgotten which place. You might look it up? A. Yes.

Q. Have you got those two places? A. Yes.

Q. In other words, the sub-surface current runs double at that time almost as the surface current? A. Well, not double as fast.

Q. But the relationship shows that it is very much faster?

A. Yes.

Q. I suppose the proper inference from that is that the surface current began first? A. Not necessarily, the lower velocity was probably taken several minutes after the surface velocity. The time is not noted. 30

Q. It might have been the other way. It may have been taken first? A. I hardly think so. It may have been.

Q. But, you were using two meters there? A. At that point there was one meter used.

Q. Therefore it might have been before or after? A. It might have been.

Q. And therefore as you had only one meter and that item 40 is first, you cannot draw any deduction? A. I did not take those velocities at that point and I cannot say.

Q. All right. Thank you.

(Witness aside).

Mr. Burns: I will call Mr. Hayden.

SYDNEY CUTHBERT HAYDEN, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
S. C. Hayden
Direct.

DIRECT EXAMINATION BY MR. BURNS:

Q. Mr. Hayden, you were or are in charge of the tidal current surveys for the national government on the Pacific Coast?
A. Yes.

Q. What experience have you had in tidal work? A. Practically thirty years.

Q. How long have you been on the Pacific Coast? A. 10 Twenty-three years.

Q. I understand that your work consists of your obtaining and recording records of tides in the different harbours of British Columbia? A. Yes.

Q. And working up the tide tables? A. Yes.

Q. With reference to the Second Narrows you are familiar with the Second Narrows? A. Yes, I know the Second Narrows.

The Court: Did I understand you to say that you had charge of the compilation and issuing of the tide tables? A. Yes.

Mr. Burns: Q. And you had investigated the Second Narrows in connection with your work from time to time? A. Oh, 20 yes, at different periods.

Q. Have you taken observations there in relation to the surface and undercurrent, if any? A. In 1919, I did.

Q. In 1919? A. Yes.

Mr. Griffin: My friend is limited to what this witness knows personally.

Mr. Burns: I have led up to it on that basis.

Q. You have taken personal observations there in 1919 in respect to that particular matter? A. Yes, I think myself personally. 30

Q. What observations were they? Will you describe what you went through? A. I used what we call a deep fan about 5 feet, with four sides to it so that it will catch the current at four different angles and I weighted it and lowered it over the side of the boat on a small sounding wire. I would start as soon as I could comfortably anchor the boat there in the Second Narrows about three-quarters before low slack.

Q. Towards the end of the ebb tide? A. Towards the end of the run out and we would lower it over and take the inclination of the water with the clinometer and continue about every five minutes until it become plumb, straight up and down, and we would call that slack water until the inclination of the wire was reversed the other way and I would still measure it up to such a point until I had to get away when it had too steep an angle. 40

Q. Would you say what time that would be on the ebb tide and what length of time on the flood tide that you could do the

RECORD

British Columbia
Admiralty Dist.S. C. Hayden
Direct.

(Contd.)

work. It depends on the range of the tide? A. Yes, I took these on the big tide, practically zero tide or nearabouts.

Q. That is the long run out? A. Yes, and you could not take more than thirty minutes on each side of slack water.

Q. Did you confine your work to the long run out or did you take medium tides or less than medium? A. I made it on three different days, on the long run out, and then on the opposite side of the month when the tide was fairly even, when the moon was on the equator, when the run is equal, and I also took that for three days.

The Court: It is hard to follow you. You drop your voice. You took observations for three days on the long run out? A. Yes.

Q. And corresponding observations on the long run in? A. No, the long run out and run in would be the same time, and then the opposite side of the month when the run was equal I measured it on three different days.

Mr. Burns: As a result of this work, Mr. Hayden, did you come to a conclusion as to the relative directions of the current, the surface current and the undercurrent, if any? A. Yes.

Q. What was the result? A. The surface and undercurrent at the time I made these observations was practically the same.

Q. With your knowledge of the Second Narrows and waters of that nature have you ever known of an undercurrent preceding the surface current in the turn of the tide, that is, the making of the flood? A. Personally I never made any observations of the undercurrent in any other test. Oh, yes, I should not say that. I did at the First Narrows. The First Narrows and Second Narrows are the only two passes on which I made any tests on the coast.

Q. Did you meet that any time in your work, that phenomena? A. No.

Q. What is your opinion of narrows, such as the Second Narrows, as to whether that is possible or not? A. No, I don't think it is possible.

S. C. Hayden
Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Mr. Hayden, as a matter of fact, what would your view if it was established to you by an investigator whom you believed that he did find conditions of, we will say, flood on the bottom and ebb on the surface?

Mr. Donaghy: I submit that is not a proper question, what would you conclude if it was established by an investigator whom you believed. He cannot proceed to give us any evidence.

The Court: It is not a very ethical question.

Mr. Griffin: The witness may be able to establish a theory for me.

The Court: You say that if a man establishes something to the contrary to what he thought what would he think?

Mr. Griffin: If you say that it cannot be put I bow to it.

The Court: It is a self evident question. I am not going to stop you. If you think for a moment you will see that it is not going to help you.

Mr. Griffin: We have the evidence that it occurred.

The Court: It is much simpler to have you ask the question if you think it is of any use.

10 Mr. Griffin: I want to see the theory behind it.

Q. I am pointing out the diver Bruce who did dive on the bottom deposed that he found that condition. Can you give any explanation of it? A. Well, I was never down diving, therefore, I do not know.

Q. Therefore, so far as you are concerned it might occur, and as far as you know to the contrary it could occur? A. These observations that I took were at 4 fathoms. I presume that he was speaking from the very bottom.

20 Q. Certainly. So what he says might be correct in spite of what your tests show? A. That may be.

Q. In the tidal current, in the main, when the flow starts it does start below the surface? A. Not always.

Q. I did not say always, I am only trying to get general information, but the tidal flow frequently starts below the surface. Isn't that an axiom in tidal work? A. No, not always.

Q. I am not saying that. I am saying in some channels it will occur? A. I daresay.

Q. And in others it will not occur? A. I daresay.

30 Q. What is the consideration to make it occur in one and not in the other? A. If you take a narrow channel open at both ends, such as we have many on the coast—

Q. Lots of them? A. And then take a narrow channel which is closed on one end the condition is not the same.

Q. The Second Narrows would be quite a different waterway when the First Narrows was flooding, then when the First Narrows was ebbing? A. I don't know that it makes any difference.

Q. That would close the end of the waterway? A. No, if you take Active Pass as an example it is open at both ends and the tide ebbs and flows from the sea, in and out.

40 Q. Take another one? A. At the Second Narrows it can only flow to Port Moody and up the Arm, and, therefore, the upper end is landlocked and the tide is not the same. The tidal conditions will not be the same in these two waters.

Q. And you can have a condition in which the tide is stationary on the surface and still flowing below? A. Yes, such things have happened.

Q. To reverse it, it may be stationary below and overrunning

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

S. C. Hayden
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 S. C. Hayden
 Cross-exam.
 (Contd.)

on the top? A. No, not in a narrow pass where there is a high velocity.

Q. But the velocity slacks down near the end of the run very rapidly? A. Fairly rapidly, gradually.

Q. Rapidly, or gradually it drops down? A. Yes.

Q. So that this condition of overrunning of part of the stream can occur? A. Can occur if the discharge of fresh water is running out on top.

Q. I was asking could it occur without any of that. It can occur that a stream may stop, one portion of it? A. I have seen 10 that occur on the St. Lawrence River, because in one place we have a constant current. I have seen an example of that on the St. Lawrence River.

Q. Your own personal investigations in the Second Narrows are confined to those six days? A. Exactly, in 1919, sir, and for those three days, on one occasion and three on another.

Q. And of those, three days obviously were as you say very severe runs? A. Yes.

Q. The period of slack time was very short? A. The period 20 of slack would not be over ten minutes.

Q. Did you have two of these instruments out at the same time or only one? A. Two.

Q. What were the depths that you used? A. Well, for the surface, eight or ten inches below, so that it would be submerged and the other was four fathoms, 24 feet.

Q. Just following up what you were saying about the upper harbour, that is beyond the bridge, you say that is closed at the end, therefore, it would affect the condition of the flow? A. No, I did not say that it would affect the condition of the flow. I said that the condition of the flow might be different from a narrow pass 30 that was opened at both ends.

Q. It creates a difference, from another kind of channel? A. Yes.

Q. I want to get this, if I am right, you know there is a condition in which you get a flow from the Second Narrows, ebbing, that continues for fifteen minutes, after low slack in the First Narrows? A. Certainly, because the Second Narrows are in no way related as regards the time.

Q. For that fifteen minutes the main harbour is filling from above through the Second Narrows, is it not, to a certain extent? 40 A. A very small extent, because in the last fifteen minutes of the run out there is very little discharge.

Q. Whatever discharge there is it would be filling up the lower harbour? A. Yes.

Q. And there is no run out at the First Narrows when the tide is slack? A. Not when the tide is slack, I don't suppose there is. Slack water is a sort of indefinite period. It is not regu-

lated clockwise.

Q. It is only an argumentative point. After slack the tide in the First Narrows starts to flood in? A. Yes.

Q. For that period of fifteen minutes during which the run continues from the Second Narrows, the First is either closed or running in, too, either stopped or running? A. It may be stopped running in or running out.

10 Q. I am speaking of the time that it is slack in the Second Narrows or the tide is starting to run in. If slack water arrives at the First Narrows for fifteen minutes it is running at the Second, then clearly the central harbour is filling from above for that period? A. I presume so.

Q. Therefore isn't that condition exactly the same for that fifteen minutes as prevails in the upper harbour on the flood? A. No, I do not say that it was.

Q. I don't mean to say for the same length, but it is the same point. It is coming into a reservoir so to speak in which the other end is closed? A. Yes, but the First Narrows are not closed.

20 Q. Surely you agree with me that it is closed so far as the flow is concerned if the tide is slack in it? A. Yes, I guess perhaps it is.

Q. Now, as you think that over am I not right in saying that the condition is analogous for that particular period? A. I cannot say. I do not know.

30 Q. I submit they are, because I cannot see a bit of difference in the situation where the end of a reservoir is stopped by the land and there is no flow out, and the condition where it is stopped below, where it is stopped by a body of slack water in a narrow place, which effectually prevents the flow out? A. The land end is solid, but the other end is not.

Q. No, but if there is dead water it is the same as slack water? A. If you could assure yourself that it was absolutely dead water I would say yes.

Q. But if it was flowing in the First Narrows the situation would be stronger? A. Yes.

Q. You know better than I do that phenomena does occur? A. It does.

Q. Often, too? A. Yes, frequently.

40 Q. Now, can you really distinguish or see any essential difference between those two in that short period? A. It is a very fine point.

Q. You cannot bring yourself to agree with me on that? A. Well, I do not disagree with you at all.

RE-DIRECT EXAMINATION BY MR. BURNS:

Q. In the circumstances, Mr. Hayden, or the circumstances

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

G. S. Hanes
Cross-exam.
(Contd.)

S. C. Hayden
Re-direct

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 S. C. Hayden
 Re-direct
 (Contd.)

such as related to you by my learned friend that during that short period such as he has been speaking of that the harbour is being poured into by a large body of water from the Second Narrows, a large volume? A. No, the last fifteen minutes there is a very small run out in the Second Narrows.

Q. It comes down to the consideration to what it is doing in that respect in that particular period, in the way of the movement of the water? A. I should think so.

Q. From your knowledge what would you say the character of the movement would be in the last fifteen minutes? A. As regards velocity? 10

Q. Yes, and volume? A. The last fifteen minutes of the run out from what I know would not be more than one-half knot.

Q. One-half knot? A. Yes, I don't say exactly.

Q. And it would be disappearing? A. Gradually lessening off.

Q. When you speak of the slack tide, about ten minutes slack tide, you mean by that absolutely dead water? A. I mean the period when it stops running east and it starts to run west, or vice versa. 20

Q. There is a certain amount of dead water? A. What we term in hydrography as slack water, the nearest approach you can come to it is if you put a lead over board and a sounding wire, if it will stay plumb, I consider when it is plumb it is slack.

Q. You spoke of the current in the St. Lawrence, that that had a bearing on the matter of the undercurrent going one way and the overcurrent the other way? A. On the Gaspé Coast there is a current 12 miles wide and 60 miles long where it is running out and when the tide floods up the St. Lawrence River the tide runs underneath, because the current is running the one direction, but the flood tide decreases the velocity. 30

Q. What is the reason for that? A. It is hard to say, we spent two years in a survey ship investigating it. Of course, the river is very deep at that point, 100 to 200 fathoms deep.

Q. The river discharging— A. Yes, the discharge of the river reaching that far down in the St. Lawrence the incoming tide has to run underneath it.

Q. Is that the only instance that you met in your observations? A. That is the largest undercurrent I ever experienced, 12 miles wide by 60 to 70 miles long. 40

Q. Apart from that, are there any other instances of the same character that met your observations? A. I have seen a slightly or smaller example in the Strait of Belle Isle.

Q. Any others? A. In the Bay of Fundy. I do not quite recollect. We might have in the Bay of Fundy, but I cannot quite recollect.

Q. But experiencing such a condition would fasten itself in

your memory? A. That is a well known example, what is known as the Gaspé current and it is greatest example of an underflow that I know of.

Q. And these are the only ones you can speak of in your experience? A. The only ones I can speak of having any importance.

The Court: Did you tell us, witness, at what part of the stream you took these observations? A. No, sir, I was not asked.

Q. Where were they taken? A. They were taken amid-
10 stream half way between where the bridge now stands and the water pipes, the water works.

Q. In midchannel? A. Yes.

Q. Yes. A. Midway between where the present bridge stands and the water pipes.

Q. You mean the first water pipe or the main cluster of water pipes? A. The first water pipe.

Q. Would you say about a cable length from the bridge? A. Oh, no, it is the other water pipes where they run ashore and go up, the easterly water pipes.

Q. Yes, I mean how far from—there is a place called Knuckle
20 Point? A. Yes, I took them in the very narrowest part of the Second Narrows.

Q. How far do you say just roughly speaking that would be in feet east of the bridge? A. I should say probably 600 feet.

Q. I thought that was the narrowest part. That is why I suggested a cable. A cable is 600 feet. A. Yes.

Q. Yes, thank you.

(Witness aside.)

The Court: I must say fortunately the witness has cleared
30 up a question that was asked yesterday about what was the narrowest part of the Narrows. He gave it to us as one cable east of the bridge.

Mr. Donaghy: Yes. I am calling Captain Batchelor.

ROBERT ALEXANDER BATCHELOR, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Batchelor, have you followed the sea most of your
life? A. Yes, since I was fourteen years of age.

The Court: Does he live here or North Vancouver? A. I
40 live out at West Vancouver, sir, at Altamont, your lordship.

Mr. Donaghy: Q. What certificates do you hold? A. Well, I hold a master's certificate from the British Board of Trade for mast and steam. I was licensed in May 1910 as a Vancouver pilot under the Vancouver Pilotage Authority of those days.

RECORD
British Columbia
Admiralty Dist.

Plaintiff's
Case

S. C. Hayden
Re-direct
(Contd.)

R. A. Batchelor
Direct

RECORD

*British Columbia
Admiralty Dist.*

R. A. Batchelor
Direct.

(Contd.)

Q. You were licensed in 1910? A. I was given a provisional license then and taken for six months on probation and in November, 1910 I was given my other license and I put in twelve months as a third-class pilot, then two years as a second-class and then I became what they call a senior pilot after three years of service.

Q. Prior to the construction of the Second Narrows Bridge, have you piloted ships through the Second Narrows? A. I was up there very frequently up to Port Moody and around that way and Ioco.

Q. Will you tell his lordship what channel you took on that course? A. Going up through the Second Narrows? 10

The Court: What size of ship? A. The ships that were going up then, the majority of the ships going up then were oil tankers, carrying in those days probably, six, seven and eight thousand tons deadweight capacity. In making our course up to Port Moody or Ioco we followed up our harbour here and maintained, generally maintained the south shore from there on, following around the contour of the south shore. The reason for that is that the north shore is a mass of shoals and is flat and the edges were not marked or indicated to us and we always steered by following the south shore exactly where we were, especially on a dark night when there were heavy shadows that created conditions where we could not tell the land from the shadows we then found by following the south shore and using the whistle for the echo we could tell that we were safe in deep water. 20

Q. In using the expression 'following the south shore' where is that in relation to the 300 foot fixed span of the bridge? A. The 300 foot fixed span?

Q. Yes? A. The 300 foot fixed span is north of where we would generally follow. 30

The Court: Let me see exhibit No. 27.

Mr. Donaghy: Just a moment, Captain.

The Court: You were asking him about which one?

Mr. Donaghy: Where his course lay with reference to the 300 foot span.

The Court: Look at exhibit 27? A. This is the 300 foot span I understand you are referring to.

Mr. Donaghy: Yes, that is right. A. Well, we generally followed the shore to the south of that. We followed the contour of the shore line along there. 40

Q. Look at the numbers of the piers there? A. As near as I could give the line we passed the position where the bascule span is at the present time, your lordship.

Mr. Donaghy: Q. Why did you not keep further north than that? A. There was an erection there carrying the poles, carrying the power line for the B. C. Electric, and where that was there

was a spit that ran out.

Q. On the north shore? A. On the north shore, probably built up in time by the piling and construction itself, or probably a snag that rested there and built up an embankment. The extent of that embankment to us was very indefinite. We knew that it ran out a considerable distance and we knew that it would be extended by the freshets from the Seymour and that it would be adding to it and we always kept away from it so far as possible.

10 Q. Now, in regard to vessels of deep draught being taken through the Second Narrows prior to the construction of the bridge, what do you say whether such passage was negotiated by such vessels at all stages of the tide or not? A. We used to take them up on a very small tide when the tide is running probably anything under two knots an hour. Anywhere around in there and when the tide was running heavy we always tried to make it about slack water, as near as we could, so that we would not have more than a knot an hour, one way or the other. That is for ordinary ships that were quite safe for handling for safe navigation.

20 Q. You are speaking of the practice before the bridge was built? A. Yes.

The Court: Am I right in this, do I understand that you waited for slack water. Did you mean both slack, low and high? A. Yes, slack water or low water when the tides were running heavy.

Q. Yes.

30 Mr. Donaghy: Q. Now, have you navigated the Second Narrows since the bridge was constructed? A. Never since the bascule was put into operation. I made four trips through since the piers were completed with ocean going ships. I have made frequent trips up and down for observations, but I have only handled three ships or four ships since the bridge was completed. I made three passages through the piers where the bascule now stands. Most of my work is in handling regular ships and they do not go up there, and that is why I do not go up there often.

The Court: Four ships when the piers were completed? A. Yes.

Q. But not the bascule? A. No, the bascule was not completed on the last ship that I took through.

Mr. Donaghy: Very good.

40 The Court: What was the size of these ships? A. Ships running up to probably seven or eight thousand tons, 9,000 tons at the maximum. That is the dead weight capacity, your lordship.

Mr. Donaghy: Q. Now, from your observations of those piers and from your observations made since what is your opinion as to whether or not this bridge is a menace or hazard to navigation?

Mr. Griffin: I will not repeat my objection, your lordship, keeping in mind that the question was dealt with in chief.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

—
R. A. Batchelor
Direct.

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

R. A. Batchelor
Direct.

(Contd.)

The Court: Call it an impediment to navigation, that is the word.

Mr. Griffin: That question was put in the examination in chief of the expert witness.

The Court: These overlap. The nature of it is such that there are two of three main questions inevitably overlapping and it is one of the peculiarities of this case that it is impossible to draw an exact line. The witness is entitled to say what you expect him to say from the drift of the question. A. Providing the bascule lift is up in time for the ship arriving there I can see no menace to navigation in the Second Narrows. I never heard of a pier being a menace to a ship but a ship is a menace to a pier. 10

Q. Do you know how the bridge is equipped with signals or lights? A. I do.

Q. What is your opinion of the signals and lights? A. I had quite a lot of communications with regard to the placing of the lights there with the management of the Harbour and we all thoroughly endorsed the system at present in vogue.

Q. Can you speak of its effect in comparison with the conditions prior to the erection of the bridge? A. As I say, I have not navigated up there since the bascule was used, but as regards the Narrows and really since the piers are there and they have been lighted you have a clear dividing line to navigate and steer for, that did not exist in the old days when there was nothing but darkness and blackness and you had to find your position off the land on the echo of the whistle. Today you have something to steer for. What you lose in the width of the channel you gain in a well defined route. 20

Q. Now, reverting again to your course of navigation which you say was practically over the waters under the bascule span have you on any of your trips through there felt or had any reason to suspect a northerly current at that place either surface or underneath? A. No, sir, never did, and I have spent many hours taking observations from the shore lines and from boats and from the bridge itself to watch and study the direction of the current there. All through 1924 when the piers were being built a great lot of my spare time was being spent on the Second Narrows on the north shore and the south shore, and both back and forward purposely in my spare time. I did that believing I would be handling ships up there, handling the ships that I am doing now and believing that I would have to navigate that channel I was making myself wholly conversant with the conditions that were going to exist. 40

Q. Have you met with any such undercurrent in the Second Narrows? A. No, never with any cross-current either.

Q. Your witness.

CROSS-EXAMINATION BY MR. GRIFFIN:

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. A. Batchelor
Cross-exam.

Q. You spoke of your three trips that you took there. I do not know whether it was three or four? A. Four trips before the bascule was completed, as the piers were completed.

Q. Exhibit 18, I think is the best one that shows the conditions then. I am showing you a plan that gives it exactly, because this is a plan of conditions as they were about the time of the construction. Now, on those trips that you made during construction.

10 The Court: Now, let me understand. I want to know what you are doing. You started with exhibit 27.

Mr. Griffin: No, I started with 18.

The Court: He has with him exhibit 27. He illustrated with exhibit 27 his idea of the channel from that exhibit. Now, you are putting before him exhibit 18. This is for my own information. Is that different from 27?

Mr. Griffin: No, not a bit. The piers are the same ones.

20 The Court: This is for my own convenience, if we have what is ample on exhibit 27 let us not go over to 18. It makes it so much more difficult when you are trying to follow a witness on two exhibits, when really it is only necessary to follow one exhibit.

Mr. Griffin: All right.

The Court: If there is any point in it, do not regard my convenience.

Mr. Griffin: Use the two together. Here it is before the bascule or span? A. Right.

30 Q. Which is the one that you used going up. As my memory serves me it was the 300 foot that was used during construction? A. That is right, when the pier was completed the barges and scows were moved away from here where the bascule is, this was open and the first ship that went down, that I went down with, I came back from Port Moody, and I came through this way purposely to have a go at it and see how it was.

Q. You had been up and out? A. I have been up and down twice after that.

Q. Have you been up and down through the 300 foot span? A. I went up frequently while the bridge was under construction. I was in this quite frequently before that.

40 Q. During this construction, did you bring ships up and down through the 300 foot span? A. Yes.

Q. You really tried both of them? A. Yes.

Q. I take it in the prior bridge days you took ships up to what is now the bascule span and brought them out through what is now the 300 foot span? A. I beg your pardon? No, the only time I went through the 300 foot span was going up during the construction days when I had to go through there. We were forced to go through there.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

R. A. Batchelor
Cross-exam.
(Contd.)

Q. Pre-construction days, before construction? A. Before any piers were there?

Q. Yes. Before those days I judge from your testimony that a pilot would take a ship up east to what is now substantially the bascule span and he would bring it down through the 300 foot span? A. No, always followed the south shore for safety, especially on a dark night.

Q. I will take it in daylight, did you cross over in daylight? A. There is not much crossing to do in a 300 foot channel if you are going at all. 10

Q. Did you do it? A. No, I did not do any crossing. I have never gone at all with a ship that did.

Q. Did you keep to the north side of the centre? A. I may have been on one side of the channel or the other, but I always managed to get through safely.

Q. The rule of the road requires you to be north of the centre line of the channel? A. It is not necessary, only passing ships.

Q. Don't you understand that the rule of the road requires you to keep to the north of the centre of the channel? A. You are reading part of the by-laws of the Harbour of Vancouver, put in force by the Vancouver Harbour Board, for the First Narrows. 20

Q. No.

The Court: He is right, unless the regulation covers both channels. Do the harbour regulations cover the Second Narrows the same as the First?

Mr. Griffin: I do not know for the moment.

The Court: I know all about it for the moment. It was the great case of Bryce vs. C. P. R. which led to that change. That is why there is a peculiar situation which I think is not repeated in any port on the Pacific Coast in the waters of Canada. It compels you always to do that. The rule of the road does not. 30

Mr. Griffin: The rule of the road, the general rule, is that ships keep on that side of the channel.

The Court: That relates to incoming ships.

A. Passing ships, sir.

The Court: The man is quite right.

Mr. Griffin: I thought the reading was the other way.

The Court: No, what you have not got in mind is the special regulation passed as to the First Narrows owing to the terrible disaster that took place in Bryce vs. C. P. R. Do not treat that as a general case. The witness is right, that is a special case and it is the one and only exception that I know of. It is a rule of the Harbour Board and I do not know if they have passed a similar rule in regard to the Second Narrows. If it is so you are right, but I do not think you are. Is it the case? 40

Mr. Griffin: I do not know.

The Court: You were misleading the witness then quite innocently.

Mr. Griffin: No, I was only asking about the International Rules of the Road.

The Court: Then the witness has given the proper answer, really, as he says himself that he knows of no regulation of the Harbour Board requiring you at all times to keep to the north side of the channel. The rules of the road do not require any such thing.

10 Mr. Griffin: The rules of the road are not involved in what I was going to ask.

Q. As a matter of fact in the practice before the bridge was built did shipmasters as a matter of habit go down with their starboard on the north side going west? A. Always, we maintained the south side of the channel going and coming.

Q. How far off the south shore? A. Oh, we kept from 100 to 200 fathoms, what we knew was not shoal water. That would take us sometimes 200 feet, 250 feet, not quite so far as that. I could not tell you right here at the present minute, but if

20 Q. That is not with a heavy draft ship? A. I have had ships with 28 feet draft.

Q. Is this a correct statement:

“We never take our heavy big draft ships through because the contour is irregular.”

Is that correct? A. That is why we never steer a straight course. You are steering the same course through the bascule bridge as in the early days before the bridge was there. You never ran in a straight line, you followed the contour of the shore line.

30 Q. Is that a correct statement that you don't take heavy draft ships through because of the irregularities of the shore? A. How do you mean?

Q. Through the Second Narrows? A. We took them through.

Q. Is that statement correct? A. Where do you get that?

Q. That is a statement taken out of your testimony at the enquiry? A. I never said that we never took heavy draft ships through the Second Narrows.

40 Q. That is the way that I read it. All right. Now, I suppose the fact is that a ship approaching that draw from the east I am speaking now, you have to take into consideration several matters and one of them would be the tide? A. Yes.

Q. And then the question as to whether it was the same flow as showing on the surface, that is right, isn't it? A. Yes.

Q. Then we have a possible complication created by Seymour Creek if it is running at all strong? A. Yes.

Q. Then you have heard, you have been sitting right along

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

R. A. Batchelor
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

R. A. Batchelor
Cross-exam.
(Contd.)

in this case, there is an arm of water created in some way over near the pole line extending south—pardon an arm of land? A. Yes.

Q. And that throws a current in a southerly direction at certain stages of the tide, does it not? A. In the main channel.

Q. It throws it off the north shore to a certain extent? A. From the flat off the north shore. If you get off the main channel you will get those easily enough, but in the main channel, it follows the south contour and gives you a very good course.

Q. The main channel is 600 feet wide? A. Yes.

Q. From the 5 fathom line to the 5 fathom line? A. Yes.

Q. The deep water is about half way? A. Yes, about that.

Q. The deep part of the channel is just as near to the north side as the south side? A. Yes.

Q. I suggest if there is any tide running from the west that arm of land extending out south will have a tendency to throw it out south? A. You may get surface water when Seymour is running hard and with a big freshet you would. It would flow on the surface and may affect the ship. A man, a pilot has to take that into consideration and make allowance for it.

Q. There is a shoal along the south shore for 1800 feet east from the bridge? A. Yes.

Q. And roughly speaking about 250 feet broad, north to south? A. From high water mark to 5 fathoms—

The Court: Let me have that again. The shoal from high water mark to the 5 fathom line is what?

Mr. Griffin: 250 feet is the width of it. A. I am not sure, but it would be about 200 feet.

Q. There is not one individual point sticking out, but there is more or less a considerable shoal sticking out on the south shore? A. Yes.

Q. What is described as Knuckle Point is the beginning of it? A. I would call the Knuckle or Point a little bit west of where the water mains cross.

The Court: Yes, that is right. We have established that.

Mr. Griffin: I am asking this witness if he agrees with me, that that point west of the mains is a protruding point of the land. A. Very generally there is a slight curve out.

Q. It is the beginning of the shoal, coming on west? A. Yes, well, it runs west.

Q. Of course, it is not general to approach too near that shoal. It is not a desirable thing in navigation? A. No.

Q. Is there in your opinion any effect of the shoal directly on a ship, assuming that it does not touch it? A. Not unless you touch the shoal, I don't think there is anything.

Q. And the only thing is that from the deck of the ship, the bridge, you cannot see its exact edge? A. No.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. A. Batchelor
Cross-exam.
(Contd.)

Q. So that you would desire to give it a safe line in the water?

A. Yes, fair enough.

Q. And I suppose it would be hard to say, that you or any one man would define exactly how far off it would be safe to take any particular ship? A. It was very difficult before the bridge was there, but now with the bridge and the lights you can define the channel and steer.

Q. Even in the day time you do not want the chance of being too near? A. No.

10 Q. And it is hard to know how many feet on the port side the shoal water is? A. Unless you have got the exact bearing to Berry Point.

Q. You can only do it by keeping set on Berry Point? A. Yes.

Q. And the only thing a man can do is to line up from Berry Point to the bascule? A. Yes.

Q. And later on to starboard? A. Draw in.

Q. And then port helm for the draw? A. Yes.

20 Q. And the point really—and the fact really is how close does a navigator feel safe in going before he ports helm for the draw? A. It all depends on the ship and the answer you get. You want to know a ship's turning moment and no man tell unless he is handling the vessel.

Q. And a pilot does not get a chance of handling it every day? A. If you do not have a vessel sized up in half an hour you should not be there.

Q. And it depends on his ability to size that up? A. That is what a pilot is employed for, local knowledge and ability.

30 Q. And he has to have ability to size up a strange ship in half an hour? A. Yes.

Q. If he has taken it out he will probably be taking it in? A. Sometimes not.

Q. It is a question really of the handling of that vessel? A. Yes.

Q. And we can all agree that all pilots are not as good as the best? A. There are all kinds.

Q. And conditions ought to be made safe for all qualified men? A. Well, of course, if you make conditions safe then you don't need pilots at all.

40 Q. I think I can meet you there. That sounds a reasonable statement, you have to make them reasonably safe for the men that have to do the work. A. Remove all possible menaces?

Q. I was leading to this point. It does not mean every menace for the very best pilot of the whole body, but to remove them sufficiently for the whole body of pilots? A. Yes, not for any qualified men, for the benefit of the ship really and truly, and not for the benefit of the pilot.

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 R. A. Batchelor
 Cross-exam.
 (Contd.)

Q. You agree that those are not all the same?? A. All ships?

Q. Yes? A. No, they are all different.

Q. Vastly different. Of course, to put on record ships when their helm is moved, they move from the stern sideways with the helm movement and not the bow? A. Yes.

Q. I was relating this to ships going west in this particular draw, if it has to have a helm movement to get to the north that throws the stern into the shore to that extent? A. You are going which way? 10

Q. Inbound? A. Yes.

Q. The helm movement takes you into the shore? A. Yes.

Q. By that I mean that it turns the stern to the shore? A. The stern draws to the southward, yes.

Q. If as a matter of fact there is any tide in the draw span wherever it be that makes conditions for the navigator difficult? A. Yes, of course, some ships, of course, you may handle them over a considerably heavier tide and other ships you could not do it. You have to know your ship and what you are doing with it.

Q. And if you did find a cross current in the draw the conditions would become dangerous? A. A cross current would create trouble. 20

Q. And the same way if it were true if you had a cross wind the same conditions would prevail? A. Yes.

Q. For example, if you had to go through a draw in such a way as to have the tide sideways on the bow of the ship on either side? A. Have the wind?

Q. If you had to go through so that the tide struck you? A. Yes, that is what you find in docking ships in the harbour, a cross tide and a cross wind and there is a greater hazard there than in the Second Narrows Bridge. 30

Q. There is no doubt about this, we will leave out all other considerations except passing through the draw if the opening was out in the middle of the channel—just cast your eye on this plan which I show you. I am showing you exhibit 18. There you see the point where we have the middle of the channel? A. Yes.

Q. And that is north of the bascule draw? A. Yes.

Q. There is a height that is shown of 33 feet? A. Yes.

Q. And that is a little below the bottom of the channel, the water there roughly is 30 feet deep? A. Yes. 40

Q. Roughly thirty, at the 5 fathom line? A. Yes.

Q. We can put the 5 fathom line here in much the same place? A. Yes.

Q. That therefore is the channel in the sense of the 5 fathom line? A. There is the bottom of the channel here.

Q. I will mark that "X" and "Y" on exhibit 18. That de-

lineates roughly speaking the channel, using it from side to side within the 5 fathom line? A. Yes.

Q. The lowest point in the bottom is almost to the middle of those two points, isn't it? A. Yes.

Q. Now, then—

Mr. Donaghy: Has the accuracy of this plan been sworn to?

Mr. Griffin: Yes, Mr. Hermon. This is the same as the other exactly.

10 Q. Mr. Donaghy: Yes, except that the depths are given on that one. I still ask the question if the depth of the water in plan 18 has been verified. I have no recollection of that being done.

Mr. Griffin: It matters not at all.

Mr. Donaghy: Yes, because you are showing the depth at a certain point on that plan.

Mr. Griffin: My friend is needlessly interrupting because we can scale them on any one of the plans.

The Court: You are coming to 18.

Mr. Griffin: Yes.

The Court: What is the object of going to 18?

20 Mr. Griffin: Because some depths are given which will aid the witness. A. You can begin it up there. This is good enough. (referring to exhibit 27.)

Q. I am satisfied to change the discussion to this plan? A. Yes, all right.

Q. You might measure the 5 fathom line yourself. That is the trouble. Here is the datum line, the C. P. R., and here is elevation 84? A. Yes.

Q. You can measure off the 5 fathom line yourself with the greatest of ease? A. Yes.

30 Q. Do it now yourself.

Mr. Donaghy: There was an official map put in as to what the 5 fathom line was. I would prefer that my learned friend use that because we agreed upon it.

The Court: I understood that it was agreed upon. I understood both counsel agreed upon that. There was a plan exhibited to me which showed all that, a special survey.

Mr. Donaghy: By two engineers agreed upon.

Mr. Griffin: This does not give the line along the bridge, but only along the shore.

40 Mr. Donaghy: It shows how far the 5 fathom line was.

Mr. Griffin: I am not going to discuss that with the witness.

Mr. Donaghy: Then exactly what are you discussing?

The Court: This man is not a draftsman.

Mr. Donaghy: No, it is not fair.

Mr. Griffin: I am going to draw it myself, my lord, and the witness can check it and I'll be quite happy.

The Court: Exactly what are you asking, so that I will understand it, Mr. Griffin?

RECORD

British Columbia
Admiralty Dist.

Plaintiff's
Case

R. A. Batchelor
Cross-exam.
(Contd.)

RECORD
British Columbia
Admiralty Dist.
 Plaintiff's
 Case
 —
 R. A. Batchelor
 Cross-exam.
 (Contd.)

Mr. Griffin: I have not got the question in yet. I want the witness and I to agree where the channel was apropos of the piers using the 5 fathom line which he understands perfectly.

Mr. Burns: You cannot place it in the bascule.

The Court: What question is it you propose to ask the witness. What is the necessity for this, you see?

Mr. Griffin: I want to direct his attention to the middle line of the channel apropos of the 5 fathom depth on each side.

Mr. Donaghy: I object, because we have agreed on that. We have both agreed on the 5 fathom as outside the draw. 10

Mr. Griffin: I don't care where it is, but it is only the position relative to the middle.

Mr. Donaghy: Don't put it inside the bascule draw, it is outside.

Mr. Griffin: Q. Where? I have it now? A. You have that bridge upside down. I am not accustomed to that.

Q. There is the 5 fathom line? A. Yes.

Q. There is one here? A. Yes.

Q. We will mark that "X" and "Y," and my learned friend is correct. I am taking the centre of the deep water substantially half way, you see. Not exactly, there is a slight difference, see? 20
 A. Yes.

Q. So that now the point I was going to give you was this, we had a navigable channel substantially divided in the middle by the deepest water. A. Yes.

Q. If you could have your navigable channel in the middle, in the deepest water, as a navigator you would prefer, that is, the tide would run there with more certainty in a straight line? A. I don't know. I find the tide running through here all the examinations I have made that the tide runs through as true as you could 30
 make it.

Q. Where, here? A. Right through the bascule. I have been at that time and time again, and I cannot find any flow, any run of the tide—if I could have I would have because I would have pointed it out long ago. I could not find it.

Q. Is it also true that the safest and more certain place to find the regular tide is in the middle? A. Generally.

Q. And there is no reason to think it would not be true in the Second Narrows? A. This may not be true in this case because you were drawing attention to the spit that ran off the B. C. Electric Pole Line, and if there was a turn out, as you say there was, it would be striking in here and not affecting this part. 40

Mr. Donaghy: Striking in where? A. Towards the 300 foot span and not into the bascule.

Mr. Griffin: Q. Any set from the north shore would affect the 300 foot span more than the bascule? A. Yes.

Q. And any set off the southern shore would affect the bascule more than the 300 foot span? A. But there is no set.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. A. Batchelor
Cross-exam.
(Contd.)

Q. Answer the question fairly? A. I say there is no set.

Q. If there were? A. I don't know anything about it.

Q. You won't take any if? A. No.

Q. Taking another topic, as a navigator, I take it you would rather have the widest channel you can get? A. Yes.

Q. If it could be achieved, wherever they put it, you would rather have 300 feet than 170? A. That is right, yes.

Q. And it is a question of opinion as to how much you need, navigator's opinion, I mean? A. Yes.

10 Q. And you would, I take it—you know, you have been listening here and you know that navigators clearly are not unanimous? A. No.

Q. You have heard opinions given here in the witness box which differ from yours? A. Yes.

Q. And I take it you respect those opinions as you expect your own to be respected? A. I don't know two pilots who will handle the same ship the same way. Each man handles his case differently, the same as you in your profession would handle your case differently from another.

20 Q. And each of them is seeking his own ship's safety? A. Yes.

Q. And if in any walk of life you found the vast majority of the professional men of the same opinion and one out, you would think that he was like the soldier who was out of step with his regiment? A. Oh, yes.

30 Q. All right. I would like to have exhibit 7. I show you exhibit 7 which is the admiralty chart. I would like you to plot on exhibit 7 the course which you say was taken by yourself from Barnet into the main harbour of Vancouver before the bridge was constructed? A. What are those for? You are not running on a railway line. You have to follow the contour of the shore.

Q. From where? A. From Barnet.

Q. Yes? A. Right from the oil dock here?

Q. Yes? A. I have gone past "B." That is about the rough course.

Q. Put "W" at the far end of it so we can tell. A. (Witness marks.)

Mr. Griffin: The witness has marked the course "W" at the east end past the point "B" already marked at the other end.

40 Q. Thank you. No further questions.

Mr. Donaghy: Let me see that, please.

Q. I take it this is an approximate line that you have marked? A. Approximate. That is a very small chart and you could not do anything else than give an approximate line. You could not do anything else but that.

Q. That is all.

The Court: Just one minute. These ships you were mention-

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 R. A. Batchelor
 Cross-exam.
 (Contd.)

ing, witness, that you were taking through the bascule piers? A. Yes.

Q. They varied you said from seven, to eight, to nine thousand tons. What would be the length of the ships, the length of the shortest and the length of the longest? A. Well, I had been going up with ships while the bridge was under construction, vessels from 380 to 460, 470 feet as near as I can recollect. That is about the approximate length.

Q. Give me that again. A. From 380 to 460 or 470 feet.

Q. Now, one other question. I do not think we have had it exactly in regard to the lift bridge, but what would a big ship, you understand, a really big ship we will say running to well 20,000, what would the height of their spars be from the water? A. They don't require to be high. The ship in ballast, her bridge deck is about 68 feet—about 130 feet would be ample and sufficient headroom for any craft of that kind.

Q. Then that would be the height of the tallest spar of an ordinary ship up to 20,000? A. Yes, the spars are purely and simply for headlights.

Q. Yes, I understand that, of course, conditions have so changed. In modern ships you would say? A. Yes.

Q. Up to 20,000 you would not have to provide for a greater height than 135? A. About 130. They come in ballast.

Q. Yes, all right. Thank you.

(Witness aside.)

The Court: Now, there is—have you any more witnesses, Mr. Donaghy?

Mr. Donaghy: Yes, we have three or four more. I think they are going to be short witnesses.

The Court: Yes, for the purpose of my own information. I am not at all suggesting that the time is being wasted, it has not been. It is desirable to have the fullest investigation.

Mr. Donaghy: Yes.

The Court: There is one matter that ought to be cleared up and that is this in regard to this channel, this Second Narrows, because I notice this is the second time this has cropped up in the evidence and some stress has been made on the fact that apparently there is some special rule in regard to the Second Narrows. One of your witnesses referred to it as saying that it was necessary to cross that channel twice and so we ought to have the harbour regulations before us, if you will kindly do so, because those are public property. If they are here so much the better. They ought to be obtained so that I will be able to decide whether the navigation of this particular bridge is governed by special rules or special regulations the same as those in regard to the First Narrows.

Mr. Donaghy: I will be glad to procure those tomorrow.

The Court: Nothing has been said about it. You will see from what Mr. Griffin has said and one of his witnesses there is the assumption that it is governed by the same rule. If so I must be apprized of it.

Mr. Burns: There is a harbour by-law which we will present, having to do with the passage of the Second Narrows. The by-law itself is No. 127.

The Court: We will just see as to the necessity for the passing of that special by-law. The ruling as to the special navigation
10 arose out of the fact that a peculiar condition was caused at the entrance of the First Narrows, caused by the presence of Burnaby Shoal.

Adjourn.

The Registrar: The court stands adjourned until 10:30 a.m. tomorrow morning.

(5 P.M. COURT WAS THEREUPON ADJOURNED UNTIL
10:30 A.M. DECEMBER 6, 1928.)

Vancouver, B. C., December 6, 1928, 10:30 a.m.

(COURT RESUMED PURSUANT TO ADJOURNMENT)

20 Mr. Burns: My lord, I wish to put in by-law 127 of the Vancouver Harbour Commissioners that I spoke of last evening, containing the regulation governing the conduct, management and operation of the bridge and regulations governing the conduct, management and operation of vessels passing thereunder.

The Registrar: Exhibit 65, my lord.

Mr. Griffin: If your lordship pleases, this by-law was not in force at the time of the accident. It does not state so on its face, but it is marked No. 18 of 1928 which would be quite sufficient indication. And yet another copy of the by-laws, which I have, it
30 is quoted as having been passed or approved of by the order-in-council of the 31st of August, 1927, so that it would not appear to be relevant in any case, being after the date of the accident.

Mr. Burns: The one that is previously in force is already in, my lord, I am just putting this in, so that the whole matter would be plain.

The Court: Let me understand now. Are there in now all the by-laws or regulations of the Harbour Board governing the navigation of this channel?

Mr. Burns: Yes, my lord.

40 The Court: We have everything in?

Mr. Burns: That's what I understand.

Mr. Griffin: Yes, that is exhibit 23, already in.

The Court: Well, as long as counsel are agreed that everything is before the court, that is all I want, because it is necessary to know what they are.

RECORD
*British Columbia
 Admiralty Dist.*
 Proceedings at
 Trial.
 (Contd.)

Mr. Griffin: This other document does not go in then, my lord, I take it.

The Court: This one need not go in.

Mr. Griffin: No, it doesn't apply at all.

The Court: Very well.

Mr. Burns: I didn't hear that.

The Court: Mr. Griffin seems to think it is not necessary.

Mr. Burns: Well, then, I will consider the necessity of it, my lord—

The Court: Let me see it.

Mr. Burns: I thought that it might, as being in vogue— whether it was in vogue at the time of the accident or not might be a matter of comment, but it covers the regulations that have been at all times in force in connection with the bridge, but I shall consider it, my lord, and speak to it later.

The Court: Yes, you may do that, because one of the witnesses spoke, so to speak, in the present tense, as though there was still some extra difficulty occasioned by what he called the double crossing of the channel there, but so long as it is understood these remarks are not directed to what is the case at present, but only at the time mentioned, well, of course, strictly speaking it is not relevant. What is the position, Mr. Griffin?

Mr. Griffin: I can't quite follow you, my lord. The regulations are simple and plain enough in exhibit 23.

The Court: Are they the same?

Mr. Griffin: I haven't compared them, my lord.

The Court: Well, but you understand what I mean. I understood one of the witnesses, speaking, you see, in the present tense, as though there were some regulations covering the Second Narrows Bridge, what I want to be sure of is that his remarks then— if nothing subsequent to the collision is to be considered in regard to the regulations, of course, his evidence must be confined to that; his remarks, though, you see, when I say that his remarks seemed to be including the present situation.

Mr. Griffin: I don't recollect that.

The Court: Well, you might just look at this.

Mr. Griffin: Here then as a matter of fact is the regulation then in force if we speak according to these regulations we have—coming in force after the accident, they wouldn't be of any value in the decision of the case.

The Court: Well I do not really quite see—it would be better to be excluded. I just wish counsel to understand that if for any reason they want to put them in, I see no reason to exclude them, because it has a general bearing upon the situation.

Well, Mr. Donaghy or Mr. Burns, any more witnesses?

Mr. Donaghy: Yes, I will call Mr. Tracey.

The Court: Exhibit 65 is tendered, Mr. Registrar and Mr.

Stenographer, the Harbour Commissioners' Regulations, but owing to objection they were ruled out, you see.

RECORD
British Columbia
Admiralty Dist.

CHARLES FRANCIS TRACEY, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

Plaintiff's
Case

DIRECT EXAMINATION BY MR. DONAGHY:

C. F. Tracey
Direct.

Q. What is your occupation, Mr. Tracey? A. An operator.

Q. Of what? A. Of the Second Narrows Bridge.

Q. Yes.

Mr. Griffin: Bridge operator?

10 Mr. Donaghy: Yes.

Q. Were you on the bridge any time when the steamship "Norwich City" went through? A. Yes.

The Court: Come this way, witness, and speak louder and clearly? A. Yes, I was on the bridge when the "Norwich City" came through—came to the bridge—hit the bridge.

Q. When she hit the bridge? A. Yes.

Q. Yes, what date was that? A. That was in April.

Q. This year? A. Yes, this year.

20 Q. Yes. That is the incident that has been related here in court in the previous evidence, as you understand it, is it? A. Yes.

Q. The same incident, yes. Now, what if anything did you observe in connection with the approach of the "Norwich City" on that occasion towards the bridge?

Mr. Griffin: Wait a minute. My lord, my friend is not proposing to go into the various other collisions that have taken place with the bridge. I submit that that is not relevant in this case at all, because they only arise incidentally, we could not embark upon all the other accidents. That arises merely incidentally in the witness' testimony as indicative of the conditions, but it could not be possible for your lordship I submit to embark upon a contest as to these individual cases. In other words, they are merely side issues in the evidence of the navigator. He refers to them, not for the purpose of proving them in this action, demonstrating the particular accident, but merely to illustrate his testimony, and my submission is that they are irrelevant and would force this trial into an enormous extent, if you were to go into all the particulars of each collision. I therefore desire to make objection.

40 The Court: Do you mean then that as a result of what you say that your evidence is to be wiped out that was obtained in that manner?

Mr. Griffin: No, my lord, I don't say that, but I say that that evidence is only to be given that weight which its setting requires. It is incidental matter arising to explain the witness'

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 C. F. Tracey
 Direct
 (Contd.)

attitude towards this action, but it does not mean that you can then go into a contest.

The Court: I understand it is not any attitude or opinion at all, it is either brought forward, I understand, as a specific instance of defects in construction of this bridge—an obstruction to navigation, it is brought forward for that reason or it is brought forward for nothing.

Mr. Griffin: It is brought forward to show the conditions under which the navigator navigates, and these conditions may result in an accident or they may not, but it is merely showing the conditions that arose on certain occasions. 10

The Court: Your position then you say, Mr. Griffin, is this, that you can give a concrete illustration of defects in the construction of this bridge, yet the other side is not to be allowed to explain them.

Mr. Griffin: My lord, I do not recall these instances as instances of defective construction, but instances only in which any navigator approaching difficulties have been met.

The Court: Well, they are brought forward for one purpose and one purpose only, that is to say, they are brought forward to affect the decision of this court, and if you attach no importance to them, say so, and then I shall tell Mr. Donaghy that I do not wish to hear him; but if you do attach importance to them, then, of course, it is his right to give concrete illustrations. 20

Mr. Griffin: Then, my lord, I have no further submission to make.

The Court: You may give these concrete illustrations in face of the evidence which has been given against you.

Mr. Donaghy: Yes, my lord.

Q. What, if anything, did you observe in regard to the approach of the "Norwich City" toward the bridge on that occasion? 30

A. It was my opinion that she was too close to the south shore as she approached.

The Court: That is the "Norwich City."

Mr. Donaghy: Yes, my lord, the "Norwich City."

Q. At what point did you first notice that she was too close to the south shore? A. I should judge it was about—round about 1500 yards—1500 feet.

Q. From where? A. From the bridge.

Q. East of the bridge? A. East of the bridge.

Q. Yes. In making the statement that you thought she was too close to the south shore, will you state as a matter of comparison how her position in that respect was in reference to the course other vessels have taken in coming towards and through the bridge as you have observed them. 40

The Court: With reference to what?

Mr. Donaghy: With reference to their position—relative

position of nearness to the south shore and giving the course this vessel was on as a course, her nearness to the south shore, and comparing that, you see, with the course other vessels have taken in coming on the outward bound trip through the bridge? A. The average deep sea vessel lines up for the draw at about 14—an average of 14 degrees—

The Court: Q. Yes, lines up to the draw, what do you say?

A. At an average of about 14 degrees—

Mr. Donaghy: Q. You mean 14 degrees as shown on the indicator that has been spoken of? A. As shown on the indicator on the bridge.

Q. Yes, the indicator that is on the bridge. A. Yes.

Q. That is the one Mr. Hanes spoke of in his testimony yesterday? A. Yes, 14 degrees north.

Q. 14 degrees north as shown by that indicator? A. Yes.

Q. Yes, I see. You say the average deep sea vessel lines up on that course? A. Yes.

Q. Coming to the bridge? A. Yes.

Q. Yes. How far away, east of the bridge do they line up on that course? A. That is usually taken at about 1,000 feet.

Q. Yes? A. Distance.

Q. Have you been observing the course as shown by this indicator of vessels coming out? A. Yes, we make a record of that.

Q. I beg your pardon? A. We make a record of that.

Q. You make a record of that? A. Yes.

The Court: Q. Yes, I see. How long has that practice been carried out of observing this through the indicator? A. It has only been recorded for about a couple of months.

Mr. Donaghy: Yes, how long has it been practised? A. Well—

Q. Some time? A. No, we always do it, although we didn't record it.

Q. Oh, yes, I see. Was it, for instance, practised for more than two months then? A. Yes.

Q. Taking that observation? A. Yes.

Q. Yes, and observing for more than two months, is that right? A. Yes.

Q. Observing for more than two months, yes, I see. Then the statement you make is that the "Norwich City's" position approaching the bridge was— A. She was then 6 or 8 degrees north only.

Q. Then 6 or 8 degrees north only, yes. That is your opinion? A. Yes, that is my opinion.

Q. Did you test it on the instrument at the time? A. No, not at the time.

Q. No, not at the time, you didn't test it at the time, that

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case

C. F. Tracey
Direct.
(Contd.)

- RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
C. F. Tracey
Direct
(Contd.)
- is one thing you forgot at the time? A. Yes, because I wasn't operating that day.
- Q. I see. Where were you that day? A. I was collecting.
- Q. You were collecting? A. Yes.
- Q. Where is your stand for collecting? A. It is down on the level of the bridge—the deck level of the bridge.
- Q. Yes, at which end? A. At the south end.
- Q. At the south end of the bridge, at the deck level? A. Yes.
- Q. Yes, would you have a good view of the approach of the "Norwich City" from there? A. Yes, I was—within 1500 feet of it. 10
- Q. Have you worked very long on that bridge? A. Yes, since the bridge opened.
- Q. That is November, 1925? A. Yes.
- Q. Have you made observations from time to time as to the current that passes through the bascule? A. Yes.
- Q. Yes? A. I notice that daily.
- Q. Yes. From your observations did you form any opinion or draw any conclusion as to whether or not there was a northerly trend of the current through the bascule or east of the bascule? A. Well, the drift wood goes as straight as it can, at right angles to the bridge through the Narrows. 20
- Q. Through the bascule? A. Yes.
- Q. Yes, did you see any evidence of a cross current in a northerly direction? A. No.
- Q. In your opinion is there such? A. I don't think so—not visible on the surface.
- Mr. Donaghy: That is all, your witness.

C. F. Tracey
Cross-exam.

CROSS EXAMINATION BY MR. GRIFFIN:

30

- Q. Mr. Tracey, this ticket collecting station is—I am speaking now from memory and you will correct me—it is some little distance south of Pier No. 5. Perhaps you know that point, do you? A. Yes.
- Q. Well, take for instance—you know the first span you come to on the bridge there, the south end is the 150 foot span, that is quite near the shore? A. Yes.
- Q. Now, how far south was your ticket collecting station from the south end of that first span? A. Oh, round about 75 feet, I should judge. 40
- Q. Well, then, that is what I mean; therefore you were 75 plus 150, that is 225 feet south of the bascule pier? A. Yes.
- Q. Yes, more than that—260 feet, because you have to add—no, I was correct. That was correct, 225 feet south of the bascule span itself? A. Yes.

Q. That would make it 150 plus 75? A. Yes.

The Court: How much, Mr. Griffin?

Mr. Griffin: 225 feet.

Q. And therefore, of course, you would be 90 feet more south of the central point of the bascule draw? A. Yes.

Q. That would be your position. In other words, 350 feet or thereabouts south of a position in the middle of the bascule draw? A. Yes, that is right.

Q. The result would be that ships at a considerable distance
10 to the east would be quite within your view, that is, their course would be within your view? A. Yes.

Q. But as they approached the bridge closer and closer your opportunity to get their exact course would become gradually less? A. No, after they pass a distance of about 1200 feet from the bridge the view would be becoming clearer.

Q. I know, the ship is coming nearer to you; I am speaking of the vessel being closer on her course, if you get my point. That is, the direction—the exact direction in which she is heading becomes gradually worse and worse for you as the angle gets worse?

20 A. The angle is harder to judge, you mean.

Q. Yes, that is what I mean, that is the point exactly. Now, you therefore were not in a position to say at east what place the “Norwich City” would be say when she was in fact headed for the centre of the bascule span, you could not tell that? A. I don’t think she was headed for the centre of the bascule span at any time.

Q. Well, but all I am trying to is, were you in a position to tell if she was or was not? A. Yes, sir.

Q. Well, how could you be when you were 300 feet away
30 from the point that she would be aiming at? A. Well, one reason is the excitement on board, she wouldn’t be coming—they couldn’t have been coming under normal conditions owing to the excitement there was on the boat.

Q. Is that what you judge from? A. A good deal.

Q. So that really you actually didn’t see how she was heading? A. I saw, but at an angle, of course, as you say.

Q. I am only driving at this, that from the angle, as you say, you can’t tell within a few feet where the vessels head would be aimed at? A. No, I couldn’t tell exactly to a foot or two.

40 Q. Therefore I take it that it would be impossible for you to know exactly where she began to sheer to the north? A. Well, no, I could tell as soon as she began to sheer to the north, but couldn’t tell how much.

Q. You couldn’t tell how much, and in fact I think you will agree with me that you couldn’t tell that she was sheering at all until her sheer had become pronounced? A. Well, of course, I

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
C. F. Tracey
Cross-exam.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseC. F. Tracey
Cross-exam.
(Contd.)

wasn't in as good a position collecting as I would have been if I was operating.

Q. Are you a navigator yourself? A. No.

Q. Now, it seems to me that you were in no position to get the angle of her position on the bridge, you will agree, possibly, if you were south so far from the bascule, am I right? A. Well, I used the position finder on the bridge to prove what I thought was her position afterwards.

Q. Yes, I see, but at the moment when you saw her you were south at your ticket taking station with no instrument? A. 10
Yes.

Q. And when you went to test that out with this indicator you had to make a guess back at her position from memory, hadn't you? A. Yes.

Q. Well, that certainly would be an inaccurate way of getting at her position, wouldn't it? A. Well, I don't know.

Q. Well, would you like to be positive as to the degree of angle that ship had been in some time before, when you have seen it from a different position? A. Well, all that ground is very familiar for us, we are looking at it for eight hours every day 20
and judging—

Q. Yes, I am not denying that, but I want your idea of my view, I am asking you as a witness to agree with me that when you get to testing out angles possibly 1500 feet away, a difference between angles of 6 to 8 degrees is very small, is it not? A. It is a matter of about 40 feet I understand.

Q. Yes, in 1500? A. Somewhere about that.

Q. It is a very trifling amount, is it not? A. It is not very big.

Q. Impossible therefore for a man to give any positive testimony, is it not? A. Well, that is just my opinion. 30

Q. How long after the accident did you make this test with the indicator? A. I don't just remember the date that I made it.

Q. It was some days, was it? A. Yes.

Q. Weeks? A. It might have run to weeks.

Q. Oh, I see, a long time then? A. It is quite a considerable time.

Mr. Griffin: All right, thank you.

Mr. Burns: That is all.

(Witness aside). 40

Mr. Burns: Frederick George Tennant.

FREDERICK GEORGE TENNANT, a witness called on behalf of the Plaintiff, recalled, testified further as follows:

DIRECT EXAMINATION BY MR. BURNS:

Q. You are already under oath. You are one of the operators on the Second Narrows Bridge, witness? A. I am.

F. G. Tennant
Recalled
Direct.

Q. You will remember the occasion in connection with the difficulties of the "Mina Brea" on Saturday, January the 9th, 1926, evidence of which has been given in this court? A. You mean when she went aground?

Q. Yes?

The Court: Turn around.

Mr. Burns: That is my fault, my lord.

Q. Do you remember that occasion? A. I do.

Q. Were you operator? A. I was operator on duty at that
10 time.

Q. Will you explain that?

The Court: What is the name of this vessel?

Mr. Burns: "Mina Brea."

The Court: Date?

Mr. Burns: January 9th, 1926.

The Court: January 9th, 1926.

Mr. Burns: 1926.

Q. Will you explain that incident? A. Well, I had a boat
20 blow for the bridge from the east and I gave her the proper sig-
nals, which is red, while we are operating—opening the bridge
and as soon as I had the bridge opened I gave her the green, which
is a come ahead signal, turning out the red.

Q. This was with reference to a boat coming from the east?

A. From the east.

Q. That is outward bound? A. Outward bound.

Q. How far was she from the bridge at the time you gave
her the signal to come on? A. Well, the visibility from the east
was very poor and I couldn't see the vessel.

The Court: What time of day?

Mr. Burns: Q. What was the time of day? A. Well, let
30 me see, I just don't remember the exact time.

Q. Approximately, daytime or— A. Oh, it was daytime,
it was somewhere in the morning, I think.

Q. You say the visibility was not good? A. The visibility
was very poor to the east, but was just a little better to the west.

Q. And when you gave her the signal to come on, this vessel
on the east, what is your opinion as to the distance she was from
the bridge, approximately? A. Well, I didn't see the outline of
the vessel until after a boat which was the "Mina Brea" from the
40 west had blown, and as soon as I got the bridge opened and turned
the green light on immediately the "Mina Brea" from the west,
which boat I could see, blew for the bridge.

Q. Now, wait just a minute. You say that you got a signal
from a boat coming out? A. That was the "Harold Shang."

Q. Well, she turned out to be, but keep the sequence, if you
will, witness, please. You got a signal from a boat coming from
the east? A. From the east.

Q. Which boat you on account of want of visibility or lack of
visibility could not see? A. Could not see.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. G. Tennant
Direct.
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseF. G. Tennant
Direct.
(Contd.)

Q. And you answered her signals? A. I answered her signals immediately.

Mr. Griffin: You have covered that already, haven't you?

Mr. Burns: I am just covering what is covered already.

Mr. Griffin: If it is covered already why go over it.

Mr. Burns: Q. And I understood you to say before you saw the ship coming from the east that you got a signal from the "Mina Brea" that was coming from the west, is that right? A. That is right.

Q. Well, explain then what you did? A. Immediately I got the signal from the "Mina Brea," which was coming from the west, I gave her a series of flashes on the red, which is our stand off signal, at that time. 10

Q. And could you see the "Mina Brea?" A. I could see the "Mina Brea" quite plain.

Q. How far from the bridge was she? A. Well, she was about the elevator.

Q. Well, how far approximately from the bridge? A. About a mile away, a little less than a mile perhaps, about a mile I would say. 20

Q. How do you account for the visibility being better on the west side of the bridge than the east side, as you have stated? A. Well, it is often that way, it is often reversed. This morning it is reversed, the visibility was a little better in the east and it was very poor to the west.

Q. Now, you say you gave a signal to the "Mina Brea" not to come on, just explain what that signal is.

The Court: The stand off.

A. Just the stand off signal, which is a series of flashes on a red light. 30

Mr. Burns: Q. And then what happened? A. Well, the "Mina Brea" didn't recognize my signals, gave no answer. I just continued flashing it a few moments and then I—continued the flashing, she still came on, giving no signal that she got my red flashes. As soon as the boat from the east hove in sight and gave a blast, why the "Mina Brea" immediately knew the bridge was not—the bascule was not opened for her, and turned her nose towards the south shore, going aground.

Q. Which way was the tide running? A. The "Harold Shang" had the right of way, the tide running out at that time. 40
time.

Mr. Burns: That is all.

Mr. Griffin: No questions, thank you.

(Witness aside).

Mr. Donaghy: My lord, we are just seeing if my next witness is present.

Mr. Griffin: While my friends are waiting, I have just been reading this notice to mariners, April 19th, 1928. I can't see any

difference in effect—the language may be different, but I can't see any difference in effect. I have no objection to it going in for the purpose of illustration of the present conditions.

The Registrar: That will be exhibit 65, my lord.

Mr. Donaghy: My lord, my next witness is an operator of the bridge. As these men are on duty we did not keep them in court all the time, but he is on the way here and should be here very shortly. I just want to state that to your lordship.

The Court: Is that your last witness?

10 Mr. Donaghy: If your lordship felt you would like a short adjournment while he is coming, because he is coming from the north shore; but he is an important man and we could not keep him here all the time.

The Court: No, I understand it is an important matter, you could not entrust this to an ordinary person.

Mr. Donaghy: No, we could not, my lord—only trained men.

Mr. Griffin: Have you any more?

Mr. Donaghy: No.

The Court: That is the last witness then.

20 Mr. Donaghy: Just two, yes, they are both coming, my lord.

The Court: I understand he will be here in a few minutes.

Mr. Donaghy: A few minutes, if you please, my lord.

The Court: After that, of course, subject to anything else that may be said, we will take up the argument.

Mr. Donaghy: Yes, my lord.

The Court: Then I will adjourn for a few moments, Mr. Registrar.

(Recess 11:19 to 11:39 a.m.)

Mr. Donaghy: My lord, I call Mr. Johnson.

30 ROBERT HUBERT JOHNSON, a witness called on behalf of the Plaintiff, being first duly sworn, testified as follows:

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
F. G. Tennant
Direct
(Contd.)

R. H. Johnson
Direct

DIRECT EXAMINATION BY MR. DONAGHY:

Q. Mr. Johnson, are you an operator of the Second Narrows Bridge? A. Yes.

Q. Yes, were you on duty on the 24th April last at the time the Norwich City approached the bridge? A. I was.

Q. By the way, the place where you were would be, about how many feet from the deck of the bridge? A. From the ship?

Q. From the deck of the bridge? A. Oh, about 25 feet.

40 Q. In the position in which the operator stands what are the facilities for lookout? A. Very good.

Q. Now, will you just tell what happened on that occasion after you saw the Norwich City coming towards the bridge. It was coming out of the harbour, I take it? A. No, she was coming down from Port Moody.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. H. Johnson
Direct.

(Contd.)

Q. That is coming out of the harbour? A. Yes.

The Court: Turn this way and speak louder, you see.

Mr. Donaghy: Q. Yes, all right, just tell us? A. She was coming down from Port Moody, and after passing Berry Point she blew for the bridge to open, and I opened up in four minutes and was waiting for him to come through, and he got about 6 degrees on the south shore—on the south shore.

Q. That is— A. 6 degrees north.

Q. 6 degrees north? A. Yes.

Q. Is that by that indicator? A. By the indicator on the 10
bascule?

Q. That is fixed permanently to the bridge? A. Yes.

Q. And she was about 6 degrees north? A. 6 degrees she was—about that.

Q. Where was she with reference to Berry Point at that time? A. Well, she was inside.

Q. Inside Berry Point? A. Half way between Berry Point and the bridge.

The Court: Q. And—you drop your voice?

A. Half way between Berry Point and the bridge. 20

Mr. Donaghy: Q. Yes, where was she with reference to a line projected from where you stood on the bascule to Berry Point? A. She was inside the line.

Q. You mean south? A. South.

Q. Now, how did her course compare with the course generally taken by large vessels of about the same size as this Norwich City? A. No comparison at all.

Q. What course—having observed the course by this indicator on the bridge that vessels take in approaching the bridge from the east? A. Well, on an average about 14 degrees north. 30

The Court: Q. You speak up, you see you drop your voice?

A. An average about 14 degrees north.

Mr. Donaghy: Q. You see I asked you if you observed the course. Did you? A. That is the general run.

Q. Would you mind directing your mind to my question. I asked you if you observed—noticed this course that they generally take? A. Yes, we take the course of each vessel.

Q. Well, that is what I want to get.

The Court: Q. Just repeat that. You see, you will insist on dropping your voice? A. We take the course of each vessel as 40 they approach.

Mr. Donaghy: Your witness.

R. H. Johnson
Cross-exam.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Witness, when you said you took a record, you didn't keep any record except in the last two months, did you? A. Oh, I couldn't say it is just the last two months, but—

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. H. Johnson
Cross-exam.
(Contd.)

Q. Well— A. It may be a little longer than that.

Q. You were not keeping any record in April, 1928, were you, of the courses? A. Yes.

Q. Where is the record then. Have you got that? A. No.

Q. Well, do you know there was one kept? A. Well, the indicator was there before that date, I believe.

Q. Oh, yes, you didn't catch me, but I am saying that no written note or record was made of the courses of the ships as they came down up to April, 1928? A. No, I couldn't say there was.

10 Q. I am only quoting from the last witness, that is the witness Tracey, your predecessor on the witness stand. He would know, wouldn't he? A. Certainly.

Q. Well, have you any doubt about this, or are you wanting to create a doubt about it? A. No, I can't say I am.

Q. So that when you give any testimony about April, 1928, you are merely speaking from memory? A. Well, the indicator was there and I took—

Q. But, listen to my question. I have the same objection that Mr. Donaghy voiced to you, you are not attending closely to
20 the question put to you? A. No—

Q. I say, you are giving what took place in April last, merely from memory, are you? A. Well—

Q. Louder? A. Yes.

Q. Is that correct? A. Sure.

Q. Then this course that you say the Norwich City took is merely what you can recollect back to last April, is it not? A. Certainly.

Q. And you didn't write it down then? A. What, the course?

30 Q. Yes? A. No, I didn't write the course down.

Q. You are not sure exactly what it was today? A. Pretty sure.

Q. But you said it was about 6? A. Yes, certainly.

Q. So that you are not sure, positively, what it was? A. Well, I couldn't be much more, it may be—

Q. Answer my question frankly, witness, if you like. You don't actually recollect what it was? A. What the degrees were?

Q. Yes, that is it, that is what I am asking. A. No, of course not.

40 Q. What? A. Of course not.

Q. Now, then, the same with the courses of the other ships, you have no independent recollection of the courses of any one particular ship, have you? A. Before that time?

Q. That is what I am driving at? A. No.

Q. So that this average that you speak of is a composite picture from your memory? A. Sure.

Mr. Griffin: Yes, that is all, thank you.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
CaseR. H. Johnson
Re-direct

RE-DIRECT EXAMINATION BY MR. DONAGHY:

Q. Is it though, have you got no written record, as my friend suggests, of the courses of any of these vessels? A. Before April 24th?

Q. No, since April? A. Since April?

Q. Yes? A. Why certainly.

Q. Have you got your written record with you? A. Well—

Q. Well, we will see? A. My records have gone in, you see, at the time of the reports.

The Court: Q. I wish, witness, you would keep speaking up, because if you keep mumbling in that way I cannot understand you. Can you speak? A. Yes, my lord. 10

Q. Well, what do you say? A. At the time of my reports that I put in each day.

Mr. Donaghy: Q. What are these? Are these your reports? (Handing document to witness.)

Q. Have you any written record there of the courses of vessels?

Mr. Griffin: My lord, I never asked about written records before April, my friend— 20

Mr. Donaghy: You asked about April.

Mr. Griffin: I confined my question entirely to the position earlier than April, never asked a question about the written records since April.

The Witness: That is what I understood, my lord.

The Court: Keep quiet for just a moment.

Mr. Griffin: The witness agrees with me, my lord, the witness concurs with me.

Mr. Donaghy: I don't care what he concurs in.

The Court: I understood you asked him, Mr. Griffin, you were testing his memory and you said to him, have you records of any one single vessel. 30

Mr. Griffin: Before April, 1928.

Mr. Donaghy: No, you didn't say that.

The Court: You did not put that in.

Mr. Griffin: No, my lord—

The Court: I noticed that you did not put that in.

Mr. Griffin: But the witness understood it from the previous questions.

The Court: Well, did he? 40

Mr. Griffin: Ask him, my lord.

Mr. Donaghy: I don't propose to ask the witness—I know what you said and my memory is exactly as his lordship has stated it to be. The notes will establish that.

Mr. Griffin: The transcript will show. I am quite clear that I did not discuss with this witness a period that has no concern

with us, but that of April, 1928, might be of some interest, and the period when the Norwich City was there—that is my submission.

The Court: Well, it is a peculiar situation, you see, Mr. Griffin, and unfortunately you said one thing and then you meant another and I do not feel disposed really, so to speak, that you should be penalized for that. Do you think it is necessary then?

Mr. Donaghy: Oh, I really think so, my lord. You see I had asked the witness the question as to whether he had observed ships and what courses they took, and he said yes to those different
10 courses. Then my friend—stating no time at all, you see, it was broad—then my friend took that up and said, Now, your statement as to the previous occasions is just from memory, sort of general, it was made perfectly clear. Now, I want to meet that, he says he has records here. The records are there, then we want to clear up as to whether he is speaking of the record, or whether he is speaking in the vague way that the cross-examination would suggest, you see.

Mr. Griffin: And I desire to have the notes turned up, my lord. It won't take a moment.

20 The Court: Yes, just read, then we will see if you did confine your question in the way you think you did, Mr. Griffin. If you did, then this evidence is not admissible. If you did not, it is admissible. Just read, Mr. Reporter, what Mr. Griffin asked this witness—beginning at the beginning.

(The complete cross-examination of Mr. Johnson by Mr. Griffin was then read.)

The Court: What do you say to that, Mr. Griffin. It is really very involved. I cannot quite make out whether you intended the witness to understand that you did refer to it in that
30 way now.

Mr. Griffin: My lord, if it is not plain to your lordship—it seems to me to read with the greatest clarity on that point. It goes on straight through, right back to April and stops, and the question I put to him was, these courses that you mention as average are not taken from records, they are only memorized from memory, showing as plain as day I am not dealing with courses since April but up to April and I mentioned April a dozen times and never referred to the period after. The testimony that has just been read—it is plain, I think.

40 Mr. Donaghy: Yes, well, I submit, my lord, that the statement which he made in regard to the average was clearly not given on an average of courses before April, because he told me that that was the average course that the vessels took in Vancouver Harbour.

The Court: That is just the difficulty, there is the uncertainty as to how far that can be done. I think it is safer not to allow it.

RECORD
British Columbia
Admiralty Dist.
Plaintiff's
Case
R. H. Johnson
Re-direct
(Contd.)

RECORD

British Columbia
Admiralty Dist.Plaintiff's
CaseB. Watson
Direct.

Mr. Donaghy: Very good, my lord.

The Court: The testimony, I think though it was unfortunate that it was not a little more definite.

Mr. Donaghy: Yes, very good, my lord.

(Witness aside.)

Mr. Burns: Bruce Watson.

BRUCE WATSON, a witness called on behalf of the Plaintiff, being duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. BURNS:

The Registrar: Is your full name Bruce Watson? A. That is my business name. 10

Q. What is your full name? A. Well, I have never used it since in British Columbia. My full name is John Ogle Bruce Watson.

The Registrar: Bruce Watson is the name, my lord.

Mr. Burns: Q. You are an operator for the Bridge Company, Watson? A. Yes, sir.

Q. Were you on duty on September 5th last, when the "Nanaimolite" dented some plates? A. Yes, sir.

The Court: What is that date, Mr. Burns? 20

Mr. Burns: September 5th.

The Court: September 5th, the "Nanaimolite."

Mr. Burns: The "Nanaimolite," yes.

Q. What were the circumstances of that accident, just explain them to his lordship. How did it come about? A. Well, it was in the morning, it was foggy, and the ship was blowing fog signals along the north shore coming towards the bridge, and he came within possibly half a mile, by judging his whistle, and he blew for the bridge. I opened the bridge, waited for him, and when I just saw him he was headed for the north shore, about 300 feet north of the north edge of the bascule opening. There was a tide running with him and I saw that he was going to have trouble, and I picked up— 30

The Court: Q. When you saw him he was where? A. He was heading for the north shore about 300 feet north of the north edge of the opening.

Mr. Burns: Q. And how far from the bridge? A. He would be 500 feet.

Q. East of the bridge? A. West.

Q. West of the bridge? A. He was going east. 40

Q. Going east, yes? A. Well—I took the megaphone and shouted for him to take a turn out of her. I thought he was going to have trouble, and he was turning at that time. As he turned the tide naturally was against him when he started to turn, and before he got around so that he could properly handle the ship the

stern of his ship caught the west point of the pier, that is the bascule—the bascule and 300-foot pier, too, I think it was; and it hung there.

The Court: Q. Do not say think, you know.

A. Well, I believe that is—

Q. Well, do not believe or think, just say. You say pier 2?

A. Pier 2, yes.

Mr. Burns: Q. When you say you believe you are speaking as to this one pier? A. Yes. When he turned the tide carried
10 him and the stern—about 25 feet from the stern of the ship caught on the point of the pier and he hit pretty hard on the point of the pier, and his nose stuck into the tide, and he didn't clear this stern, it hung there. The tide carried him round and he slipped off there on his stern and he went through the bascule opening broadside, and he turned with the tide and went on through.

Q. Now, what was the reason for that, what was the cause of it? A. He was too far to the north shore.

Q. In approaching the bridge? A. In the fog, it was due, I think, mostly to the fog, his position. The fog was fairly heavy.

20 Q. Now, you are familiar with this indicator that has been spoken of? A. Yes, sir.

Q. That is established on the bridge. Vessels coming from the east, what is the general or usual course they follow, having reference to the indicator, in approaching the bridge? A. Oh, 14, 15, just around there, an average, I suppose, around 14.

Q. You mean 14 or 15 north? A. North—degrees north, yes.

Q. Have you their records of the different angles? A. Yes.

Q. Of degree angles— A. Yes.

30 Q. Degrees of angle? A. Yes.

Q. Have you it in your reports? A. They are all on the reports, these last—

Mr. Burns: That is all.

CROSS-EXAMINATION BY MR. GRIFFIN:

Q. Just when did you begin to keep these records? A. I couldn't tell you the date.

Q. Well, as near as you know. The witness Tracey who was here said it was about two months ago they began? A. I think it was a little longer than that possibly.

40 Q. Well, three months? A. I don't know the date.

Q. You don't know the date. Was it since April, 1928? A. That we have been writing them in our reports, yes.

Q. Yes. Are you a navigator yourself? A. No, sir.

Mr. Griffin: That is all.

Mr. Burns: Thank you.

(Witness aside).

RECORD
British Columbia
Admiralty Dist.

Plaintiff's
Case

B. Watson
Direct

(Contd.)

B. Watson
Cross-exam.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

B. Watson
Cross-exam.
(Contd.)

Mr. Donaghy: My lord, that finishes our evidence.

The Court: Mr. Griffin?

Mr. Griffin: If your lordship pleases, as your lordship has held against me that evidence in rebuttal was permissible to the Plaintiff, I having taken the view that it was not, and the issues being the same that the same ruling, of course, would apply to claim and counter-claim, but subject to that view, that is to say, subject to my objection and subject to your lordship's view on that objection, I desire on my part in that event to call a little evidence in rebuttal of the counterclaim, and I so propose to call two or three 10 pilots, and Mr. Muckleston to be recalled, and that will be all.

The Court: Rebuttal on the counter-claim?

Mr. Donaghy: I don't understand my friend on that.

Mr. Griffin: Yes, well, the same issues are on the counter-claim as on the claim, and if my friend can rebut them as to the claim, I can rebut them as to the counter-claim.

The Court: You say the same issue is on the counter-claim?

Mr. Griffin: Yes.

The Court: As on the claim.

Mr. Griffin: Yes, my lord, every issue that is in one is in 20 the other, except, of course, negligent navigation; and I think therefore if my friend can rebut that for the purpose of his case, I can rebut that for the purpose of my case.

The Court: Your defence and your counter-claim are the same.

Mr. Griffin: Yes, my lord.

The Court: They are the same?

Mr. Griffin: Yes.

The Court: The same issues in them.

Mr. Griffin: Certainly, as I say, they are on the Plaintiff as 30 well.

The Court: In such case you are not entitled to call rebuttal.

Mr. Griffin: My lord, then, of course, if I am not, the Plaintiff would not be. We would be both in the same boat.

The Court: That is quite different.

Mr. Griffin: My submission, my lord, is that it is not. In other words, if there is an issue we will say as to whether or no the bridge was constructed with the least possible impediment to navigation, if my friend can give evidence in rebuttal for the purpose of his claim on that point, I on my part, when dealing with 40 the same issue in the counter-claim may give evidence in rebuttal.

The Court: But the issues in the counter-claim are the same as the other, you say?

Mr. Griffin: Yes, my lord. Of course, I am not abandoning my position, but as your lordship has held against me on that position, then it seems to be highly logical that I must have the

right of rebuttal, since the counter-claim goes in rebutting the issue—

The Court: Well, just tell me exactly what you propose to do, because I must say I do not understand it when you say the issues are the same.

Mr. Griffin: I say the issues are the same—I take firstly, the issues of legality of construction are the same both for the claim and counter-claim.

The Court: What issue is it on which you ask to give rebuttal?

Mr. Griffin: I ask to give rebuttal testimony on the issue that the bridge was illegally constructed and therefore a nuisance.

The Court: Yes.

Mr. Griffin: And on that issue, which brings up all these questions of the conditions of the Narrows, I desire to call rebuttal. I propose to call—

The Court: You ask to give rebuttal evidence on what issue, just give it to me, so I can write it down.

Mr. Griffin: On the issue as to the legality of the construction of this bridge.

The Court: On the issue as to the legality.

Mr. Griffin: The legality of construction and the extent of impediment.

The Court: Yes.

Mr. Griffin: Which is the same thing in my view.

The Court: Yes, which is the same thing.

The Griffin: Which I argue is the same.

The Court: Now, you ask to give rebuttal evidence as to the legality of construction of the bridge, that is to say, in pursuance of parliamentary powers.

Mr. Griffin: Yes—

The Court: Wait now. Yes, and also—

Mr. Griffin: The extent of the impediment, which is only a branch of that.

The Court: And also the allegation of—

Mr. Griffin: The allegation of unnecessary impediment.

The Court: Of unnecessary impediment, yes. Now, both those were issues the onus of which was upon you.

Mr. Griffin: No, my lord, both issues on which the onus was upon the Plaintiff originally. The issue of legality of construction was always on the Plaintiff, and he assumed it, assumed it and carried it from the very beginning, and asked your lordship's leave to bring evidence—

The Court: Yes, you say the issue—you use the words, "legality of construction," I use pursuance—that is the expression, I think, but I use it in pursuance of the powers.

Mr. Griffin: Yes, my lord, I mean the same thing.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Case

B. Watson
Cross-exam.
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.
 Plaintiff's
 Case
 B. Watson
 Cross-exam.
 (Contd.)

The Court: You mean the same thing.

Mr. Griffin: Yes, I use the shorter word there, I endeavoured to get one word to cover it.

The Court: Now, that, of course, was for Mr. Donaghy.

Mr. Donaghy: Yes.

Mr. Griffin: Oh, yes.

The Court: There is no question about that.

Mr. Donaghy: Quite correct, that onus was on me in my case in chief.

The Court: Yes, he assumed that onus, and he said in regard to that there was just one witness he was going to call, and that was the engineer, Mr. Swan, and that ends that as far as he is concerned. Now, your point that you wish to open that question up on is the proper construction—due construction. You wish to call evidence? 10

Mr. Griffin: Yes, my lord, I want to call some evidence in rebuttal in reply to the defence to the counter-claim.

The Court: What is the nature of the evidence you propose to give?

Mr. Griffin: I propose to call Mr. Muckleston, civil engineer, to discuss the survey made by Mr. Hanes. 20

The Court: To do what?

Mr. Griffin: To discuss the survey of the fill made by Dr. Hanes; and I propose to call two or three pilots to discuss the evidence given by Captain Batchelor as to the course of ships anterior to the building of the bridge.

The Court: Then there are two things, one is the actual construction, quite apart from the theory of navigation. We will take up one thing at a time. You now propose to call evidence in rebuttal to that of Mr. Swan, and the other witness who gave his dimensions yesterday in regard to the actual size and that sort of thing of the fill. 30

Mr. Griffin: That is it.

The Court: I think you are entitled to do that.

Mr. Griffin: Yes, I will call Mr. Muckleston.

The Court: The reason for that ruling is that that was cast upon the Plaintiff, the onus was upon them to show that it was duly constructed pursuant to parliamentary powers.

Mr. Griffin: Would your lordship allow me to make this interjection—I would like your lordship to rule on the other one first. 40

The Court: No, I won't rule until it comes.

Mr. Griffin: I have a seaman here—

The Court: There shall be no ruling until I get this. It is a very nice question and I propose to keep it different—I am only going to give one ruling at a time, and you will submit this wit-

ness who will now go into the box, and there will no other finding. This case is one which is very easy to confuse and I do not propose to confuse it.

RECORD
British Columbia
Admiralty Dist.

REBUTTAL TO DEFENCE TO COUNTER-CLAIM.

Defendant's
Case

HUGH MUCKLESTON, a witness for the Defendant, recalled in rebuttal of counter-claim, testified further as follows:

H. Muckleston
Recalled
Direct

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Mr. Muckleston, I show you—

The Court: Just one moment. Yes, Mr. Muckleston is re-
10 called, yes.

Mr. Griffin: I direct your attention to exhibit 58, being the survey plan made by Mr. Hanes, engineer witness for the Plaintiff. In your opinion—

The Court: The plan, Mr. Griffin, is what number?

Mr. Griffin: Exhibit 58.

The Court: Yes.

Mr. Griffin: Q. Is it in your opinion possible to make an accurate—

The Court: This is Hanes, is it not? Is it Hanes' plan?

Mr. Griffin: Yes, my lord, H-a-n-e-s.
20

The Court: H-a-n-e-s, yes, Hanes' plan, exhibit 58, yes.

Mr. Griffin: Q. Is it in your opinion possible to make an accurate survey of the low water mark without actually locating it on the ground, either by level and rod, or by selecting a time when the water stood at the actual level, and in either case establishing a line on the ground by sticks—

The Court: Turn round, witness. What is that again? Try and make your question—your question is long, and it seemed to be two or three.

Mr. Griffin: Q. Is it possible to make an actual survey of the low water mark without actually locating it on the ground by some physical mark? A. No.
30

Q. What is the right way then, if you have to locate it on one day and make your survey on another when the water will cover the low water mark, and what is the right way of marking it? A. With some physical object, such as a permanent stake or monument of some sort.

Q. And from this particular case, a line of stakes? A. A line of stakes, yes.

Q. It has been deposed that the survey upon which this plan is based was made on the 29th of September last between noon and 5 p.m. What was the stage of the tide between those times? A. There was a 3.7 tide, which is—
40

Q. 3.7 tide, yes? A. That is 7 minutes before noon.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Direct.

(Contd.)

Q. Yes? A. And a tide of 11.1 at a few minutes after 6 in the evening.

Mr. Donaghy: Yes, my lord, so my friend will be under no misapprehension, the actual statement was that Mr. Hanes said that is the day he finished—

The Court: A little louder.

Mr. Donaghy: Mr. Hanes said that was the day he finished his investigation, but that he had been working at it several days, so my friend will be under no misapprehension.

The Court: No, I remember that, that is the day he said he 10 finished the plan.

Mr. Griffin: But you will remember—I understood him to say, my lord, and it is my recollection, that all the survey was made on that—

The Court: Well, I did not understand that.

Mr. Griffin: That is my recollection, and if it is correct this testimony will meet it; if it is not correct it will do no harm.

The Court: I understood that was the evidence, he said, I finished the plan on that day after I had done work on it before.

Mr. Griffin: No, my lord, I think not. He made, I know, 20 visits before, I am aware of that, he had made physical visits before, presumably some time before, but he had never made any survey before.

The Court: Well, you may proceed, Mr. Griffin, because, subject to that, of course, it would seem, this evidence being extended—we will have his evidence extended later and then we will have the full effect of the evidence, you see. In the meantime it will be really safe to allow this witness to answer.

Mr. Griffin: Yes, just a very few questions.

Q. Would the ordinary line of low water be seen or reached 30 between those times mentioned—that you have mentioned about?

A. Not without waiting.

Q. How deep would the water be above ordinary low water between those hours? A. At least—it would be 2½ feet deep at the beginning of the period, and over seven feet at the end.

Q. Now, if the low water mark as appearing in fact on the ground on the 31st October was used, how much lower would this be than ordinary low water mark? A. About a foot.

Q. Now, what effect would that have in regard to the position of low water mark? A. It would be considerably farther 40 out depending on the slope of the beach.

Q. And that in turn would have what effect upon the longitudinal measurement of the fill? A. It would make it very much shorter.

The Court: Q. It would make it what, witness, did you say? A. Correspondingly shorter.

Mr. Griffin: Q. In other words, if I might do the same as

my friend, it creates an appearance of a shorter fill than if ordinary low water mark had been used? A. Yes.

Q. Now, following what I understood the witness to say—the witness Hanes to say, that he had located low water mark on some previous occasion before the 29th September, in the sense of having observed it on the ground, but had not marked it, and had come back on the 29th of September to make his survey, would it be possible for him to accurately portray on his plan the position of the end of this fill at ordinary low water? A. Not without
10 some physical mark.

Q. Would it be possible for any one to tell with accuracy how far out that low water mark would be? A. No.

Q. Now, have you visited this site with the idea of making such survey as purports to be represented on exhibit 58? A. Yes, I made a special visit there on Saturday, November the 7th, at 2 p.m.

Q. And what conditions did you find on that occasion? A. The tide was ebbing, it had been 12.6 at 10.41, and ebbed to 9.6 at 15.43.

20 Q. Yes? A. There was no great degree of current visible, although a slight eddy was visible around the rock fill, which is at Pier 5.

Q. What did you find in the conditions as to the shore which relate to the question of the original low water mark? A. There had been a great deal of material dumped over the Canadian Pacific Railway embankment for the purpose of laying additional tracks for the elevator.

30 Q. Yes? A. And at the time I was there this material was at least awash, and I don't know how far down below the water mark it had extended, but I estimate that it was at least two or three feet of it awash. If that was the case, a good deal of that material will be carried down by the wash and spread over the beach, and I would expect to find that the level of the beach had been raised generally by quite a considerable amount—possibly a foot.

40 Q. And what effect would that have on the apparent low water mark? A. It would move the apparent high water mark out a corresponding distance—possibly ten feet from where it was before that material had been put there. The fill as it is a groyne standing out on the beach, and it would arise in the lateral drift that might occur and it would pile up against it. You see an example of that action on the pier—on the west side of the pier at English Bay.

Mr. Griffin: That is all. Your witness.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Direct

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. When was the fill back of the C.P.R. track deposited, that is, in the fill at the elevator? A. They were depositing it there back in June—May and June of this year.

Q. Yes. That is on the farther south shore—the indentation just west of the Second Narrows Bridge, is it not? A. It begins about—not more than 100 feet west of the bridge.

Q. West of what, the bridge pier or— A. Yes, the axis of the bridge I should say, about 100 feet west.

The Court: Taking the west face, the west line, you see. 10

Mr. Donaghy: Yes.

The Witness: The line is on a curve there, my lord, and producing the axis of the bridge straight south from that it would possibly be 100 feet.

Q. How many feet is this fill away from the most southerly concrete pier of the bridge? A. I should say about 100 feet.

Q. Yes. How far is it from the concrete pier to the bridge that crosses the C. P. R. tracks, for instance. You know that bridge over the C. P. R. tracks, a continuation of the highway of the Second Narrows Bridge, don't you? A. Yes. 20

Q. How far is that from the most southerly concrete pier? A. Well, they are not comparable. If you produce the axis of the bridge straight south you get a line, you get a measurement there.

Q. Yes, you see I am not doing that. I just asked you how far this concrete pier immediately south, how far that was? A. 200 feet, perhaps.

Q. 200 feet, that is from the most southerly concrete pier?

A. Well, the pier is so far out in the stream—

Q. I don't care how far out in the stream it is? A. I never 30 measured it along that line.

Q. Well, it is taking a straight line, the nearest point between two points? A. I couldn't tell Mr. Donaghy, because I have never estimated it along that line, I was estimating it as near as I could from the axis of the bridge.

Q. Will you please give that information along a straight line? A. I couldn't—

Q. Is it over 100 feet? A. Oh, yes, I think so.

Q. Yes, and isn't the fill that I spoke of, or the continuation of that straight line another 100 feet at least? A. I wouldn't say, 40 I couldn't.

Q. It is more than 10 feet, is it not, from that bridge? A. Well, we are not running along parallel courses.

Q. But I am going to ask you about a straight course? A. I don't know your course.

Q. You refuse to take the shortest distance between two points, do you? A. I couldn't estimate it unless I was there at

the time and estimated at the time. Speaking from memory, I have no recollection of the situation on which I could estimate.

Mr. Donaghy: All right, if you have no recollection of anything there is no use talking to you.

Mr. Griffin: That is all, thank you.

(Witness aside.)

Mr. Griffin: Now, my lord, my next point is, I want to call one or two seamen.

The Court: Just wait. That is all the evidence then you
10 have on that aspect of the matter—on that issue.

Mr. Griffin: Yes, my lord.

The Court: Now, then, what is it you propose to do?

Mr. Griffin: I propose to call one or two seamen to discuss some of the things in the evidence of the witness Batchelor, as to the course commonly taken by ships in the Narrows before the bridge was built. If that testimony given by the company could have been material it could only be material on an issue relating to whether the bridge was or was not a needlessly great impediment.

20 The Court: What you are now proposing to do is to give further evidence on the question as to whether or no this bridge—the bridge constitutes an impediment to navigation?

Mr. Griffin: Yes, more than it need have been.

The Court: Now, just repeat that, I did not catch that.

Mr. Griffin: I say I am proposing to call testimony in rebuttal of the issue as to whether this bridge does or does not constitute a needlessly great impediment.

The Court: Yes.

30 Mr. Griffin: On the point—the particular point relates to a condition before the bridge, on which the witness Batchelor was allowed to testify.

The Court: Yes, now, that issue clearly was upon you in your defence.

Mr. Griffin: My lord, I submit with some confidence, not.

The Court: Very well.

40 Mr. Griffin: Because it is, as I submit, it is merely a form of turning the question in conformity with the law. If the bridge in other words could be built by my friend providing it interfered with navigation to a minimum extent, and otherwise would be unlawful, it was for him to show that it came within the realm of those bridges which are of a minimum impediment, and that is one of those elements, and therefore I have a right to rebut on that point. That is my submission.

Mr. Donaghy: I think, my lord, my friend had better call his witnesses and ask his questions so we will deal with it when he puts his question to the witness.

The Court: I beg your pardon.

RECORD

British Columbia
Admiralty Dist.

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

H. Muckleston
Cross-exam.
(Contd.)

Mr. Griffin: I think, probably, my lord, the safer way would be for my friend to call his witness and when he puts his question it can then be discussed.

The Court: I think that would be the best way, Mr. Griffin, then we will get a concrete question and a concrete ruling, that is what Mr. Donaghy says at present. He may or may not object to it; so you may call your witnesses.

Mr. Griffin: All right, Captain Guns.

The Court: Then we will see if Mr. Donaghy has any objection. Of course if he has no objection, I have no objection; it is nothing to me. 10

T. S. Guns
Direct

THOMAS S. GUNS, recalled in rebuttal, as a witness on behalf of the Defendant, testified further as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

The Court: He has been on before, what is the name?

The Registrar: Your name is— A. Thomas S. Guns.

Mr. Griffin: I won't repeat, my lord, this gentleman is a pilot, has been for many years, and his qualifications were all given before.

The Court: Yes. 20

Mr. Griffin: I have to repeat this one statement only.

Q. You have navigated through the bridge on many many occasions with large vessels before the bridge was built? A. Fifty—one moment, sir. 54 times previous to the construction of the bridge.

Q. And I am now going to ask a question or two relating to what I shall for this question describe as big ships, say those over 300 feet long. I show you admiralty chart exhibit No. 7, and ask you what was the common course for navigators of big ships in relation to the south or north shores of the Narrows before there was any bridge built, and speaking of ships going west? A. In the— 30

Mr. Donaghy: My lord, just a moment, I object to this question, my lord. This matter was gone into by my friend in evidence which he called in support of his defence and his counterclaim. It has been rather hurried, to look up the thing, but probably there is more in my brief.

The Court: Yes, just refer to it.

Mr. Donaghy: Page 324, at the bottom of page 324 of the record, T. S. Guns, that is the present witness, at the bottom of page 324, this witness was asked this, when he was examined in chief by my friend, this question: 40

“Q. Where was the fairway before the bridge was built?

A. In the centre of the channel.”

Page 352, at line 14, the witness Brown whom my friend called was asked this question:

“Q. What position is the bascule span of the bridge with reference to the fairway through the Narrows? A. Well, I don’t consider it is in the fairway at all. The proper fairway for deep-loaded ships has been closed up. I traded through the narrows before the bridge was built. I always had control of my vessel, and on the 22nd of April, 1925, there was a 300-foot span of navigable channel and I had to go through that bascule span.”

10

There may be some more of this, my lord, too, but—a question further:

“Q. You found the ordinary fairway up the channel was closed? A. Was closed.”

He is referring to the 300-foot span closing. There may be more of these things, I would like a little time to look this up, because it is quite a job to turn up a matter of this kind, my lord, in such a tremendous volume of evidence.

Mr. Griffin: I will admit there are several more just like this.

20 Mr. Donaghy: In other words, will my friend admit—that will save me a lot of labour—that in the evidence which he called in defence and in support of his counter-claim, that he brought out evidence showing the course which vessels used to take in going easterly or westerly or both through the Second Narrows?

Mr. Griffin: No.

Mr. Donaghy: My friend won’t admit that, that is what I want to look up, you see.

The Court: That is true, I think, Mr. Griffin.

30 Mr. Griffin: No, my lord, that is not correct, I am making no admission on the point. You see the distinction I draw, I have agreed there are several passages similar to those my friend has read, because that is my memory, and they don’t meet the point at all. You see, I was not really thinking of this question that my friend has raised, that is all that the witness Guns has said—he was being examined and asked whether the position of the bridge is south of the channel, that is, as a matter of construction, that proposition. He was placing the bascule span in its relation to the centre of the channel. He was not discussing the question of the practice of shipmasters before the bridge was built, he was merely discussing the position of the bridge. True, incidentally, 40 he did make some remarks about that, but it was not directed to that, and I don’t think, as far as I am concerned, that I even thought of it. What he says is this:

“Q. The bridge is not right across the Narrows, but runs at an angle. Where is the bascule of the bridge with reference to the fairway of the Second Narrows? A. It is entirely away. It leads a man directly into the south shore.

Q. Is it to the north or south of the fairway that was

RECORD

*British Columbia
Admiralty Dist.*Defendant’s
CaseT. S. Guns
Direct

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. S. Guns
Direct.

(Contd.)

used by vessels navigating the Narrows before the bridge was built? A. On the south side."

You see the fact that vessels commonly navigated to the north is purely an incidental matter. The thing that was being discussed was what was the position of the bascule. Now, then, my friend raised by his witness' testimony the distinct question as to what navigators had done. I am instructed it is entirely wrong. In other words, if the practice of navigators has anything to do with it, I ought to be allowed to reply to it. If it has not, then the evidence should not have been admitted, and on that view your lordship decided to allow that evidence in, and it would be in the interests of justice that we should be able to tackle it as a point by itself, that we certainly did not do before. 10

The Court: There is something in that, Mr. Donaghy. You see, Mr. Griffin, what he suggests is that while at large he says that he did—of course, there is no question about it—but he says in order to establish his point that there has been no doubt interference—that is the word he used—impediment to navigation, then to meet that, that is his case, and he produced on that competent evidence unquestionably in support of that, and it is not open to him, of course, to confirm that evidence, but he says this, that there is in that aspect of it something that he should have an opportunity to add just now, that is to say, that the general course of navigation was as marked upon that admiralty chart. I think that is the very admiralty chart that was mentioned. 20

Mr. Griffin: Yes, that is the one.

The Court: I think it is therefore open to him to make that one point, as far as that goes. There may be others, but I will not reject that evidence.

Mr. Donaghy: Yes, I would quite concede that, my lord, if he has not gone into it, you see. 30

The Court: Yes, he may have incidentally gone into it, but I do not think he has gone into it—though he has gone into it in the sense of endeavouring to establish that it was the general course, the ordinary and recognized course of navigators, but he did not pin himself down to anything of that description.

Mr. Donaghy: My lord, I really had the impression that he led evidence to show that we put the bascule span in the wrong place, because the course taken by navigators had always been farther north. 40

The Court: Well, my recollection of it did not go quite that far, Mr. Donaghy.

Mr. Donaghy: No, I see.

The Court: There is no question about it from several aspects but I do not think that particular aspect—at least, it was not so emphasized as to—we will say this—impress itself very strongly

upon my memory, and it has been a very long case and I think it better to allow that question to be asked.

Mr. Griffin: Q. Well, have you got the question before you.

The Court: I think in the circumstances it is clearly rebuttal.

A. Would you please repeat it.

Mr. Griffin: Q. Well, the question is only one question really. Firstly, what was the regular course for navigators to take with big ships going west through the narrows within, say, 1,500 feet, we will say, for the sake of shortening it, east of the
10 bridge to the point where the bridge now is with regard to the north and south shores? A. Absolutely in midchannel.

Q. Is it correct—if testimony has been produced that the common custom of pilots and navigators was to utilize the south shore and more or less hug the south shore, is that correct? A. No, it would be absolutely dangerous with a deep ship.

Mr. Griffin: Your witness, Mr. Donaghy.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. Were you taking deep ships up through the Second Narrows prior to the commencement—

20 The Court: Just one moment, if you please, Mr. Donaghy. Yes, all right.

Mr. Donaghy: Q. For how many years prior to the commencement of the work on the Second Narrows Bridge had you been navigating large vessels up through the Second Narrows? A. From—

The Court: Since the work?

Mr. Donaghy: Since the work commenced—before the work commenced on the bridge, you see, how many years before the work commenced on the bridge had you been navigating through
30 the Second Narrows with large ships? A. From the 27th of February, 1917, till the 3rd of December, 1921.

Q. Yes.

The Court: Q. You had been navigating large ships from When? A. The 27th February, 1917, to the 3rd of December, 1921.

Mr. Donaghy: Yes. Now, did you hear Captain Batchelor's evidence? A. I did not.

Q. You didn't hear his evidence? A. I wasn't here.

Q. Well, what have you to say regarding this statement that
40 he made, that there was an objection to going up the middle channel, like through that 300-foot span where it is now, always had been an objection because there was a spit which projected from the north shore southerly east of the bridge, and that the extent of that spit extension was somewhat indefinite, and as a matter of precaution navigators did not take that mid channel in the 300-foot span of the bridge, but preferred to keep farther south, so

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

T. S. Guns
(Contd.)

T. S. Guns
Cross-exam.

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Case
 ———
 T. S. Guns
 Cross-exam.
 (Contd.)

as to take no chance of ground on the spit. Now, what do you say as to the statement he made in that respect? A. I can't agree with it, for the simple reason that we tried to keep in the middle—

The Court: Turn around now.

A. I can't agree with it, for the simple reason that we tried to keep in the middle line of the current, which was more or less in midchannel. With a deep loaded ship you had to follow the current or head the current to keep her under control.

Mr. Donaghy: Q. Well, have you any regard for the possibility of going on shoals, if it is true there was a shoal as he says there? A. Mid current—

Q. A spit standing out? A. Mid current would not be where there was a shoal, there couldn't be a shoal there if the main current was in mid channel.

Q. Well, I take it you say there is no such spit as that extending out— A. Not—

Q. —which might possibly be dangerous? A. Not at the midchannel.

Q. Now, this midchannel is not defined by walls or buoys is it? A. No. 20

Q. No. Well, then, coming east, we will say, if you went through that 300-foot span what course would you take, would you take the straight east course at right angles to the 300-foot span and keep on it? A. Almost, with Berry Point slightly a point on the port bow.

Q. Yes? A. I would have the ship heading on Berry Point a little bit ahead.

Q. Yes, and you would have no danger, you think, of hitting any spit? A. No.

Q. Or projection, if you did that? A. No, not from the centre span. 30

Q. No. However, if you kept a little more southerly, you would still be safer, as regards hitting any indefinite spit that might come out there? A. Well, then, you are getting nearer to a rocky shore, too.

Q. Yes, which is quite visible. A. No, there is kelp that sticks out a long way.

Q. And high banks, and railway embankment? A. There is kelp in the water, the banks are not in the water.

Q. But it is easy to see within a safe limit? A. No.

Q. No? A. No, there is a big ledge comes out there on the south side. 40

Q. You can't see the edge of the water then? A. No.

Q. Hard to see, is it? A. You can see the edge of the water marked on the water, you can't see the edge of the deep channel.

Q. Oh, no, I never suggested you could, oh, no, but you can see the shore line, where the water and the land join? A. Yes.

Q. Very easily? A. Yes.

Q. Do you know that railway embankment right along there?
A. Yes.

Q. And high banks? A. Yes.

Q. High banks, yes. Now, that is what Captain Batchelor pointed out to this court was an advantage to a navigator, because he had that to go by. Is that of some advantage to go by? A. We will have smoky nights when you can't see the embankment—

Q. Just answer my question, you see. Would you mind answering the question. You don't know what it is. Shall we
10 have it read to you? A. You say it was an advantage. I say it is not much advantage that I can see.

Q. No, I suppose music is no good to a deaf man, nor scenery to a blind man, but would you mind answering the question. I put this bona fide to you, it was Captain Batchelor's sworn statement, and I certainly treat it seriously, you see. Now, what is your answer to his statement? A. That the embankment was an advantage?

Q. Yes, these defined banks were an advantage to a navigator, because he said they are something that he can go by, it is
20 a defined mark, very prominent, and he can go by that and judge distances and so on. A. Very correct, if you know how far the shallow water extends from that bank, but if you don't know the distance the shallow water extends from that mark the mark is not much use.

Q. No, I say Captain Batchelor gave this statement, and he is wrong in your opinion? A. I don't see much advantage in it—in his statement.

Q. Very good. Now, that is your opinion, you see, as against his.

30 The Court: Q. Just what do you say, witness? A. I don't see much advantage in his statement about the embankment.

Q. You do not think that the embankment is any use to navigators? A. No.

Mr. Donaghy: Q. Now, that is your opinion, on oath, we have got you there. Now, I will take you to the north shore, from the centre of the channel spreading north you have marshy land, flats, that the tide spreads away over for hundreds of feet northerly? A. Yes.

Q. Yes, no defined mark at all to go by? A. No.

40 Q. None at all? A. No.

Q. And at high tide that shallow water extends a thousand or two thousand feet? A. Yes.

Q. Northerly of midchannel? A. But we had the mark of the power line—the pier of the power lines, which was our mark on that side.

Q. Yes? A. Just as good as the embankment on the south side.

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. S. Guns
Cross-exam.
(Contd.)

RECORD

*British Columbia
Admiralty Dist.*Defendant's
CaseT. S. Guns
Cross-exam.
(Contd.)

Q. Yes. What good would it be to you, if the embankment was no good on the south side? A. Well, it is no more good than this embankment—one is as good as the other, the mark you had, you could judge from the north side.

Q. But you have already stated that the embankment on the south side is no good, you swore it under oath. What good was this mark then on the north side? A. It was no good in that case if you couldn't see it.

Q. Just answer— A. It was no good.

Q. You don't want to treat this as a funny proposition. It is a serious proposition. A. I am not.

Q. Is it a fact that it was any good or wasn't any good? A. The mark on the north side?

Q. Yes? A. It was good when you could see it, just as good as the embankment.

Q. Now, that is just at one spot, that mark on the north side? A. Yes.

Q. While this embankment that Captain Batchelor spoke of runs all the way along the shore line? A. Yes.

Q. And as you go on east to this mark that you say, the power line, out on the north shore, after you leave it and proceeding east at high tide, you still have on the north all this thousands of feet of shoal water? A. Yes.

Q. Without any mark? A. Yes.

Q. That is what Captain Batchelor was distinguishing, as compared with the south shore, when he gave his evidence here. Do you disagree with him? A. Not if you have a clear view, and you could see the embankment, if you could see it it might be an advantage to a man—or a navigator, but to a man who is directing his course down straight there from that position should not require that.

Q. Now, witness, let me tell you this, he said it was an advantage at night. A. At night you can't see it, it is under the shadow of the land.

Q. Now, he said you could? A. No.

Q. And he said it was an advantage? A. You can't see it.

Q. He said also you could get echoes from it? A. I have tried—you get echoes from cliffs not from the railway embankment.

Q. He spoke of these high banks as well as the railway embankment? A. Well—

Q. Now, is he right or wrong in that, that it was a safer channel to take at night, was he right or wrong? You need not laugh about the thing. Captain Batchelor gave this evidence very seriously? A. We used those echoes to get along, to get our position in midchannel.

Q. I am asking you, was he right or wrong in the statement

he made that he preferred this southerly course—the course along the south shore at night also because it was a guide to him, while on the north he had no guide, it was simply steering in the dark, you see, no guide, he had no mark. Now, was he right? It seems to me he was, you see, but maybe both he and I are wrong. What do you say? A. You are speaking of going farther east now, or are you speaking just in the narrows?

Q. Going east of the bridge. Going east of the bridge? A. Going east—

10 Q. From the bridge on east? A. From the bridge on east.

Q. Now, what is your answer? A. I can't find it—can't agree with it. You might get into bad difficulties in that bank and get locked in there with a big ship, it would be very awkward to get out.

Mr. Donaghy: Well, we have you on record. That is all I want to know.

Mr. Griffin: That is all, Captain. Captain McNeill.

ROBERT WILLIAM McNEILL, recalled in rebuttal, as a witness on behalf of the Defendant, testified further as follows:

RECORD
British Columbia
Admiralty Dist.
Defendant's
Case
T. S. Guns
Cross-exam.
(Contd.)

R. W. McNeill
Recalled
Direct

20 DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Captain McNeill, have you been in the room during the testimony just given by Captain Guns? A. Yes.

Q. I suppose my friend will not object—I will say, do you agree with his testimony? A. With Captain Guns?

Q. Yes? A. With the majority of it, yes.

30 Q. Well, then, if I have to distinguish I will have to do it all over again. What do you say was the general practice of navigators, pilots in particular, or other navigators sailing big ships, say, ships of 300 feet or more, navigating the narrows before the bridge was built in regard to the position in the channel adopted by them with reference to the north and south banks from the bridge east? A. Well, as long as—in my own practice I have always kept midchannel. I had this position defined in my own mind, where midchannel was. And as to the banks, there is a bank in on the south shore is high and you can see it—at least, on the south shore it is high; on the north shore it is marshy and it is not as clearly defined; but midchannel at high water would not be midway between the banks, but it would be nearer the south shore at high water. At low water it is clearly defined and you can follow midchannel well.

40 Q. What was your common point of laying your course from, what physical points did you lay your course from? A. Coming west—

Q. Coming east—going east, that is? A. Going east.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Case

R. W. McNeill
Direct.
(Contd.)

Q. From the line of the bridge, say, for the next 1,500 or 2,000 feet? A. Oh, I would have been almost in the centre of where the mid span is there, that is, my position would be, where my ship was, and from there I would follow a little inside of Berry Point.

Q. Now, inside is not a very good way? A. Well, with Berry Point bearing on the port bow less than a point.

Q. That would be going east? A. Going east, yes.

Q. And then at a later date you changed course when you approached Berry Point? A. Yes. 10

Q. Now, I want to ask another question and I am finished: Was that the general practice of navigators as you have indicated?

A. Yes, of all, that is from my observations it was.

Mr. Griffin: Thank you, your witness.

R. W. McNeill
Cross-exam.

CROSS-EXAMINATION BY MR. DONAGHY:

Q. By the way, have you ever had a licence as a pilot for this harbour? A. Only one issued by the Vancouver Pilots who had power to issue licences.

Q. Yes? A. Yes.

Q. When did they issue a licence? 20

The Court: Turn around, witness, so I can hear you.

A. In January, 1922.

Mr. Donaghy: Q. January, 1922? A. Yes.

Q. Yes, what was the certificate that you received, and what was the official status of that body that bestowed it upon you? A. Well, they were merely given this power from—I don't know—from the government, we had a company—the company was licensed for it to license pilots.

Q. And what form of certificate did you get? Did you get a junior certificate or master pilot or what was it you got? A. 30 It was just as a pilot, it wasn't indicated junior, senior or otherwise.

Mr. Donaghy: I see, thank you.

(Witness aside.)

A. E. Lewis
Direct.

ALFRED ELMER LEWIS, recalled in rebuttal, as a witness on behalf of the Defendant, testified further as follows:

DIRECT EXAMINATION BY MR. GRIFFIN:

Q. Captain Lewis, have you been in court during the testimony just given by Captain McNeill, the last witness? A. Yes, sir.

Q. Will you speak up. Do you concur in what he said? A. 40 Yes, sir.

Mr. Griffin: All right, thank you. Your witness.

CROSS-EXAMINATION BY MR. DONAGHY:

RECORD

Q. Did you navigate large ships through the Second Narrows prior to the commencement of the work on the Second Narrows Bridge? A. No, sir.

*British Columbia
Admiralty Dist.*

Mr. Donaghy: All right.

Defendant's
Case

Mr. Griffin: Well, but—my friend perhaps misunderstood the point.

A. E. Lewis
Cross-exam.

Mr. Donaghy: Oh, no, my friend cannot go on again surely. I have been very short, of course, in my cross-examination.

10 Mr. Griffin: No, my friend misunderstood me. I was inviting the man, simply asked him, as Captain McNeill, including what he had seen as well as what he had done—

Mr. Donaghy: I haven't asked him.

Mr. Griffin: All right, that will be all.

Mr. Donaghy: I am through cross-examining.

Mr. Griffin: Thank you, Captain.

(Witness aside.)

Mr. Griffin: No further evidence, my lord, I have to tender in rebuttal.

20 The Court: We will adjourn, Mr. Registrar.)

(THE COURT THEREUPON ADJOURNED AT 12.54 P.M. UNTIL 2.15 P.M. OF THE SAME DAY.)

2:15 p.m., Thursday, December 6, 1928.

Proceedings at
Trial.

(Argument by Mr. Smith, 2:18 to 3:30).

(Argument by Mr. Griffin, 3:30 to 4:30).

(Court adjourned at 4:30 p.m. until 10:30 a.m., December 7th, 1928.)

10:30 a.m., Friday, December 7, 1928.

30 (Argument by Mr. Griffin, continued, 10:30 to 11:54.)

(Argument by Mr. Donaghy, 11:54 to 1 p.m.)

(Court adjourned at 1:00 p.m. until 2:12 p.m.)

2:15 p.m.

(Argument by Mr. Donaghy, continued, 2:15 to 3:03.)

(Argument by Mr. Burns, 3:03 to 4:52.)

(Argument by Mr. Griffin.)

C. A. V.

The Court: Do counsel agree upon that distance I asked them, across the Narrows?

40 Mr. Burns: I take it, my lord, that that should really be given with accuracy. The only thing we can do is to have it determined.

The Court: It is simply a matter to be agreed upon. It can be measured on the chart.

Mr. Burns: We will have that done, my lord.

RECORD
British Columbia
Admiralty Dist.
 Proceedings at
 Trial.
 (Contd.)

The Court: You will have no trouble about that, Mr. Griffin, will you? I will have to scale it off myself, because the scale is given on the chart, but it is always more satisfactory if you can agree upon it.

Mr. Griffin: Your lordship means on the chart?

The Court: Yes, that is all I mean. I only mean that you can scale it on the chart.

Mr. Burns: I was under a misapprehension also, my lord. I understood you wanted it measured.

The Court: Oh, no, I only mean to take the marine chart and use a scale, from high water to high water mark, what is the distance across the water from shore to shore. 10

Mr. Burns: On that understanding of the matter, my lord, I would make this remark. If the difference between high water and low water on one side, for instance, taking it at the narrowest part, is much greater than the difference between high water and low water on the other side,—at high water there is not that confinement that would apply possibly to half tides.

The Court: Well, give it both high water and low water.

Mr. Griffin: I find, my lord, that Mr. Smith has scaled that to the best of his ability on this chart. 20

Mr. Burns: I would rather we both do it.

The Court: The distance across the surface of the water from shore to shore at high water and low water at the point where the bridge is located, and then at the narrowest point. Go east about a cable, we are told it is, to find out what it is, go east about a cable and find that second position, both high and low.

Mr. Donaghy: Did I make it plain to your lordship that Exhibit 27 was the one that showed the extent of the fill; Exhibit 27 is the one which governs? 30

The Court: Yes, I made a careful note of what you and Mr. Griffin have said on that point. I wish to say it has been really a pleasure to preside over this case. It is one of very exceptional importance, to this Court and to the public as well, and I feel, although it has been a very long one, I wish to say it has been very well-conducted and it has really been a pleasure to preside over it. And I take this opportunity, as I shall not see you before New Year or Christmas, to hope that you may all have indeed a happy Christmas and a prosperous New Year.

The Registrar: May I mention that Exhibit 25 has been missing, and it has not turned up? I wish to have it on the record. 40

The Court: Exhibit 25 is missing?

The Registrar: Yes, my lord.

Mr. Burns: That is an exhibit which really has no value. It was a drawing made by a witness in cross-examination, and I

paid no attention to it at the time because it did not even show what he was trying to say, as I remember it, so it is not an exhibit of any value.

RECORD
*British Columbia
Admiralty Dist.*

The Court: Do you attach any importance to it, Mr. Griffin?

Proceedings at
Trial.

Mr. Griffin: I have never seen it myself, so I know it is not of any importance.

(Contd.)

The Court: We can call it negligible, then.

(4.20 p.m.—Court adjourned sine die.)

RECORD

*British Columbia
Admiralty Dist.*No. 13
Judgment
Martin, Lo. J.
April 22nd,
1929

No. 13

JUDGMENT

BEFORE:

THE HONOURABLE MR.
JUSTICE MARTIN.VANCOUVER, B. C., MON-
DAY, the 22nd day of
APRIL, A.D. 1929.

The Judge having on the 26th, 27th and 28th days of September, 1928, the 1st day of October, 1928, and 28th, 29th and 30th days of November, 1928, and the 3rd, 4th, 5th, 6th and 7th days of December, 1928, at Vancouver, B. C., heard Mr. Dugald Donaghy, Esq., K.C., and Mr. W. E. Burns, Esq., K.C., of Counsel for the Plaintiff, and Mr. Martin Griffin, Esq., K.C., and Mr Sidney Smith of Counsel for the Defendant and having heard evidence as well for the Plaintiff as for the Defendant, directed that this cause should stand for judgment, and this cause coming on this day for judgment, the Judge dismissed the action with costs and dismissed the Counter-Claim with costs and directed that the costs of the Counter-Claim be set off against the costs of the action. 10

BY THE COURT.

"J. F. Mather."

DEPUTY DISTRICT REGISTRAR. 20

REASONS FOR JUDGMENT OF MARTIN, Lo. J. ADM.

EXCHEQUER COURT OF CANADA—IN ADMIRALTY
B. C. ADMIRALTY DISTRICTNo. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929

(Vancouver, B. C., 20th April, 1929).

THE BURRARD INLET
TUNNEL & BRIDGE COM-
PANY

vs.

10 THE S.S. "EURANA."

JUDGMENT OF
THE HONOURABLE
MR. JUSTICE MARTIN

This is an action by the Plaintiff Company (incorporated by Can. Stat. 1910, Cap. 74) against the S.S. "Eurana." Length, 339.7 feet; beam, 56.21; gross tonnage, 5688; regtd. 3516; draught as then loaded, 25 ft., aft 23.5 for'd; single screw, h.p. 2500, Nels Svane, master) to recover \$7,887.00 damages done to its bridge across the Second Narrows of Burrard Inlet on the 10th March, 1927, shortly after 6 p.m. by said ship, owing to the alleged negligent navigation thereof, in colliding with the E. side of the bridge while attempting to go through its 150 foot bascule span with a
20 full cargo of 4,200,000 feet of lumber when the tide, a fairly big one, was apparently at the last of low water slack, outward bound from Barnet. Several charges of faulty navigation are set up but those substantially relied upon are that the ship did not set and keep a course true for the centre of the span opening, and that she made the attempt to go through it at a wrong stage of the tide, i.e., on the ebb, instead of at slack or slight flood, and failed to observe the unfavorable set of the same, and delayed in taking proper manoeuvres.

30 The Defendant ship disputes the title of the Plaintiff to the bridge and the land it is built upon and its right to construct and maintain the same, and alternatively alleges that the Plaintiff has not obtained the approval of the Governor-General-in-Council under the Navigable Waters Protection Act for its undertaking, and that in consequence the bridge is an unlawful obstruction to navigation; and also that even if the statutory power to build a bridge which impedes navigation has been duly conferred yet the Plaintiff—

40 negligently and wrongfully constructed a badly designed bridge which impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary

RECORD

*British Columbia
Admiralty Dist.*

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929

(Contd.)

for the proper exercise of the Plaintiff's said statutory powers and the Defendant says that the collision between the S.S. "Eurana" and the said bridge was occasioned by the fact that the said bridge was badly designed and constructed and impedes and interferes with the navigation of said Second Narrows to a greater extent than is necessary to enable the Plaintiff to exercise its said statutory powers and that therefore the Plaintiff is not entitled to recover damages in respect of said collision.

The Defendant ship also, on the facts of the collision, denies any 10
bad navigation and alleges alternatively, par. 14, that it was caused
by

circumstances of wind and current over which those in control of the "Eurana" had no control and which they could not anticipate or guard against and the collision was an inevitable accident for which the Defendant is not responsible.

And it further alleges that at the time in question the tide turned and began to flood earlier than the hour fixed by the tide table, and the northerly set of the tide was of abnormal force, and that 20
the span opening is not in the middle of the channel, and is too narrow, and that the unnecessary number of short spans and a rock fill on the south shore creates strong and varying currents which make navigation unusually difficult even at the most favourable times.

The Defendant ship further sets up a counter-claim against the Company for \$77,064.00 as and for damages to her caused by the said collision based upon the allegation that the Plaintiff wrongfully and illegally erected the said bridge and maintains it as a public nuisance as being an "obstruction" which "impedes 30
the free and convenient navigation of the said Second Narrows by ships having lawful occasion to navigate said waters," and which "Obstruction" was the cause of the damage to the ship while she was "endeavoring to proceed past or through (it) without colliding with it."

To this the Plaintiff replies that the bridge has been duly constructed in accordance with powers conferred by the said Statute and the Railway Act and certain recited orders of the Governor-in-Council and the Board of Railway Commissioners, and, in general, joins issue with the other said allegations of undue interference with navigation and nuisance by obstructions and wrongful or negligent construction in any respect, and denies that the 40
same were the cause of the collision, and that it was due to abnor-

mal conditions which could not have been anticipated and guarded against.

Upon these issues forty-two witnesses were called and a vast amount of evidence taken upon all aspects of the claim and counterclaim, much of which evidence is applicable to both distinct causes of action though not all of it, and it would be easy to confuse the issues were not their distinct nature kept in mind because the relevant facts are largely interwoven.

Taking up, then, the Plaintiff's claim first, and assuming in
 10 its favour all questions of title and that the bridge has been only
 constructed in accordance with statutory powers and plans author-
 ized by the proper authority, it is nevertheless necessary to con-
 sider the effect of this authorized obstruction upon the naviga-
 tion of the channel when an action is brought against a vessel for
 damaging the bridge in passing through it. In other words, if the
 effect of its construction is to make navigation even at proper
 times more difficult than theretofore it would not be reasonable
 to expect that mariners so using the channel could avoid injury
 to themselves or to the bridge as easily as they could if the chan-
 20 nel had been left in a state of nature, even though they use all the
 skill and caution that should be required of a prudent and skilful
 navigator. It must follow that the more difficult the passage is
 made the more must accidents be expected, just as the easier it is
 the fewer should there be. Obviously it would not be reasonable
 to expect the same results in such very different circumstances,
 because though the standard of the mariner's navigation is always
 the same, yet as his task is rendered more difficult the more must
 it be expected that reasonable human effort and precaution can-
 not always guard against accident when the margin of safety is
 30 substantially reduced in what at the best of times is, now at least,
 a channel which presents increased difficulties in navigation for
 larger deep sea vessels, over 300 feet in length, to navigate.

It is not necessary, on this branch of the case, to consider to
 the fullest extent what the effect of the construction of the bridge
 has been upon such navigation by ships of the class now in ques-
 tion, but it is sufficient to say that in three respects the natural
 difficulty has been substantially increased thereby, viz., in con-
 40 tracting the space in which it is necessary for such ships to line up
 in passing through the bascule span outwards, and in manoeu-
 vring after passing through inwards; in addition to the naturally
 very uncertain conditions of tidal currents in the immediate vicin-
 ity of the bridge; and in increasing the force of the current
 through it at said span in particular. Though a great mass of
 evidence was given upon these main points it would be practically

RECORD

*British Columbia
Admiralty Dist.*No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929

(Contd.)

RECORD

British Columbia
Admiralty Dist.

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

impossible to review it adequately in these reasons, and the subject is further complicated by the important unquestioned fact that the extensive operations which for a long time have been carried on (and are still in progress) in deepening, widening and straightening the outlet channel at the First Narrows have had an appreciable effect upon the currents at the Second Narrows, which indeed is obvious from the mere inspection of the charts of Burrard Inlet, because the contracted run-in of a great volume of water to the lower basin (between the bridge and Brockton Point) through the Second Narrows must inevitably be affected by the facilities of run-off to sea through the First Narrows, and *vice versa* with incoming tides which bring the water back through the First and Second Narrows to the much larger upper basin above the bridge. But upon the extent of the undoubted substantial effect of these First Narrows operations upon conditions at the Second there is no evidence of any weight, which is not indeed to be wondered at, because to obtain any reliable information upon the point a series of long and doubtless very expensive observations, and also researches into prior conditions, would have to be undertaken, which the parties hereto have not attempted and could not reasonably be expected to do so. Nevertheless the absence of exact information upon substantial changes in navigation which are not due to the bridge at all (and yet which will continue to increase as the First Narrows channel continues to be widened) renders it impossible to determine satisfactorily the extent of the degree to which the bridge alone has added to the natural difficulty of navigation, and it is not necessary on the present point to say more than that the bridge has, apart from the said First Narrows operations, increased in the said three ways the said natural difficulty to a substantial extent, though undefinable upon the insufficient evidence before me. At the same time, however, the increase is not as great as many witnesses deposed to and it is very probable that one of the reasons why there was so much conflict between apparently credible witnesses (as I am pleased to say most of them appeared to be) as to the difference between former and present conditions at the Second Narrows is that they failed to appreciate the far-reaching effect of the First Narrows operations upon present conditions of the tide and current at the Second and merely regarded the latter in the light of what they see now at that spot.

It is further alleged that the difficulty of navigating larger vessels through the bridge has been increased by the fact that the bascule span is not placed at right angles to the centre of the main current, and that it is appreciably to the South thereof. That such is the case to some, and an appreciable, extent there is little if any doubt because the presence of a shoal on the South shore of

*British Columbia
Admiralty Dist.*

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929

(Contd.)

the channel extending Eastward from the bridge for about 700 feet to a protuberance called The Knuckle tends to cramp such vessels in their passage inwards and outwards. It is not, in strictness, for this Court to suggest a remedy for this condition but in a case of this exceptionally wide public importance I cannot shut my eyes to the fact that the evidence suggests that it would be well for the proper authority to cause careful observation and investigation of the shoal to be made to ascertain if it would not be possible to reduce, materially at least, the obstruction it causes, by dredging operations, as in the First Narrows.

These questions of the proper construction of bridges and their proper position as regards the current are always difficult and there have been several of them before this Court, the last being *The Attorney General of British Columbia vs. The Pacific Foam* (1928) 40 B.C. 100, but they all depend upon the particular and always varying circumstances of each case. The present one, in view of its exceptional importance and difficulty, has caused me long and anxious reflection, with the result that, bearing in mind the conditions the Defendant ship was confronted with in attempting to pass through the span at the time in question, I can only reach the conclusion that the said allegations of negligence against her are not sustained by the evidence, either with respect to the time of making the attempt or of the manner in which that attempt was carried out, despite the able manner in which Mr. Burns presented his argument to the contrary. The accident was, I can only conclude from the evidence, caused by a very strong incoming sub-surface current setting northeasterly across the bridge and not visible on the surface, which continued to indicate slack water, and which undercurrent at a distance of 500-600 feet from the bridge suddenly and unexpectedly greatly increased in strength and took control of the ship causing her to sheer suddenly from the proper course she had been on and was still holding at a proper speed, and which in ordinary circumstances would have taken her safely through the bascule span. No fault is to be found in the measures taken by the ship to extricate herself, though ineffectually, from the imminent danger in which she suddenly found herself and which she had no reason to anticipate. It is true that those in charge of her expected, and were in fact prepared to meet ordinary changes in the undercurrent there (caused largely by the fact that the change of the tide at the bascule span is very quick, almost instantaneous at times, and slack water usually is only for a few minutes) but not one at all approaching the abnormal strength encountered on this occasion, which her pilot, Wingate, describes as "tremendously stronger" than he had ever experienced there, and his evidence is confirmed

British Columbia
Admiralty Dist.

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

in essentials by that of the Master, Svane, and also largely by Captain Harrison of the "Pacific Foam" and Captain Payne of the "Farquhar," and W. Tamburino, independent eye witnesses.

Being then of opinion that this collision "could not possibly have been prevented by the exercise of ordinary care, caution and maritime skill" on the part of the ship, the case becomes one of "inevitable accident" as so defined by the Privy Council in *The Marpesia* (1872), L.R. 4 P.C. 210, wherein it is also said:

"Here we have to satisfy ourselves that something was done or omitted to be done, which a person exercising ordinary care, caution and maritime skill in the circumstances, either would not have done or would not have left undone, as the case may be." 10

This definition was also adopted by the English Court of Appeal in *The Schwan* (1892), P. 419; and lately applied by this Court in its New Brunswick District in the similar case of *The King v. The Woldingham* (1925), Ex. 85, to include a sudden "yaw" in passing through a narrow bridge; cf., also *Marsden's Collisions at Sea* (1922), 18, and *Bevan on Negligence* (1928), 1291.

It is to be noted that in certain aspects there is also a similarity 20 between this case and the very recent one of *The Vectis* (1929), 45 T.L.R. 385, wherein a collision—"bumping" took place between two barges in a narrow creek owing to "a sudden swell of the incoming tide," as Lord Merivale describes it. A new trial was ordered in the circumstances, but speaking of the expectation of "bumps" in narrow places Mr. Justice Hill said, P. 387:

"Apart from knowledge of the dangerous position of the anchor, I can see no reason for saying that there is negligence in not preventing a harmless bump between barges, such bumps are frequent in the ordinary working of barges, and 30 in this narrow creek were probably incidental to the ordinary use of the creek. They involve neither *damnum* or *injuria*."

Seeing that the case is one of inevitable accident the Plaintiff's claim must be dismissed, and formerly it was the practice to make no order as to costs in such circumstances, but the present practice as laid down by this Court in "*The Jessie Mack*" vs. *The "Sea Lion"* (1919), 27 B.C. 444, is that costs should follow the event in the absence of special circumstances requiring a departure from that rule; to the cases there cited I add *The "Cardiff Hall"* 40 (1918), P. 56, and as the defence of inevitable accident was pleaded herein and there are no special circumstances which would justify a departure from said general rule the disposition of the costs will be in accordance therewith.

Then as to the counterclaim of the ship against the bridge. This depends largely on different considerations because if the bridge has been duly built in accordance with the permission given by the proper authority, the fact that it does actually obstruct navigation more or less imposes no liability upon it for damage to vessels caused by the increased difficulty in navigating the natural narrow channel, which it has restricted and impeded substantially as already indicated; it is beyond reasonable doubt that if the bridge had not been there on the day in question the ship would not have suffered any damage. The right, therefore, of the Plaintiff Company to build and maintain the bridge in its present state and position is what is really in question on this branch of the case.

It is first objected that the Plaintiff has no title to the lands upon which the bridge is built and therefore cannot maintain this action and that its National Crown Grant (dated 9th May, 1924) of the lands "as part of a public harbour" is invalid in that no order-in-council authorizing it has been put in evidence though the Grant recites "that it is made under and by virtue of the statutes in that behalf and pursuant to authority duly granted by our Governor-in-Council." This objection, in my opinion, is not one of weight in the case of a Grant made under the great seal of Canada, even assuming that an order-in-council is necessary, because, in brief, a recital in such an instrument of the greatest solemnity and duly recorded, i.e., enrolled (on 31st May, 1924) is sufficient to establish a *prima facie* cases of the existence of such an order if necessary, or at least to bring into operation the maxim *omnia praesumuntur rite esse acta*, nor on long-established and well-known principles has a stranger any status to rely upon the effect of the non-performance of any conditions which might, e.g., result in a forfeiture to the Crown—*Canadian Co. vs. Grouse Creek Flume Co. Ltd.* (1867) 1 M.M.C. 3, and cases noted at p. 8.

Then as to the application of the Navigable Waters Protection Act, cap. 115, R.S.C. 1906, and amendment, cap. 33 of 118, now cap. 140 R.S.C. 1927; it is in my opinion excluded by the 3rd section thereof in and for the present circumstances and purposes, not being "rebuilding or repairing," as will later appear.

The Plaintiff Company by its said act of incorporation (cap. 74 of 1910) is authorized by secs. 8 and 9 thereof not only to build a bridge but also to operate (and does in fact operate) "one or more lines of railway" across said bridge and into adjacent territory as part of its undertaking as a connecting line with certain of the other railways specified in Sec. 14, and by Sec. 2 that whole undertaking is "declared to be a work for the general advantage

RECORD

British Columbia
Admiralty Dist.No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

RECORD
 British Columbia
 Admiralty Dist.

No. 14
 Reasons for
 Judgment
 Martin, Lo. J.
 April 20th,
 1929

(Contd.)

of Canada” and Sec. 16 declares that “the Railway Act shall apply to the Company and its undertaking.” The effect of these provisions is to read into the Act of Incorporation, which is a public Act (Interpretation Act, R.S.C. cap. 1, s. 13) all apt provisions of the Railway Act and the two acts must be read as one so as to carry out the intention of Parliament to legislate for the “public good” (advantage of Canada) and, as the said Interpretation Act, Sec. 15, declares it—

“shall accordingly receive such fair, large and liberal construction and interpretation as will best ensure the attainment of the object of the Act . . . according to its true intent, meaning and spirit.” 10

Approached in this light no real difficulty is to be experienced from the words much relied upon by the ship in Sec. 8, that said undertaking may be constructed, operated and maintained “from some convenient points on the South shore in or near the City of Vancouver to points on the opposite shore of Burrard Inlet so as not to interfere with navigation. That the general location of the bridge is at the most “convenient points” of the Second Narrows is not disputed; in fact it is unquestionably at the best points, and except in its immediate neighborhood the construction of a bridge across them (the Narrows) would not in reason be contemplated, and even where it is located the evidence is clear that for many reasons its construction presented several problems of exceptional difficulty to overcome. It would be impossible in the present stage of human effort to build a bridge there which would not in some substantial degree interfere with navigation within the decisions which are conveniently collected in a leading case in this Court. *Kennedy vs. The Surrey* (1905) 11 B.C. 499, to which may be added *Attorney-General v. Terry* (1874), 9 Ch. at p. 423, and *The King vs. The Woldingham, supra*. 20 30

To escape the literal consequences of those decisions and to allow unimpeded navigation for the whole of the space at all stages of this tide it would, as one example only, be necessary to have a span of at least one thousand feet without supporting piers and that fact alone shows that Parliament, which must be assumed to be informed upon the subject of the public harbour with which it was dealing, could never have contemplated anything of the kind, and to hold that Parliament intended to grant a charter which ostensibly conferred powers to be exercised to the “general advantage of Canada” and yet at the same time rendered them incapable of execution is a conclusion which a Court of justice should be intractably driven to before accepting because it would “lead to a manifest absurdity.” The Privy Council in *City of* 40

Victoria vs. Bishop of Vancouver Island (1921), 2 A.C. 384, thus laid down the principles which should govern the construction of the act in question:

*British Columbia
Admiralty Dist.*

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

10 “There is another principle in the construction of statutes especially applicable to this section. It is thus stated by Lord Esher in *Reg. v. Judge of the City of London Court* (1892), 1 Q.B. 273, 290)—‘If the words of an Act are clear, you must follow them, even though they lead to a manifest absurdity. The Court has nothing to do with the question whether the legislature has committed an absurdity. In my opinion, the rule has always been this:—if the words of an Act admit of two interpretations, then they are not clear; and if one interpretation leads to an absurdity, and the other does not, the Court will conclude that the legislature did not intend to lead to an absurdity, and will adopt the other interpretation.’ And Lord Halsbury in *Cooke vs. Charles A. Vogeler Co.* (1901), A.C. 102, 107, said: ‘But a court of law has nothing to do with the reasonableness or unreasonableness of a provision, except so far as it may help them in interpreting what the legislature has said.’ Which necessarily means that for
20 this latter purpose it is legitimate to take into consideration the reasonableness or unreasonableness of any provision of a statute. Again, a section of a statute should, if possible, be construed so that there may be no repugnancy or inconsistency between its different portions or members?’”

Applying both these most appropriate principles to the present case, Parliament, in my opinion, intended that the said two acts must be read together and practically applied in such a way as to arrive at the only possible reasonable result in the circumstances,
30 viz., that the words “not to interfere with navigation” mean not more than is necessary to carry out the undertaking in the manner authorized by the special tribunal created by Parliament in the incorporated Railway Act to determine that very question, i.e., the Board of Railway Commissioners for Canada. And it must not be overlooked that, since the granting of the charter and the construction of the bridge thereunder, the National Government itself has materially increased the difficulty of navigation at this bridge by its large operations at the First Narrows already noted.

40 In the Railway Act (cap. 68 of 1919) itself there is a much more pronounced “repugnancy or inconsistency” than in the Plaintiff’s Act (Sec. 8) because the group of sections, 245-8, entitled “Respecting Navigable Waters,” begins by a general prohibition s. 244 against “any obstruction in . . . the free navigation” of such waters, but nevertheless proceeds immediately and necessarily to provide for inevitable obstruction by bridges and

*British Columbia
Admiralty Dist.*

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

“other structures” to be constructed (under secs. 247-8) as to the said “Board may seem expedient for the proper protection of navigation” by proper openings in spans and due provision for draws and swings where necessary. What is the “proper protection of navigation” in the particular circumstances is for the Board to decide before granting an order in accordance with the specified procedure, for construction, and subsec. (5) of 248 finally provides that:

“Upon the completion of any such work, the company shall, before using or operating the same, apply to the Board for an order authorizing such use or operation, and if the Board is satisfied that its orders and directions have been carried out, and that such work may be used or operated without danger to the public, and that the provisions of this section have been complied with, the Board may grant such order.” 10

This brings the case to a question of fact as to whether the Plaintiff has procured the necessary orders from the Board under said sections, as to which a long contest arose but no useful purpose would be served by here considering it in detail. It is sufficient to say, therefore, that in my opinion all statutory conditions were fulfilled which are necessary to support the validity of the various orders of the Board that the Plaintiff relies upon, and that it has in fact and without negligence constructed the bridge at the site and in accordance with the plans and specifications duly authorized originally and later by alterations in certain particulars validly approved. Such being the case no liability attaches to the Plaintiff for the consequences of the proper “construction, operation and maintenance” of its undertaking under its act of Parliament. *Can. Pac. Ry. vs. Roy* (1902), A.C. 220; and *Quebec Railway, etc., Co. vs. Vandry* (1920), A.C. 662, at 681. 20 30

The final point requiring particular consideration is that the bridge is in fact not constructed in accordance with the said statutory authorization but has substantially departed therefrom in a way that has materially increased the difficulty of navigation even beyond the degree of obstruction that the said authorization permitted, and on this question a large amount of evidence was given but with the result that such allegation has not been established in proof. The only feature of it that created any doubt in my mind was in regard to the rock fill on the S. shore, the extent of which was not as clearly defined as I should wish by either party, doubtless owing to its nature and the unavoidable obliteration of the original contour of the land and tidal marks at that point. But I have no doubt that even if it could be clearly proved that the said fill is greater in extent than authorized nevertheless that excess in size is “an encroachment of so trifling a nature that this 40

Court would not interfere" as was said by Lord Chancellor Cairns in *Attorney-General vs. Terry*, *supra*, p. 431. That case has been unanimously adopted by our National Supreme Court in *The Queen vs. Moss* (1896), 26 S.C. 322 at 332, as "settling the law," and it approves the judgment below of Jessel, M.R. The Court said, per Chief Justice Strong:

10 "Even if the bridge now in question was of very great public benefit, whilst the prejudice it caused to the public as an obstruction to navigation was of the slightest possible degree, it nevertheless would have been an illegal structure amounting to a public nuisance, which, as such, the Crown might cause to be removed unless for other reasons it was not to be treated as a nuisance."

In the case at bar there is no evidence to justify a finding that any "prejudice" has been occasioned to the navigation of the bridge by the excess in size (if such there be) of the rock fill beyond what was lawfully authorized as aforesaid.

20 In conclusion the following illustration given by the Master of the Rolls (in the course of his valuable remarks upon the way obstructions in public harbours should be regarded in the light of changing conditions) in *Terry's* case may appropriately be cited as some indication of how the difficult situation at the Narrows was doubtless viewed by the Board of Railway Commissioners in their attempt to deal with conflicting public interests in a practical way which would best secure the greatest benefit to the public as a whole:

30 "Suppose you have a navigable river, and it is necessary to cross it by a bridge, and the river is too wide to allow of a bridge of a single span, you must then put one or more piers into the middle of the river, and, of course, according to the extent you introduce bridge piers or bridge arches into a navigable river, you to some extent diminish the waterway, and to some extent, perhaps to a more or less material extent, obstruct the navigation. But it is for the public benefit at that spot that a public road should be carried over the river by the bridge, and that benefit may so far exceed the trifling injury, if injury it be, to the navigation, that on the whole a Court of justice may fairly come to the conclusion that a public benefit of a much greater amount has been conferred on the public than the trifling injury occasioned by the insertion of the piers into the bed of the river. In that case also it would be a public benefit that would counter-balance the public injury."

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RECORD

*British Columbia
Admiralty Dist.*No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

No. 14
Reasons for
Judgment
Martin, Lo. J.
April 20th,
1929
(Contd.)

It follows that upon the whole of this branch of the case the counter-claim must be dismissed and with costs in accordance with the general rule.

I feel that I should not leave this case of exceptional importance and difficulty without adding a few words in appreciation of the highly creditable manner in which it was handled by the counsel concerned therein, their able work has been of great assistance to the Court.

ARCHER MARTIN,

J. Adm.

10

No. 15

NOTICE OF APPEAL

*In the
Exchequer
Court of
Canada*

TAKE NOTICE that this Honourable Court will be moved on Tuesday, the 10th day of September, 1929, or so soon thereafter as Counsel can be heard on behalf of the above named Defendant (Appellant) that that part of the judgment of the Honourable Judge in Admiralty for the Admiralty District of British Columbia made herein and dated the 22nd day of April, 1929, and entered the first day of June, 1929, dismissing the counterclaim of the Defendant with costs may be wholly set aside and reversed and that the damages claimed by the Defendant in its counterclaim may be awarded to the Defendant and that the costs of this appeal and of the said counterclaim before the said Judge in Admiralty may be paid by the Plaintiff to the Defendant.

No. 15
Notice of
Appeal
June 15th,
1929

DATED this 15th day of June, A.D. 1929.

“W. Martin Griffin,”

Solicitor for the Defendant
(Appellant).

To the above named Plaintiff;
20 And to Messrs. Burns & Walkem, its
Solicitors.

IN THE EXCHEQUER COURT OF CANADA

No. 16
Judgment of
the President
Dec. 7th,
1929

ON APPEAL FROM BRITISH COLUMBIA ADMIRALTY
DISTRICT.

SATURDAY THE 7th DAY OF DECEMBER, A.D. 1929.

PRESENT:

THE HONOURABLE THE PRESIDENT.

BETWEEN:

THE S. S. "EURANA,"
Appellant (Defendant), 10

AND

BURRARD INLET TUNNEL AND BRIDGE COMPANY,
Respondent (Plaintiff).

The appeal of the above named Appellant and the Cross-appeal of the above named Respondent from the judgment of the Honourable Mr. Justice Martin of the British Columbia Admiralty District pronounced in the above cause on the 22nd day of April, A.D. 1929, having come on to be heard before this Court at Vancouver, British Columbia, on the 1st, 2nd and 3rd days of October, A.D. 1929, in the presence of Martin Griffin, K.C., and S. A. Smith of Counsel for the Appellant and Dugald Donaghy, K.C., and W. E. Burns, K.C., of counsel for the Respondent, whereupon and upon hearing what was alleged by Counsel aforesaid, this Court was pleased to direct that the said appeal and cross-appeal should stand over for judgment, and the same coming on this day for judgment, this Court did order and adjudge that the said judgment of the Honourable Mr. Justice Martin should be and the same was affirmed and that the said appeal should be and the same was dismissed with costs, and that the said cross-appeal should be and the same was dismissed with costs. 20 30

By the Court,

(Sgd.) ARNOLD W. DUCLOS,
Deputy Registrar.

IN THE EXCHEQUER COURT OF CANADA
ON APPEAL FROM BRITISH COLUMBIA ADMIRALTY
DISTRICT.

RECORD

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

BETWEEN :

BURRARD INLET TUNNEL AND BRIDGE COMPANY,
Plaintiff (Respondent),

AGAINST :

THE S. S. "EURANA,"

10 Defendant (Appellant).

MACLEAN, J.

JUDGMENT RENDERED 7th DECEMBER, 1929.

This is an appeal from a judgment of Mr. Justice Martin, L.J.A., for the Admiralty District of British Columbia, in an action brought by the Respondent against the Appellant, for damages arising from a collision of the steamship Eurana with a railway and traffic bridge owned by the Respondent company and crossing the Second Narrows of Burrard Inlet, a navigable water, in the Province of British Columbia. The Appellant counter-

20 claimed for damages occurring to the Eurana in consequence of the same collision. The learned trial Judge dismissed the Respondent's action against the Eurana holding that there was no negligence on the part of that ship, and that the collision was one of "inevitable accident;" he dismissed the counterclaim upon the ground that the bridge was lawfully authorized and erected and did not constitute a public nuisance as alleged. The shareholders of the Respondent company, as I understand it, are, The District and City of North Vancouver, The District of West Vancouver, and The City of Vancouver. Money subventions in aid of the

30 undertaking were granted by the Government of Canada, by the Government of British Columbia, and by the Corporation of the Vancouver Harbour Commissioners.

As stated by the learned Judge, the case is one of exceptional importance and difficulty. Inasmuch as I have reached the conclusion that the judgment appealed from should be maintained, it is not necessary that I should discuss at length all of the grounds upon which the learned trial Judge based his conclusions, all of which are, I think, very comprehensively and forcibly set forth in the judgment appealed from.

RECORD

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929
(Contd.)

Broadly speaking, the Appellant's case is, that the Respondent company without lawful authority erected and now operates the railway bridge in question; that this bridge interferes with the public right of navigation over a navigable water and thus constitutes a public nuisance. If this contention is established, then I apprehend that the Appellant should, in the absence of negligence, succeed generally. The Appellant's position is sought to be maintained inter alia, upon the following grounds: that the Respondent has not title to the lands upon which the bridge is built; that the plans of the bridge were not approved under the provisions of the Navigable Waters Protection Act which is claimed to be here applicable; that the bridge was constructed in violation of the Respondent company's charter which required that the bridge should be so constructed as "not to interfere with navigation;" and that in any event the Respondent company did not secure the necessary approval required by statute, of the plans of the bridge as constructed, by the Governor in Council and the Board of Railway Commissioners. I shall usually refer to the latter body as the Railroad Board. Alternatively, the Appellant says the collision was not attributable to its negligence, but that the same was due to "inevitable accident," and it is not therefore liable in damages to the Respondent upon the assumption that the bridge was lawfully erected and operated. From this, the substance of Respondent's cause may be inferred; chiefly it is, that at the time material here, the ship Eurana collided with and damaged the bridge by reason of negligent navigation.

Alluding now, briefly, to the contention that the Respondent does not possess a valid title to the lands upon which the bridge was erected, because though a grant therefor issued from the Crown in the right of the Dominion, yet, as required, no Order-in-Council authorizing the issuance of such grant was ever passed by the Governor-in-Council, and that in consequence thereof the grant is void and the Respondent is a mere trespasser. In respect of this point, it seems to me that the conclusion reached by the learned trial Judge is the correct one, and I agree with the reasons advanced by the learned Judge in reaching such a conclusion; there is very little, if anything, I can usefully add. Presumably the Respondent Company is in possession of the land in question, at least by license of the owner, and the Appellant has not, in my opinion, any status to attack such occupancy. Further, if the bridge constitutes a public nuisance, it is because it interferes with navigation, and not because the validity of the Respondent company's title is perhaps open to question as alleged.

Then it is urged that the plans of the bridge required approval under the provisions of the Navigable Waters Protection

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

(Contd.)

Act, cap. 115 R.S.C. 1906, which was not done, and that therefore the bridge was unlawfully erected and is in law a public nuisance. Upon the argument, I was impressed by this contention of Appellant's counsel, but upon a more careful consideration of the matter I have reached the same conclusion as the learned trial Judge, but, as he dealt very briefly with the point, and as it was strongly urged upon the hearing of the appeal by Mr. Griffin on behalf of the Appellant, it might be appropriate to make a more extended reference to this phase of the case. The question is whether a

10 company authorized by statute to construct a bridge over a navigable water, should, prior to construction, have its plans approved under the provisions of the Navigable Waters Protection Act. Upon a careful perusal of Sec. 3 of that Act, it would seem clear that its provisions do not apply "to any work constructed under the authority of any Act of the Parliament of Canada." If a special Act of the Parliament of Canada authorized the erection of a public work over a navigable water, such as in this case, and that Act stipulated that the work was to be subject to the terms of the Navigable Waters Protection Act, then the latter Act would

20 of course apply; but that is not this case. Here the Respondent company's charter authorizing the work, cap. 74 Statutes of Canada, 1910, expressly provided by Sec. 16 thereof, that the Railway Act should apply to the company and its undertaking. Therefore, the Navigable Waters Protection Act not having been made applicable to the undertaking, and it having been enacted that the Railway Act should apply to the undertaking which itself was authorized by an Act of the Parliament of Canada, there can, I think, be only one conclusion, and that is, that the Navigable Waters Protection Act does not apply and was not so intended.

30 The fact that the undertaking was primarily to be a railway bridge, at once suggests that appropriateness of subjecting the undertaking to the provisions of the Railway Act, so far as approval of plans was concerned; further, the work when completed was to be subject to the jurisdiction of the Railway Board. It would therefore seem clear that Parliament intended that the Railway Act, and nothing else should apply to the undertaking. To obtain approval of the plans of a work under the Navigable Waters Protection Act, involves practically the same procedure as is necessary under the Railway Act, that is, there must be

40 secured the approval of the Governor-in-Council upon the recommendation of the Minister of Public Works; there is just this distinction, that under the Navigable Waters Protection Act, public advertisement if the proposed work is required, whereas when the Railway Act is applicable to the work, as here, no public advertisement is necessary; a formal order of approval of the detail plans and profiles by the Board of Railway Commissioners is required, following approval by the Governor-in-Council of a plan and de-

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929
(Contd.)

scription of the proposed site and a general plan of the work to be constructed. It therefore appears manifest to me that it was not the intention of Parliament that the Navigable Waters Protection Act was to be applicable to the work in question.

Before entering upon a discussion of another important point in the Appellant's case, it might first be convenient and useful to state chronologically, the steps taken by the Respondent company, in securing from time to time the approval of the plans of the work by the Governor-in-Council, and by the Board of Railway Commissioners. The Appellant claims that the bridge as actually constructed, was unauthorized and not approved of by the authorities, designated by the Railway Act, and was therefore erected contrary to the terms of the statute made and provided for in such cases; I shall indicate, as I proceed, the several grounds upon which this contention is based. The site and plans of the bridge, as originally projected, were first approved by the Governor-in-Council on June 10th, 1913, upon the recommendation of the Minister of Public Works. No further step was apparently taken in respect of the undertaking for nearly ten years; the reasons for this prolonged delay need not be enquired into. On April 25th, 1923, amended plans (Exhibit 2) were approved of by the Governor-in-Council upon the submission and recommendation of the Minister of Public Works; the principal departure from the original plans was that the amended plans contemplated a bascule lift span with 150 feet horizontal clearance and 15 feet clearance above high tide, instead of another type of opening span shown in the first plans of 1913. The recommendation of the Minister was made with the concurrence of the Vancouver Harbour Commissioners and the Acting Chief Engineer and Deputy Minister of the Department of Public Works. On the 31st of July, 1923, the Railway Board by Order sanctioned, under section 248 of the Railway Act, the amended plans of the bridge (Exhibit 34), and on the same day authorized the company to proceed to construction of the bridge according to such amended plans, but directed that detail plans of the sub-structure and super-structure be filed for the approval of the engineer of the Board. It is to be mentioned here that the Appellant contends that the plans just mentioned as being approved of by the Railway Board, differed from the plans (Exhibit 2) approved previously by the Governor-in-Council, in the following respects: the latter provided for two spans and four piers, the former for three spans and five piers; the piers in each case were to be composed of a different number of cylinders; the length of the bridge varied in the two plans; and that the grade at the south end of the bridge was different in the two plans. By reason of the variations, in the plans approved by the Railway Board from those approved by the Governor-in-Council, the Ap-

pellant urges that the Order of the Railway Board was made without jurisdiction and is a nullity. Subsequently it appears, fears were expressed by the interested public, that if the bridge was constructed as contemplated, it would increase the rapidity of the current of the water passing under the bridge, and a Board of Consulting Engineers was set up, I think, at the instance of the Government of Canada, to consider, inter alia, the best means of altering the structural plan of the bridge so as to diminish the rapidity of the current of the waters of the harbour passing under the bridge. The Board of Consulting Engineers eventually recommended that the spans of the bridge be raised five feet and also the Lynn Creek approach; that two additional spans be constructed and that certain changes be made in the piers; that certain of the framed trestle super-structure be dismantled and reconstructed. These changes were apparently suggested with a view to reducing the structural impediments to the free flow of the current at this point. Plans embodying these several changes were submitted to the Governor-in-Council for approval, on the recommendation of the Minister of Marine and Fisheries. It is probable, as suggested by counsel for the Appellant, that this recommendation emanated from the Minister of Marine and Fisheries, because the Board of Harbour Commissioners for the Port of Vancouver, were proposing to assist the company financially in carrying out certain of the proposed alterations in the structural plans of the bridge, and this board was under the administration of the Department of Marine and Fisheries. At any rate, the plans of the bridge as finally completed were approved by this Order-in-Council. No explanation was given as to why the recommendation to the Governor-in-Council for the approval of the last amended plans was not made by the Minister of Public Works. but I shall later refer to this. The amended plans were approved by the Governor-in-Council on August 20th, 1925. The Board of Railway Commissioners had apparently given its approval to the amended plans on March 6th, 1925, prior to the approval by the Governor-in-Council. The Appellant contends that the changes made by the amended plans were "deviations," which, under the Railway Act, required the approval of the Governor-in-Council, and before any Order of approval of the same was made by the Railway Board, and that therefore, the Order of the Railway Board was a nullity because it preceded the approval of the "deviations" by the Governor-in-Council. The changes involved in the amended plans were doubtless of a very substantial character. The Appellant also contends that the Order-in-Council of August 20th, 1925, was not one such as contemplated by the Railway Act, but rather an approval of the advance of public funds to the Vancouver Board of Harbour Commissioners to assist financially the Respondent company in elevating the spans

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

(Contd.)

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929
(Contd.)

of the bridge and one of the approaches. It is also alleged that the Respondent company, without justification, proceeded with the construction of the bridge prior to the approval of the last amended plans, by either the Governor-in-Council or the Board of Railway Commissioners. The bridge was completed under the plans approved of in 1925 as just stated. An Order of the Railway Board permitting the use and operation of the bridge was passed on October 21st, 1925; the bridge was formally opened for traffic on November 7th, 1925, and has been continuously in operation since that date.

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It is appropriate next to refer to the provisions of the Railway Act which are applicable to the work in question. First, it should be stated that the Respondent company was incorporated in 1910, cap. 74 Statutes of Canada, 1910, and, inter alia, was authorized to construct and operate a bridge over the Second Narrows of Burrard Inlet, for railway and other purposes, but "so as not to interfere with navigation." Sec. 16 enacted that "the Railway Act shall apply to the Company and its undertaking." The company was also empowered by Sec. 14 of the Act, to construct one or more lines of railway to connect the bridge with the lines of other railway companies operating in that locality. The undertaking was also declared to be a work for the general advantage of Canada. The provisions of the Railway Act, cap. 68, Statutes of Canada, 1919, which are relevant here, might be quoted at length; they are as follows:—

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245. "No company shall cause any obstruction, in or impede the free navigation of any river, water, stream or canal, to, upon, along, over, under, through or across, which its railway is carried."

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247. (1) "Whenever the railway is, or is proposed to be carried over any navigable water or canal by means of a bridge the Board may by order in any case, or by regulations, direct that such bridge shall be constructed with such span or spans of such headway and waterway, and with such opening span or spans, if any, as to the Board may seem expedient for the proper protection of navigation."

248. "When the company is desirous of constructing any wharf, bridge, tunnel, pier or other structure or work, in, upon, over, under, through or across any navigable water or canal, or upon the beach, bed or lands covered with the waters thereof, the company shall, before the commencement of any such work:

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- RECORD
In the
Exchequer
Court of
Canada
- 10 “(a) in the case of navigable water. . . . submit to the Minister of Public Works. . . . for approval by the Governor-in-Council, a plan and description of the proposed site for such work, and a general plan of the work to be constructed, to the satisfaction of such Minister; and
- “(b) Upon approval by the Governor-in-Council of such site and plans, apply to the Board for an order authorizing the construction of the work and with such application, transmit to the Board a certified copy of the Order-in-Council and of the plans and description approved thereby, and also detail plans and profiles of the proposed work, and such other plans, drawings and specifications as the Board may, in any such case, or by regulation, require.
- “ (2) No deviation from the site or plans approved by the Governor-in-Council shall be made without the consent of the Governor-in-Council.
- 20 “ (3) Upon any such application the Board may:
- (a) Make such order in regard to the construction of such work upon such terms and conditions as it may deem expedient;
- (b) Make alterations in the detail plans, profiles, drawings and specifications so submitted.
- “ (4) Upon such order being granted, the company shall be authorized to construct such work in accordance therewith.
- 30 “ (5) Upon the completion of any such work the company shall, before using or operating the same, apply to the Board for an order authorizing such use or operation, and if the Board is satisfied that its orders and directions have been carried out, and that such work may be used or operated without danger to the public, and that the provisions of this section have been complied with, the Board may grant such order.”

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929
(Contd.)

The alleged defaults of the Respondent in complying with the provisions of the Railway Act in respect of the securing of approval of the bridge plans have already been stated. Now, starting with the plans approved of by the Governor-in-Council in 1923, and assuming even that the plans approved of by the Railway Board in July of the same year, deviated, as alleged, in substantial particulars from the plans approved of by the Governor-in-Council, Sec. 248 (2) of the Railway Act, enacts that “no deviation from the site or plans approved by the Governor-in-Council

RECORD

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

shall be made without the consent of the Governor-in-Council.” Any deviation from the plans approved of by the Governor-in-Council in 1923, was, however, sanctioned by the Order-in-Council made in August, 1925, approving of the final plans. The fact is, that the plans of the bridge as completed and put into use and operation were approved of by the Governor-in-Council and by the Railway Board; when all is said and done, the fact remains, that the bridge as constructed had such approval. If the Respondent company proceeded, as alleged, with construction, according to the deviations to be recommended by the Board of Consulting Engineers—and it is not unreasonable to assume that it had knowledge in advance of what such recommendations were to be—and chose to take the risk of securing subsequently the formal approval of such deviation by the Governor-in-Council; if the plans approved by the Railway Board in 1923 in fact constituted “a deviation” from the general plan approved of by the Governor-in-Council in the same year, or, if such approval was prematurely obtained, that is, prior to the approval by the Governor-in-Council; still, I do not agree with the contention, that therefore the approval made by the Governor-in-Council and the Railway Board in 1925 of the ultimate plans of the bridge as actually constructed is a nullity, and not a compliance with the spirit of the statutory conditions. It seems to me that all the requirements and conditions which the Legislature sought to impose for the purpose of protecting public rights in navigable waters, was in the end observed. There may have been laxity on the part of all having to do with the matter, in observing from time to time the precise directions of the statute, but all such procedural defaults, if any, were, in my opinion, waived in the final sanction of the plans of the bridge as completed. The fact that the Order of the Railway Board made in 1925, preceded the approval of the same plans by the Governor-in-Council, is not, I think, of importance; their combined effect was a sanction, as required by statute, of a bridge proposed to be carried over a navigable water. Neither does Sec. 248 (2) of the Railway Act make it imperative that consent to such deviations by the Governor-in-Council should be made upon the recommendation of one particular Minister; the consent of the Governor-in-Council is all that is required, and the statute does not say that this consent must be obtained upon the recommendation of any one Minister. The changes effected by the plans approved of in 1925 were evidently designed for the further assurance of the protection of navigation; it is to be assumed that the protests made against the plans approved in 1923 were, that the bridge had not sufficient height above high tide, and that the substructure of the bridge offered too many obstructions to the normal flow of the water at the Second Narrows. Probably it was with the Department of Marine that public protests were regis-

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*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

(Contd.)

tered against the plans approved in 1923, and which brought about the enquiry made by the Board of Consulting Engineers. Particularly would it be the function of the Department of Marine to safeguard the public rights in navigable waters, in Canada. That possibly was one reason why the recommendation to the Governor-in-Council was, in this instance, made by the Minister of that Department of Government, in addition to the other reason I have already assigned. I do not therefore think there is substance in the contention that the approval of or consent to the
 10 deviations of August, 1925, made by the Governor-in-Council, was a nullity because it was not made on the recommendation of the Minister of Public Works; in fact, I think it matters little by what Minister that recommendation was made so long as the approval was made by the Governor-in-Council. Further, I think, it is to be presumed that the recommendation in question to the Governor-in-Council carried the approval of the Minister of Public Works. I therefore reach the same conclusion as the learned trial Judge, that the statutory conditions relating to the approval of the site, the general plans and the detail plans, of the bridge were
 20 complied with within the spirit and intent of the Railway Act.

There remains to consider, upon this aspect of the appeal, the effect of the words "so as not to interfere with navigation," as found in the Act of Incorporation of the Respondent company. It is contended that Parliament having enacted this limitation in respect of the power of the company to construct and operate the undertaking in question, that neither the Governor-in-Council or the Railway Board had power to authorize the construction of a bridge which interfered with navigation; that the Act falls short of authorizing a nuisance; and that if the bridge as constructed
 30 does in fact interfere with navigation, it is a work erected contrary to the statute and constitutes a public nuisance. Upon this point I agree with the reasoning and conclusion of the learned trial Judge, and there is little further that I need say. The Legislature committed to the Governor-in-Council and to the Board of Railway Commissioners, the power to determine the plan of bridge that might be constructed. Having exercised the discretion resting in them, and having approved of the site, and the general and detail plans of the work, as one not reasonably calculated to interfere with navigation—and they must have meant that—I
 40 think it is now too late to say that the bridge was one erected contrary to the provisions of the Respondent company's Act of Incorporation. Possibly an error in judgment was made in approving the structural plans of the bridge; it may be that the bridge has left navigation at the Second Narrows more difficult and dangerous than theretofore; yet, the site, and the general and detail plans of the bridge having been approved by those to whom

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
December 7th,
1929
(Contd.)

such power was specially delegated by Act of Parliament, the work having been in good faith completed according to such plans, and the completed work having been put into operation by leave of the Railway Board, I do not think the same can now be declared to be an unlawful work and a public nuisance, even if it does in fact, in some degree, render navigation at this point more hazardous than prior to its construction. Fundamental errors in constructed public works, inimical to public interests, are frequently discovered after completion, but if the statutory authority and conditions applicable to the work were complied with, I hardly think it practical to say, that if damages result from the construction of the work, the party using it is responsible for any such damages, if occurring without negligence. In this case, I think, as the learned trial Judge held, that the words "so as not to interfere with navigation," mean not more interference than is reasonably necessary to carry out the undertaking as authorized, and as approved by the Governor-in-Council and the Board of Railway Commissioners. What the Governor-in-Council and the Board of Railway Commissioners did, was the equivalent of a positive legislative act authorizing the erection of the bridge, according to the plans under which it was in fact erected. If I am correct in this view, then the Appellant fails because the work as constructed was one authorized by the Legislature. Thus, Blackburn, J., in the course of his judgment in *Hammersmith Railway Co. vs. Brand* (1869) L.R.I.H.L.C. 196, says:

"I think it is agreed on all hands that if the Legislature authorizes the doing of an Act (which if unauthorized, would be a wrong and a cause of action), no action can be maintained for that act, on the plain ground that no Court can treat that as a wrong which the Legislature has authorized, and consequently the person who has sustained a loss by the doing of that act is without remedy unless in so far as the Legislature has thought it proper to provide for compensation to him."

The learned trial Judge has discussed this point in his reasons for judgment, at great length and with clearness, and his finding, which I adopt, should not, in my opinion, be disturbed.

It was also contended that a rock fill on the South shore was greater in extent than authorized and was responsible for definite difficulties in navigating the bascule span. I do not propose discussing this point as I fully concur in the disposition of the same made by the learned trial Judge, and his reasons therefor.

Now as to the cross-appeal in respect of the Respondent's claim against the ship "Eurana" for damages caused to the bridge in consequence of the collision. In his reasons for judgment the

learned trial Judge discussed with great care the effect of the construction of the bridge upon navigation at the Second Narrows, the natural difficulties of navigation at this point, the peculiar sub-surface tidal currents obtaining at the time material here, the effect of dredging operations at the First Narrows upon the Second Narrows tidal currents, the navigation of the "Eurana," and other alleged facts relevant to the Respondent's claim that the damages caused to the bridge was by reason of the negligent navigation of the "Eurana." He concluded, that upon the evidence, he could not find that the allegations of negligence against the "Eurana," as to the time of making the attempt to pass through the bridge or the manner in which the attempt was carried out, had been sustained, and that it was a case of inevitable accident. After a careful perusal of the evidence, and upon a consideration of the reasons given by the learned Judge, I cannot see any grounds for disturbing the conclusion which he reached, and I think the same was justified by the evidence. I do not think that negligence has been established against the "Eurana." At the time and place in question, conditions prevailed that undoubtedly made navigation through the bascule span extremely difficult, and I think with the learned Judge that the "Eurana" attempted to navigate the open span with reasonable care, caution and maritime skill, and left undone nothing that could have been done to avoid the accident.

Accordingly I am of the opinion that the appeal and cross-appeal should both be dismissed, and with costs in each case.

RECORD

*In the
Exchequer
Court of
Canada*

No. 17
Reasons for
Judgment of
the President
Dec. 7th,
1929

(Contd.)

RECORD

No. 18

*In the
Exchequer
Court of
Canada*

IN THE EXCHEQUER COURT OF CANADA.
IN ADMIRALTY.

No. 18
Notice of
Appeal to
Privy Council
Jan. 4th, 1930

BETWEEN:

THE BURRARD INLET TUNNEL & BRIDGE
COMPANY,

Plaintiff (Respondent),

AND:

THE S. S. "EURANA,"

Defendant (Appellant). 10

TAKE NOTICE that the Planet Line Inc., the owners of the S. S. "Eurana" the Defendant (Appellant) in this action, appeals to His Majesty in Council from the Decree of the Judge of the said Court made the 7th day of December, 1929.

DATED this 4th day of January, 1930.

W. MARTIN GRIFFIN,
Solicitor for the said Defendant
(Appellant).

whose place of business and address for service is Rooms 609-613
Bank of Nova Scotia Building, 602 Hastings Street, West, Van- 20
couver, B. C.

To: the Plaintiff (Respondent);
And to: Messrs. Burns, Walkem & Thomson,
their Solicitors.

British Columbia
Admiralty Dist.

Plaintiff's
Exhibit
No. 56
Letter
Cleveland &
Cameron to
Plaintiff
March 16th,
1912

PART II.
EXHIBIT No. 56

506 Winch Building,
Vancouver, B. C.

16th March, 1912.

COPY.

To the Chairman & Directors,
of the Burrard Inlet Tunnel & Bridge Co.,
Vancouver, B. C.

Gentlemen,—

SECOND NARROWS BRIDGE, OPENING SPAN. 10

After the project for a high level bridge had been abandoned we considered the position and width of opening required for a draw span.

We found the opening width required to easily pass a boom of logs in a tideway to be 95 feet, but as the proposed bridge will have sufficient headroom for the largest tug frequenting the harbour, and that a boom tow could take the opening span or either of the 220 foot spans, we eliminated boom towing as being provided for in any part of the fairway.

An examination of the beam widths of the largest ships now 20 frequenting the harbour, shewed a range of from 51 to 61 feet as the following list will show:—

C. P. R. Empresses.....	51' 2	
Craftsman	52' 5	
Makura	57' 7	
Blue Funnel Boats.....	61' 0	
Keemun (China Mutual)	58' 2	
Ocean Monarch	48' 5	
The Olympic at present the largest ship afloat is	92' 5	30
The widest boat now plying to Port Moody the oil tank steamer Roma is.....	40' 5	

Considering the dimensions, we concluded that an opening of 150 feet would be ample and in this we were confirmed when we found the approved opening span for the V. W. & Y. Railway bridge to be a swing bridge with opening spans of 150 feet.

We still consider any width over 150 feet to be superfluous.

The question of opening span becomes doubly serious in view of the difficulties in placing the piers in such a great depth of water and we deprecated increasing the span to 200 feet, the 40 width on which Mr. Cruttwell's estimate was based. When it was further demanded to make the opening span 250 feet, it became

necessary to review the whole situation; and estimate of the cost of the increase of 50 feet in the span was then made and found to be nearly \$200,000 extra to that of a 200 foot span, and to add to the difficulties, the opening span was required to be in mid channel, notwithstanding the fact that craft passing the Narrows always keep to the South shore in both directions.

In the list of steamers given below, the Olympic at present the largest, would have over 53 feet clear space on each side in passing through a 200 foot opening, widths $\frac{4}{5}$ ths of a 66 foot street on both sides.

The increase of beam in steamers is a matter of a few inches when compared with feet increase in length.

We may have boats up to 112 feet beam, but such a boat could not use the Panama Canal.

As it happens the stream through the Narrows at all tides, runs straight, whirling a considerable distance to the West and a shorter distance Eastwards, but in both cases clear of the Narrows.

It may be taken that the dimensions of the Canal Locks will govern the size of ships trading to this port, and the largest ship that can pass the Canal will still leave 45 feet on each side with a 200 foot opening span at Second Narrows; the largest ships at present are still about 200 feet short of the permissible length in the Canal.

The bridge piers at the opening span will be properly protected and in a manner to facilitate the passage of ships, the handiness of the opening span for quick opening is of great importance, to be ready on the approach of the ship for a clean run through in her course.

Decisions in the Courts makes it certain that even small vessels will not attempt to pass in opposite directions, even were the opening 350 feet in width.

We are satisfied that the opening span of 200 feet will give more than ample accommodation for the prospective shipping while the Bascule bridge will give a clear opening without overhead obstructions.

We are,

Yours respectfully,

Sd. - CLEVELAND & CAMERON.
D.C.

RECORD
*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 56
Letter
Cleveland &
Cameron to
Plaintiff
March 16th,
1912

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 11
Pilotage Cert.
Capt.
H. R. Jones
Feb. 1st, 1916

EXHIBIT No. 11

EXTRACT FROM
RECORD OF PILOTS
(Book)

VANCOUVER PILOTAGE AUTHORITY

July 1st 1892, — FEBRUARY 1st, 1916.

RECORD OF PILOT H. ROBSON JONES.

Date of License	No. of License	Age	Height Ft. In.	Complex-ion	Color of Hair	Color of Eyes	
July 1st, 1892	4 and 2	36	5. 6¼	Blond	Brown	Blue	10

During these 24 years Capt. H. Robson Jones was first rate Pilot under jurisdiction of the Vancouver Pilotage Authority and not once during that time had he the slightest mishap or accident to any vessel he was in charge of.

This record he held during all weathers and at all times of the year while piloting.

CERTIFIED CORRECT:

“C. GARDNER JOHNSON”
Secretary, Vancouver Pilotage
Authority.

20

EXHIBIT No. 44

Defendant's
Exhibit
No. 44
Contract re
preparation
plans of bridge
Sept. 26th,
1922

MEMORANDUM OF AGREEMENT made this 26th day of September, 1922, between BURRARD INLET TUNNEL AND BRIDGE COMPANY, incorporated under Chapter 74 of the Statutes of the Dominion of Canada, 9-10 Edward VII, hereinafter called the “Company” of the one part, and NORTHERN CONSTRUCTION COMPANY LIMITED, a body corporate carrying on business at the City of Vancouver in the Province of British Columbia, and J. W. STEWART, of the said City of Vancouver, hereinafter called the “Contractors,” of the other part.

30

WHEREAS the Company has been incorporated for the purpose, inter alia, of undertaking the erection of a joint traffic and

railway bridge across the Second Narrows of Burrard Inlet, together with connecting lines of railway on the north and south shores of Burrard Inlet:

AND WHEREAS the Contractors have offered at their own expense to carry out the necessary borings and soundings and thoroughly test the foundations at the site of the proposed bridge, and to prepare general plans of such bridge and connecting lines of railway in accordance with the terms hereof and under the supervision and to the satisfaction of the Engineer of the Company, Mr. A. D. Swan, upon the terms and conditions hereinafter set forth, and the Company has accepted such offer:

AND WHEREAS it is the intention of the parties hereto that in the event of the Contractors finding the said foundations to be such that they can build the said bridge for the sum of one million two hundred and fifty thousand dollars (\$1,250,000), they are to be given the contract for so doing, subject to the terms and conditions hereinafter mentioned:

NOW THIS AGREEMENT WITNESSETH that in pursuance of the premises the parties hereto hereby mutually covenant and agree together in manner following, that is to say:

1. The Contractors will forthwith at their own expense proceed to carry out borings and soundings and thoroughly test the foundations at the site of the proposed bridge over the Second Narrows of Burrard Inlet under the supervision and to the satisfaction of the engineer of the Company, Mr. A. D. Swan, and will also at the like expense and to the like satisfaction prepare general plans of the said proposed bridge being a road and railway bridge to cross the Second Narrows of Burrard Inlet from a point on the shore in the City of Vancouver at Cariboo Street to a point in the Municipality of the District of North Vancouver on the Indian Reservation as shewn on a plan of the Harbour Commissioners of the City of Vancouver as the site of the proposed bridge, the said bridge to be designed of standard railway construction of the type known as "Cooper's E-50 Loading" plus one hundred pounds (100 lbs.) per square foot for roadway allowance and floor system capable of carrying a ten ton truck; the bridge to have standard railway clearance between trestles of about seventeen feet (17') and provided with ten feet (10') roadway for vehicular traffic on each side of bridge; the design to provide a bacute of one hundred and eighty-five feet (185') swing giving one hundred and fifty feet (150') channel clearance opening; the bascule bridge to be of the Strauss standard design somewhat similar to the new bascule bridge at Johnston Street in the City of Victoria, B. C., also the Strauss bascule bridge recently completed for the Burlington Channel for the Department of Public Works of Canada

*British Columbia
Admiralty Diss.*

Defendant's
Exhibit
No. 44
Contract re
preparation
plans of bridge
Sept. 26th,
1922

(Contd.)

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 44
Contract re
preparation
plans of bridge
Sept. 26th,
1922

(Contd.)

at Hamilton, Ontario, or other equally as good design approved by the engineer of the Company. In addition there shall be one three hundred foot (300') more or less through-fixed span on the north side of the bascule. The remaining portions of the bridge to consist of steel girders, creosoted piling and timber work and solid embankment as may hereafter be decided and approved by the Engineer of the Company. The roadways at south side shall be timber trestles with steel girder designed subject to above loading requirements. There shall also be three (3) sets of railroad girder spans of approximately sixty foot (60') length across Lynn Creek on the North Vancouver end. The steel spans shall rest on piers of such size and construction as will suitably carry the loads. The bridge is to have a centre clearance above high tide of fifteen feet (15') with a clearance over the Canadian Pacific Railway tracks of twenty-three feet (23'). There shall be the construction of a single railroad track from the shore connection on the North Vancouver end as above mentioned to Block two hundred and seventy-two (272) in the said District of North Vancouver or in the said Block two hundred and seventy-two (272) sufficient to cross the said Lynn Creek. The foundations of all bridge piers and abutments to be carried to such suitable level as approved by the Engineer of the Company. All rails to be standard eighty-five pound rails.

2. Within sixty (60) days from the date hereof, the Contractors will submit to the Company without charge all information and data secured as a result of the carrying out of said borings and soundings, together with said general plans. IT IS UNDERSTOOD HOWEVER that if at any time during the said boring and sounding work the Contractors should come to the conclusion that they cannot construct the said bridge for the said figure, then they are to be at liberty to cease all further work, and their only obligation then under this contract will be to submit to the Company without charge all such written information and data and plans then in their possession.

3. In the event of the said data and information and the said plans being approved by the Engineer of the Company, and being accompanied by a tender on the part of the Contractors for the construction of a bridge and connecting railway lines in accordance therewith for the sum of one million two hundred and fifty thousand dollars (\$1,250,000) payable as hereinafter mentioned, the Company shall

(a) Forthwith request the Municipal Council of the City of North Vancouver to cause to be submitted for the approval of the electors and to be authenticated a by-law authorizing an issue of debentures for the sum of two hundred and twenty

thousand two hundred and twenty-two dollars (\$220,222.00) payable at fifty (50) years from the date of such by-law and bearing interest at six per cent. (6%) per annum and payable as to principal and interest at the option of the holder at the City of Vancouver or at the City of New York or at the City of London, England, at the par of exchange; and that the said by-law shall provide that the said debentures shall be delivered over to the Company in exchange for shares in the capital stock of the Company.

10 (b) Forthwith create a bond issue of the sum of six hundred and thirty thousand dollars (\$630,000.00) in aid of the construction of a bridge over the Second Narrows of Burrard Inlet under the powers set out in Section twelve (12) of the said Chapter seventy-four (74) 9-10 Edward VII, the bonds of which issue shall be designated as "Series A" as mentioned in said Section twelve (12), said bonds to bear interest at the rate of six per cent (6%) per annum payable half yearly and to be payable as to principal and interest at the option of the holder from time to time at the said City of Vancouver or at
20 the said City of New York or at the said City of London at the par of exchange, and to contain a provision that the principal of the said bonds shall be met by the setting aside of a certain specific sum in each year over a term of fifty (50) years; PROVIDED that such bonds may be issued subject to the condition that further like bonds may be issued not exceeding the amount of the limit fixed by said Section twelve (12) to rank in pari passu with the issue of six hundred and thirty thousand dollars (\$630,000.00) aforesaid.

30 (c) Forthwith request the Municipal Council of the said City of North Vancouver to cause to be submitted for the approval of the electors and to be authenticated, a by-law enabling the said City of North Vancouver to guarantee the said Series "A" bonds up to the amount of two hundred and fifty-seven thousand five hundred dollars (\$257,500.00) and arrange for the completion of the said guarantee.

40 (d) Forthwith request the Municipal Council of the District of North Vancouver to cause to be submitted for the approval of the electors and to be authenticated a by-law guaranteeing the said Series "A" bonds up to the amount of three hundred and seventy-two thousand five hundred dollars (\$372,500.00) and arrange for the completion of such guarantee.

(e) Forthwith request an arrangement with the said District of North Vancouver whereby the said District shall in payment for shares in the Company provide for and turn over to the Company the sum of two hundred and ninety thousand

RECORD

*British Columbia
Admiralty Dist.*Defendant's
Exhibit
No. 44
Contract re
preparation
plans of bridge
Sept. 26th,
1922

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 44
Contract re
preparation
plans of bridge
Sept. 26th,
1922

(Contd.)

dollars (\$290,000.00) in the following manner, that is to say, the sum of thirty-five thousand dollars (\$35,000.00) in cash and the sum of two hundred and fifty-five thousand dollars (\$255,000.00) by the delivery of the five per cent (5%) bridge debentures of the existing issue of three hundred thousand dollars (\$300,000.00) on a six per cent (6%) basis; and request the Municipal Council of the said District to change the place of payment as mentioned in the said debentures so that the said debentures will be payable as to principal and interest, in addition to the places now specified at the City of New York or at the City of London, at the option of the holder from time to time, at the par of exchange. 10

(f) Forthwith but subject to compliance with legal requirements, make calls upon the City of Vancouver for the balance of one hundred and seventy thousand dollars (\$170,000.00) due by the said City to the said Company upon the shares in the Company held by the said City and collect the same in cash as soon as reasonably possible.

(g) Forthwith take steps to submit the said general plans for the approval of all and every governmental authority whose approval is a condition precedent to the proceeding with the construction of the said bridge, and both parties hereto shall use their utmost endeavours to obtain such approvals. 20

4. The validity and legality of all of the above mentioned by-laws, municipal bonds and company guaranteed bonds, arrangements, agreements and calls upon the City of Vancouver shall be subject to the approval of the Contractors' solicitors, and for the purpose of avoiding any doubts as to the propriety or legality of any steps taken in connection with any of the said matters, the Company's solicitors shall submit for the approval of the Contractors' solicitors all steps proposed to be taken in connection with all of said matters and things. 30

(Rest of Exhibit not relevant to this Appeal.)

EXHIBIT No. 37
BURNS & WALKEM.
BARRISTERS & SOLICITORS.
VANCOUVER, CANADA.

January 22, 1923.

A. St. Laurent, Esq.,
 Chief Engineer, Public Works Dept.,
 O T T A W A .

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Exhibit
 No. 37
 Letter to
 Burns &
 Walkem
 Jan. 22nd,
 1923

Dear Sir:—

- 10 We enclose herewith linen tracing and four blue prints of the location and profile of the Second Narrows Bridge, Burrard Inlet, Vancouver, B. C. We understand that plans of this proposed structure were approved on the 10th June, 1913 and we now ask for amendment under section 233 of the "Railway Act" to cover the plans that we are now depositing. We understand that Mr. A. D. Swan has discussed this matter with you recently.

Yours truly,

(SGD) BURNS & WALKEM.

EXHIBIT No. 49

20 A. H. Douglas

MEMORANDUM OF AGREEMENT made this first day of February, 1923:

BETWEEN:

BURRARD INLET TUNNEL AND BRIDGE COMPANY,
 hereinafter called "the Company,"

OF THE ONE PART.

AND

NORTHERN CONSTRUCTION COMPANY LIMITED
 and J. W. STEWART, hereinafter called "the Contractors,"

30

OF THE OTHER PART:

IS SUPPLEMENTAL to an Agreement dated 26th September, 1922, (hereinafter referred to as "the Principal Agreement"), between the parties hereto.

WITNESSETH that the parties hereto have mutually agreed in manner following:—

Defendant's
 Exhibit
 No. 49
 Supplemental
 Contract
 Plaintiff and
 Northern
 Construction
 Co.
 Feb. 1st, 1923

RECORD*British Columbia
Admiralty Dist.*Defendant's
Exhibit
No. 49
Supplemental
Contract
Plaintiff and
Northern
Construction
Co.
Feb. 1st, 1923
(Contd.)

1. The parties hereby confirm that the Contractors have delivered to the Company a tender for the construction of Bridge and connecting railway lines as mentioned in the Principal Agreement, for the sum of One Million, Two Hundred and Fifty Thousand Dollars (\$1,250,000), payable as mentioned in the Principal Agreement.

2. The said tender is made by the Contractors and accepted by the Company subject to the following conditions, and the Principal Agreement is to be read as if the following conditions were contained therein:—

(a) That all matters referred to in paragraph 4 of the Principal Agreement shall be subject to the approval of Mr. E. G. Long, Barrister, of Toronto, Ontario, whose fees shall be payable by the Company and the Contractors in equal shares.

(b) That agreements will be entered into between the Company and the City of North Vancouver, and also with the District of North Vancouver, providing that a sinking fund will be set aside each year out of tolls, sufficient to redeem the Company's bonds at maturity, and that in the event of the tolls being insufficient in any year to set aside said sinking fund, the said two Municipalities will provide the deficiency in their proper proportions, namely, in the proportions in which they have respectively guaranteed \$630,000.00 par value bridge bonds mentioned in the Principal Agreement.

(c) That the Trust Deed securing the Company's bonds will contain a covenant on the part of the Company that it will not issue bonds in excess of \$750,000.00 par value, ranking *pari passu* with said \$630,000 Bonds, and that the Company will not apply to Parliament to give to it greater borrowing powers in respect to the Second Narrows Bridge ranking *pari passu* with said \$750,000.00 bonds.

(Rest of exhibit not relevant to this appeal.)

EXHIBIT No. 38

**CANADIAN PACIFIC R'Y CO'S TELEGRAPH.
VANCOUVER, B. C. FEBY. 16-23.**

R. C. Desrochers,
Sec'y. Public Works Department,
OTTAWA, Ont.

Application for approval Second Narrows Bridge Vancouver is made on behalf Burrard Inlet Tunnel and Bridge Company.

(SGD) BURNS AND WALKEM.

Defendant's
Exhibit
No. 38
Letter
Burns &
Walkem to
Public Works
Dept.
Feb. 16th,
1923

10

20

30

40

EXHIBIT No. 1.

P. C. 718.

CERTIFIED COPY OF A REPORT OF THE COMMITTEE OF THE PRIVY COUNCIL, APPROVED BY HIS EXCELLENCY THE GOVERNOR GENERAL ON THE 25TH APRIL, 1923.

5781—12 SEP.—8.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 1
Order-in-
Council
April 25th,
1923

The Committee of the Privy Council have had before them a Report, dated 20th April, 1923, from the Minister of Public
10 Works, submitting as follows:—

That an Order in Council was passed on June 10th, 1913, approving, under Section 233 of the Railway Act (now Section 248) of the plan of a bridge proposed to be built by the Burrard Inlet Tunnel and Bridge Company across the Second Narrows of Burrard Inlet, B. C. The bridge has not been built;

That the Burrard Inlet Tunnel and Bridge Company has submitted for approval, under Section 248 of the Railway Act, Chapter 68, 1919, the attached amended plan of a bridge proposed to be built across the Second Narrows of Burrard Inlet providing
20 a bascule lift span with 150 feet horizontal clearance and 15 feet clearance above high tide;

That the Department of Justice has stated that the application has been properly made under Section 248 of the Railway Act;

That the District Engineer has reported that the Vancouver Harbour Commissioners have approved of the amended plan;

That the Acting Chief Engineer has advised that the amended plan No. 1815 be approved, and in this recommendation the Deputy Minister has concurred;

30 The Minister therefore recommends the approval, under Section 248 of the Railway Act, Chapter 68, 1919, of the attached plan of a bridge proposed to be built across the Second Narrows of Burrard Inlet, B. C., by the Burrard Inlet Tunnel and Bridge Company.

The Committee concur in the foregoing recommendation and submit the same for approval.

E. J. Lemain
Clerk of the Privy Council.

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
Exhibit
No. 1Order-in-
Council
June 10th,
1913

(Contd.)

P. C. 1395.

CERTIFIED COPY OF A REPORT OF THE COMMITTEE OF THE PRIVY COUNCIL, APPROVED BY HIS EXCELLENCY THE ADMINISTRATOR ON THE 10TH JUNE, 1913.

On a Memorandum dated 5th June, 1913, from the Minister of Public Works, submitting that the Burrard Inlet Tunnel & Bridge Company has applied, under Section 233 of the Railway Act, for approval of the annexed plans of bridge which it proposed to construct across the Second Narrows of Burrard Inlet, B. C.;

That the District Engineer of the Department of Public Works has recommended that these plans be approved as the interests of navigation will be sufficiently safeguarded, and in this recommendation the Chief Engineer of the Department of Public Works has concurred.

The Minister recommends that authority be granted for the approval of the annexed plans submitted by The Burrard Inlet Tunnel & Bridge Company of its proposed bridge across the Second Narrows of Burrard Inlet, B. C. 20

The Committee submit the same for approval.

E. J. Lemain,
Clerk of the Privy Council.

EXHIBIT No. 40

27th June 1923.

Defendant's
Exhibit
No. 40
Letter
Plaintiff to
Vancouver
Harbour
Commissioners
June 27th,
1923

To the Vancouver Harbour Commissioners,
VANCOUVER, B. C.

Gentlemen:—

The Governor-in-Council has under date of 25th April 1923 and No. P. C. 718, approved of plans of a bridge and railway to be built across the Second Narrows of Burrard Inlet. 30

Application has been filed with the Board of Railway Commissioners under Sections 167 and 168 of the Railway Act for their approval of the route of the railway.

On June 12th 1913 by Quit Claim Deed (numbered Chief Engineer M & F. numbers 32839 and 33483) the Deputy Minister

of Marine & Fisheries transferred certain foreshore and land at the bottom of Burrard Inlet to my company for construction purposes.

RECORD
British Columbia
Admiralty Dist.

As there is a variation in the location of the plans referred to above and in plans for which the above mentioned foreshore was obtained my company has caused to be prepared plans of the land and foreshore required for the present project.

Defendant's
Exhibit
No. 40
Letter
Plaintiff to
Vancouver
Harbour
Commissioners
June 27th,
1923
(Contd.)

I submit this plan in quintuplicate and I am instructed by my directors to request your approval of them and that they be forwarded by you to Ottawa with your recommendation that subject to the lands referred to in paragraph 3 above being returned my company may receive title to the foreshore and lands therein described.

P. Ward.

Secretary of Burrard Inlet Tunnel
& Bridge Company.

EXHIBIT No. 50

68, Fairfield Building,
27th June, 23.

20 The Board of Railway Commissioners for Canada,
At Their Sitting on the 29th June, 1923,
At the City of Vancouver.

Defendant's
Exhibit
No. 50
Letter
Plaintiff to
Board of
Railway
Commissioners
June 27th,
1923

Gentlemen,

The Burrard Inlet Tunnel & Bridge Company was incorporated under Chapter 74, 9-10, Edward VII, Statutes of Canada, for the purpose, inter alia, of constructing a bridge over the Second Narrows of Burrard Inlet.

30 Under Section 248 of the Railway Act, the Company has, under date of 25th April 1923, and Number P.C. 718, secured the approval of the Governor in Council to the plan and description of the work to be constructed.

Plans, in accordance with Section 167, of the location of the line, and a plan profile and book of reference in duplicate, in accordance with Section 168, are submitted herewith for your approval.

By Order of the Directors.

P. WARD,
Secretary Burrard Inlet Tunnel and
Bridge Coy.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 3
Order of
Railway
Commissioners
No. 33948
July 24th,
1923

EXHIBIT 3

ORDER NO. 33948.

THE BOARD OF RAILWAY COMMISSIONERS
FOR CANADA.

TUESDAY, the 24th day of
JULY, A.D. 1923.

S. J. McLEAN,
Asst. Chief Commissioner.

A. C. BOYCE, K.C.,
Commissioner.

IN THE MATTER of the application of the Burrard Inlet Tunnel and Bridge Company, hereinafter called the "Applicant Company" under Section 167 of the Railway Act, 1919, for approval of the plan dated June 20, 1923, showing general location of proposed Second Narrows bridge and approaches, from Yale and Cariboo Streets, Hastings Townsite, to Brooksbank Avenue D.L. 272, District of North Vancouver, in the Province of British Columbia; a copy of said plan being on file with the Board under file No. 15732,—

UPON hearing the application at the sittings of the Board held at the City of Vancouver in the Province of British Columbia on the 29th day of June, 1923, in the presence of counsel for the Applicant Company, the City of North Vancouver and the Canadian Pacific Railway Company the evidence offered and what was alleged, and upon the report and recommendation of its Chief Engineer.

THE BOARD ORDERS that the general location of the proposed Second Narrows bridge and approaches, as shown on said plan dated June 20, 1923, filed with the Board under file No. 15732, be, and it is hereby, approved.

(S'G'D) S. J. McLEAN,
Assistant Chief Commissioner,
Board of Railway Commissioners for Canada.

EXHIBIT No. 46

RECORD

*British Columbia
Admiralty Dist.*

ARTICLES OF AGREEMENT made this 25th day of July 1923, between NORTHERN CONSTRUCTION COMPANY LIMITED, a body corporate carrying on business at the City of Vancouver in the Province of British Columbia, and J. W. STEWART, of the said City of Vancouver, hereinafter called the "Contractors" of the one part, and THE BURRARD INLET TUNNEL AND BRIDGE COMPANY, incorporated under Chapter 74 of the Statutes of the Dominion of Canada, 9-10 Edward VII, hereinafter called the "Company" of the other part.

Defendant's
Exhibit
No. 46
Contract
Plaintiff to
Northern
Construction
Co.
July 25th,
1923

WHEREAS the parties hereto entered into an agreement in writing dated the 26th day of September 1922, (hereinafter referred to as the principal agreement), whereby the Contractors agreed to carry out certain borings and soundings and testings as to the foundations of the site of a proposed bridge and approaches across the Second Narrows of Burrard Inlet and prepare general plans of the proposed bridge and approaches and connecting lines of railway, subject to the approval of the Engineer of the Company:

20 AND WHEREAS upon the Completion of the said work and general plans the Contractors delivered to the Company a tender for the construction of the said bridge and railway in accordance with the provisions of the said agreement for the sum of one million two hundred and fifty thousand dollars (\$1,250,000.00) payable as therein and hereinafter mentioned:

AND WHEREAS by the terms of the said agreement the Company agreed to accept the said tender, and by a Supplemental agreement dated first February 1923 between the parties hereto the Company accepted the said tender and the principal agree-
30 ment was varied as therein appears:

AND WHEREAS the principal agreement provided that the parties hereto should enter into a building contract:

AND WHEREAS since the said tender was submitted the parties hereto have agreed upon certain structural improvements in the said bridge and the contract price has been increased as hereinafter appears:

40 AND WHEREAS the parties hereto are desirous of now entering into the said Building Contract, being this agreement, making the same subject to the fulfilment of the conditions set forth in the schedule hereto which by the principal agreement are made conditions precedent to the execution of the Building Contract and which at the date of the execution hereof have not yet been fulfilled:

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 46
Contract
Plaintiff to
Northern
Construction
Co.
July 25th,
1923
(Contd.)

NOW THIS AGREEMENT WITNESSETH that the parties hereto hereby covenant and agree together as follows:

1. The Principal Agreement is amended in manner following:

(a) The time limit mentioned in Clause 10 is hereby enlarged so that the Contractors shall have two years from and after the time when the Contractors are directed to proceed with the work as hereinafter mentioned.

(b) The \$300,000.00 bonds of the District of North Vancouver mentioned in paragraph 3 (e) will not be issued, but in lieu thereof the Company will give \$251,000.00 six per cent bonds of the District of North Vancouver, to be taken at par, and a further \$4,000.00 cash. 10

(c) The contract price mentioned in the Principal Agreement is hereby increased to one million four hundred and fifty thousand dollars (\$1,450,000.) to cover additional work called for by the Dominion Government, and the amount of the increase shall be payable in cash by the Bridge Company, such cash to be deposited with the Trustee with the other moneys as hereinafter provided. 20

2. The Contractors shall execute in a sound, proper and workmanlike manner with the best materials of their several kinds (unless otherwise specified) and find and provide all materials and plant permanent and temporary, and pay all fees, costs and expenses and do all work and labor incidental to and necessary for the construction and completion of a road and railway bridge to cross the Second Narrows of Burrard Inlet from a point on the shore in the City of Vancouver at Cariboo Street to a point in the Municipality of the District of North Vancouver on the Indian Reservation, as shown on a plan of the Harbor Commissioners of the City of Vancouver as the site of the proposed bridge together with approaches and a single railway track from the shore connection on the Vancouver end as above mentioned and crossing Lynn Creek to and upon District lot two hundred and seventy-two (272) in the City of North Vancouver, in accordance with the said general plans and further detailed working plans and drawings made or to be made as hereinafter set out and the general conditions of contract and specifications and the schedule of quantities and prices hereto annexed and with the terms and conditions hereinafter set out. 30 40

.....

7. In the event of the Company desiring to substitute a steel span for part of the timber trestle immediately North of the three

hundred foot (300') span, as mentioned in the said specifications, the Contractors shall carry out and do such alteration as an extra.

RECORD
*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 46
Contract
Plaintiff to
Northern
Construction
Co.
July 25th,
1923
(Contd.)

11. The Company shall pay to the Trustee for the purposes of this contract the moneys arising from the one hundred thousand dollar (\$100,000.00) subsidy passed by the Parliament of Canada at its last session, as and when the same shall be received, and covenants that the said moneys or failing them or any portion thereof other moneys to be provided by the Company to the extent
10 of the deficiency shall be paid into the Trustee in time so that no delay in payments under this contract shall occur. If any default in payment to the Contractors hereunder shall occur by reason of the moneys aforesaid or any portion thereof not being in the Trustee's hands as aforesaid, then and in such case the Contractors shall be entitled to stop work under this contract and to receive payment in full for all work then done and performed by them notwithstanding any provision herein contained as to retention of moneys until completion of this contract, and shall also be
20 entitled to retain possession of the works notwithstanding such stoppage until the necessary moneys are provided by the Company so as to permit the Contractors to proceed with the performance of the remainder of the work to be carried out by them hereunder, and the time limit within which all the works shall be completed shall be deemed to be extended by the period of time during which the works shall be stopped by reason of said default.

13. In the event of the Legislature of British Columbia at its next session not authorizing a grant to the company in aid of the said works of the sum of One Hundred Thousand Dollars
30 (\$100,000.00) and in the event of the company not providing the sum of One Hundred Thousand Dollars (\$100,000.00) in lieu thereof and depositing the same with the trustee for the purposes of this contract at or before the termination of the said session of the said Legislature then there shall be a substitution of wooden trestles in lieu of the 150 feet of steel span south of the bascule.

14. It is understood and agreed that the Engineer of the Company as mentioned herein and in the conditions attached hereto shall mean A. D. Swan, and that in the event of his death or becoming incapacitated in any manner, it shall mean E. H.
40 James, his present assistant, and in the event of his having ceased to be the assistant of the said Swan at the time of the death or incapacity of the said Swan or in the event of the death of the said James or his becoming incapacitated in any manner, it shall mean any other engineer who shall be agreed upon by the parties hereto

RECORD
British Columbia
Admiralty Dist.

or failing agreement shall be appointed by arbitration in manner set out in said conditions.

.....

Defendant's
Exhibit
No. 46
Contract
Plaintiff to
Northern
Construction
Co.
July 25th,
1923
(Contd.)

16. This agreement shall not come into force until and unless the conditions precedent as set out in the schedule hereto shall have been fulfilled on or before the thirty first day of December 1923, and shall be subject to such fulfilment, but the Company hereby covenants that it will do all acts and things in its power, and will use its utmost endeavours to obtain the approvals set out in the condition numbered One in the said schedule, and will promptly comply with all the reasonable requirements of Mr. E. G. Long, K.C., in respect of condition numbered two in the said schedule, and upon the approvals under the first two of the conditions in the said schedule being obtained, will forthwith make the deposit of the bonds with the Trustee under condition numbered three in the said schedule, whereupon this agreement shall come into force and the Engineer shall give the notice to begin the works mentioned in the conditions hereto annexed. 10

IN WITNESS WHEREOF the corporate seals of The Burrard Inlet Tunnel and Bridge Company and Northern Construction Company Limited have been hereunto affixed and J. W. Stewart has hereunto set his hand and seal the day and year first above written. 20

The corporate seal of The Burrard Inlet Tunnel and Bridge Company was affixed in the presence of

- President
- Vice-President
- Secretary

The corporate seal of Northern Construction Company Limited was affixed in the presence of

Signed, sealed and delivered by J. W. Stewart in the presence of

30

SCHEDULE

**CONDITIONS PRECEDENT REFERRED TO IN
ANNEXED AGREEMENT.**

RECORD
*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 46
Contract
Plaintiff to
Northern
Construction
Co.
July 25th,
1923
(Contd.)

1. Under Railway Act. 1919:
 - Section 166 etc. Approval of general location.
 - Section 168 etc. Sanction and deposit of plan profile and
book of reference.
 - 10 Section 248 Obstruction of navigable waters.
 - Section 249 (a) Approval of Bridge over Narrows.
 - (b) Approval of Bridge over Lynn Creek.
2. Mr. E. G. Long, K.C., of Toronto, to approve validity of fol-
lowing bonds:
 - \$220,222 City of North Vancouver Bonds.
 - \$251,000 District of North Vancouver Bonds.
 - \$630,000 Guaranteed Bridge Bonds.
3. Foregoing bonds to be deposited with the trustee with the in-
structions mentioned in the principal Agreement and in this
20 Agreement.

(Balance of this exhibit not relevant to this Appeal).

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 4
Order of
Railway
Commissioners
No. 33950
July 30th,
1923

EXHIBIT No. 4

ORDER No. 33950.

THE BOARD OF RAILWAY COMMISSIONERS FOR
CANADA

MONDAY, THE 30th DAY OF
JULY, A.D. 1923.

S. J. McLEAN,
Asst. Chief Commissioner.

A. C. BOYCE, K. C.,
Commissioner.

IN THE MATTER OF the application of the Burrard Inlet Tunnel and Bridge Company of Vancouver, in the Province of British Columbia, hereinafter called the "Applicant Company," under Section 168 of the Railway Act, 1919, for approval of plan, profile and book of reference dated June 22, 1923, showing proposed Second Narrows Bridge at Vancouver, File No. 15732.4—

UPON hearing the application at the sittings of the Board held in Vancouver in the Province of British Columbia on the 29th day of June, 1923, in the presence of counsel for the Applicant Company and the Canadian Pacific Railway Company; the evidence offered and what was alleged, and upon the report and recommendation of its Chief Engineer.

THE BOARD ORDERS that the said plan, profile and book of reference dated June 22, 1923, showing proposed location across Second Narrows at Vancouver, Sta. 10-5 to 71-12.2, be, and they are hereby, approved; Provided: that this Order is without prejudice to any application the Canadian Pacific Railway Company may make in the matter of its connection with the tracks of the Applicant Company.

(S'G'D.) S. J. McLEAN,

Assistant Chief Commissioner,
Board of Railway Commissioners for Canada.

EXHIBIT No. 5

ORDER No. 33962.

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA

RECORD
*British Columbia
Admiralty Dist.*
Plaintiff's
Exhibit
No. 5
Order of
Railway
Commissioners
No. 33962
July 31st,
1923

TUESDAY, the 31st day of
JULY, A.D. 1923.

10 S. J. McLEAN,
Asst. Chief Commissioner.

A. C. BOYCE, K.C.,
Commissioner.

IN THE MATTER of the application of the Burrard Inlet Tunnel and Bridge Company of Vancouver, in the Province of British Columbia, hereinafter called the "Applicant Company," under Section 248 of the Railway Act, 1919, for approval of the proposed bridge across Second Narrows at Vancouver, as shown on plan on file with the Board under file No. 15732.4,—

20 UPON reading the Order-in-Council, P. C. 718, dated April 25, 1923, approving the said plan, and upon the report and recommendation of its Chief Engineer,—

THE BOARD ORDERS that the Applicant Company be, and it is hereby, authorized to construct the proposed bridge at Second Narrows at the City of Vancouver in the Province of British Columbia as shown on said plan on file with the Board under file No. 15732.4; detail plans of the sub-structure and super-structure of said proposed bridge to be filed for the approval of an engineer of the Board.

(S'G'D.) S. J. McLEAN,

Assistant Chief Commissioner,
Board of Railway Commissioners for Canada.

RECORD

EXHIBIT No. 35

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 35
Supplemental
Contract
Plaintiff and
Northern
Construction
Co.
March 5th,
1924

MEMORANDUM OF AGREEMENT made the fifth day of
March nineteen hundred and twenty-four

BETWEEN:

BURRARD INLET TUNNEL AND BRIDGE COMPANY
hereinafter called "the Company,"

of the one part;

AND

NORTHERN CONSTRUCTION COMPANY, LIMITED,
and J. W. STEWART,
hereinafter called the "Contractors,"

10

of the other part;

SUPPLEMENTAL to an Agreement dated 26th September, 1922
(hereinafter referred to as "the Principal Agreement"), to an
Agreement dated 1st February, 1923, (hereinafter referred to as
"Supplemental Agreement No. 1"), and to Articles of Agreement
dated 25th July, 1923, (hereinafter referred to as "the Contract"),
between the parties hereto:

WHEREAS by the above-mentioned agreements the Contractors
have agreed to construct across the Second Narrows of Burrard 20
Inlet a bridge which shall be of standard railway construction of
the type known as "Cooper's E-50 Loading" plus one hundred
pounds (100 lbs.) per square foot for roadway allowance and
floor system capable of carrying a ten ton truck upon the terms set
out in the said agreements:

AND WHEREAS it has been arranged that the said roadway
allowance and floor system shall be so constructed as to be capable
of carrying a fifteen ton truck gross loading and that the sidewalk
shall be constructed as hereinafter defined:

AND WHEREAS at the 1923 Session of the Legislature of 30
British Columbia an Act was passed authorizing the Lieutenant-
Governor-in-Council to make a grant in aid of the said bridge, up
to an amount not exceeding \$120,000, which includes the \$100,000
mentioned in Paragraphs 4 (c) and 13 of the Contract:

AND WHEREAS it has been agreed that \$18,306.00 of the remain-
ing \$20,000 of said grant in aid shall be earmarked for and applied
in payment of the extra works hereinafter mentioned:

NOW THIS AGREEMENT WITNESSETH that the parties hereto mutually agree in manner following:

RECORD
*British Columbia
Admiralty Dist.*

- 10 1. The roadway allowance and floor system of the bridge as described in the Principal Agreement in paragraph No. 1 thereof and in the Contract in Paragraph No. 2 thereof and in the general description and specifications thereof, shall be so constructed over the whole length of the bridge as to be capable of carrying a fifteen ton truck gross loading instead of a ten ton truck gross loading and the said agreements and all plans thereunder shall be amended accordingly wherever necessary.
2. From a point at the south end of the crossing over the Canadian Pacific Railway to the North end of the trestle work on the North Shore, the Contractors will construct a sidewalk of a width of three feet six inches (3' 6") to the specifications and to the satisfaction of the Engineer of the Company.
- 20 3. The contract price shall be and is hereby increased to one million four hundred and sixty-eight thousand three hundred and six dollars (\$1,468,306.00).
- 30 4. The Company covenants and agrees with the Contractors to pay to the Trustee for the purposes of the Contract and this Supplemental Agreement, the sum of \$118,306. from the herebefore mentioned grant from the Province of British Columbia, as and when the same shall be received, and further covenants and agrees with the Contractors that the said moneys, or failing them or any portion thereof, other moneys to be provided by the Company to the extent of the deficiency, shall be paid to the Trustee in time so that no delay in payment under the Contract or this Supplemental Agreement shall occur. The provisions contained in Paragraph 11 of the Contract as to the rights of the Contractors in the event of default in payment of the moneys arising from the subsidy from the Parliament of Canada, mentioned in the said paragraph, or in the payment of moneys in substitution thereof, shall apply to the said sum of \$118,306.00 to the same extent and with the same effect as if the said provisions had been included in this paragraph.
- 40 5. The Principal Agreement, Supplemental Agreement No. 1 and the Contract shall remain in full force and effect save as hereby amended or varied.

Defendant's
Exhibit
No. 35
Supplemental
Contract
Plaintiff and
Northern
Construction
Co.
March 5th,
1924
(Contd.)

RECORD

British Columbia Admiralty Dist.

Defendant's Exhibit
No. 35
Supplemental Contract Plaintiff and Northern Construction Co.
March 5th, 1924
(Contd.)

IN WITNESS WHEREOF the corporate seals of the Burrard Inlet Tunnel and Bridge Company and Northern Construction Company Limited, have been hereunto affixed, and J. W. Stewart has hereunto set his hand and seal the day and year first above written.

The corporate seal of the Burrard Inlet Tunnel and Bridge Company was affixed in the presence of:

President.
Secretary.

(SEAL OF NORTHERN)
(CONSTRUCTION CO.)

10

The Corporate seal of the Northern Construction Company, Limited was affixed in the presence of:

"A. R. Mann"
President

Signed, sealed and delivered by J. W. Stewart in the presence of:
"Nan Dwyer"

"J. W. Stewart"
By his attorney.
"D. McLeod"

20

EXHIBIT No. 6

Plaintiff's Exhibit
No. 6
Grant from Crown to Plaintiff
May 9th, 1924

James F. Crowdy,
Deputy Governor.
(L.S.)

CANADA

GEORGE THE FIFTH, by the Grace of God, of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, KING, Defender of the Faith, Emperor of India.

TO ALL TO WHOM THESE PRESENTS SHALL COME, 30
GREETINGS:—

WHEREAS the lands hereinafter described form part of a public harbour vested in His Majesty as represented by the Government of Canada.

AND WHEREAS the said lands are not required for public purposes, and under and by virtue of the statutes in that behalf

and pursuant to authority duly granted by Our Governor in Council, the said lands or the interest therein which is or may be vested in Us for the uses of the Dominion of Canada, have been sold to the Burrard Inlet Tunnel and Bridge Company of the City of Vancouver in the Province of British Columbia hereinafter called the grantee, in exchange for certain other lands which have been duly conveyed to Us by the grantee;

RECORD
*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 6
Grant from
Crown to
Plaintiff
May 9th,
1924

(Contd.)

10 NOW KNOW YE that We do by these presents grant, bargain and quit-claim unto the grantee, its successors and assigns, all the right, title, interest, claim, property, estate, and demand both at law and in equity, and as well in possession as in expectancy, which We or Our Successors have, or may have, for the use of or in the right of Our Dominion of Canada, of, in, and to all and singular those certain parcels or tracts of land, covered with water, situate, lying and being in the bed of the Public Harbour of Vancouver, at the Second Narrows of Burrard Inlet, Province of British Columbia, which may be more particularly described as follows, that is to say:

(Description of Parcels omitted)

20 * * * as shown outlined in red on plan attached hereto; saving, excepting and reserving unto Us and Our Successors the free uses, passage and enjoyment of, in, over and above all navigable waters that shall or may be found on, or under, or be flowing through or upon any part of the lands hereby granted or intended so to be.

TO HAVE AND TO HOLD the said lands unto the grantee, its successors and assigns forever.

30 PROVIDED that nothing in these presents shall be held to absolve the grantee, its successors and assigns, or any of them, from fulfilling in all respects the requirements of Part I of the Navigable Waters' Protection Act, Chapter 115, Revised Statutes, 1906; and it is an express condition of this grant that no "work" within the meaning of said Part I shall be undertaken or constructed on the said lands by the grantee, its successors or assigns, or any of them, or shall be suffered or allowed by them or any of them, to be constructed thereon until as regards such work the provisions of said Part I shall have been fully complied with.

40 AND PROVIDED FURTHER, and it is hereby declared, and this grant is accepted by the grantee upon the express condition and understanding that these presents are issued for the purpose of passing to the grantee only such estate, title and interest in and to the said lands as We in right of Our Government of Canada have power to convey; and that the grantee, its successors

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
Exhibit

No. 6

Grant from
Crown to
PlaintiffMay 9th,
1924

(Contd.)

or assigns shall have no recourse against Us or Our Successors or against Our Government of Canada should Our title to the said lands be found to have been defective, or should these presents be found ineffectual to pass such title.

PROVIDED ALWAYS and it is a condition of the grant hereby made that the grantee, its successors or assigns, shall construct on the said lands a railway and Traffic Bridge to the satisfaction of the Minister of Marine and Fisheries, within five years from the date hereof, and that should there be default on the part of the grantee, its successors and assigns in so constructing 10 such work within the said period or if the grantee, its successors and assigns shall at any time hereafter fail to maintain the said work these presents and everything therein contained shall thereupon become and be absolutely null and void to all intents and purposes whatsoever and the said lands hereby granted shall revert to Us or Our Successors and We or they may re-enter upon the said lands and the same have again repossess and enjoy as of Our former estate therein.

Given under the Great Seal of Canada—Witness: James Fuidge Crowdy, Esquire, B.A., M.V.O., Deputy of Our Right 21 Trusty and Well-beloved Julian Hedworth George Baron BYNG OF VIMY, General on the Retired List and in the Reserve of Officers of Our Army, Knight Grand Cross of Our Most Honourable Order of the Bath, Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, Member of Our Royal Victorian Order, Governor General and Commander-in-Chief of Our Dominion of Canada.

At Ottawa, this ninth day of May, in the year of Our Lord One thousand Nine hundred and twenty-four, and in the fifteenth 30 year of Our Reign.

BY COMMAND.

Thomas Mulvey,
Under-Secretary of State.

A. Johnston,
Deputy Minister of Marine
and Fisheries.

E. L. Newcombe,
Deputy Minister
of Justice
CANADA.

EXHIBIT No. 23
 DOMINION OF CANADA
 NOTICE TO MARINERS

 No. 76 of 1925

 (Pacific No. 19)
 BRITISH COLUMBIA

RECORD

*British Columbia
 Admiralty Dist.*

 Plaintiff's
 Exhibit
 No. 23
 Notice to
 Mariners
 No. 76
 1925

- 10 (203) Burrard inlet—Vancouver harbour—Second Narrows—
 New Bridge built.

A new bridge with a bascule span has been built across Second narrows, Vancouver harbour.

Latitude N. 49° 17' 40", Longitude W. 123° 01' 25".

The width of the channel through the bridge is 150 feet, the height between high water mark and bottom of span when the bridge is closed to navigation is 22 feet.

The following regulations govern the operation of this bridge:—

1. EQUIPMENT

- 20 The following equipment shall be installed and maintained on the bridge.

- (a) At the east end and the west end of Pier 2, and at the east end and the west end of Pier 4a:

One gauge with clear painted figures showing in feet distance between water level and the lowest chord of the steel span.

- (b) At the east end and the west end of each pier:

30 A white light so arranged as to make the outline of the end of the pier clearly visible at night, and so shaded as to prevent direct rays of the light from shining outwards from the pier.

- (c) At each side of, and in the center of the lowest chord of each steep span:

A red light having a visibility of not less than two miles.

- (d) On the east side and the west side of the bascule tower:

A red light and a green light having a spread of not less than 15 degrees and a colour visibility of not less than two miles in bright daylight.

RECORD Note—*British Columbia
Admiralty Dist.*Plaintiff's
Exhibit

No. 23

Notice to

Mariners

No. 76

1925

(Contd.)

All street and other lights to be installed on the bridge, or plans and specifications thereof, shall be submitted to the Harbour Master for approval.

2. SIGNALS—

(a) By Vessels—

Bascule required to be opened—

Three prolonged blasts on whistle. Repeat until answered.

(b) By Operator on Bridge—

Signal heard and vessel seen—

Red daylight signal lamp in bascule tower.

Bascule is opening—

Daytime, visible; Night time, arc described by red lamp on centre of lowest chord as span opens.

Bascule fully open—

Daytime, visible; Night time, red light on centre of lowest chord extinguished automatically.

All clear for passage—

Red signal light in bascule tower extinguished and re-
placed by green signal light. 20

Warning not to approach bridge—

Series of long flashes on red signal lamp continued until operator is certain that signal has been received and is understood.

Vessel to acknowledge this signal by a short blast of whistle.

Note—

This signal will be used in the event of the bascule becoming unworkable or there being an obstruction in the way of the vessel
desiring to pass. 30

Obstruction Removed—

Series of short flashes on green signal lamp.

Note—

This signal will be used in the event of vessel still waiting to approach after anchored or otherwise having ceased to approach in response to the warning not to approach bridge. On receiving this signal the vessel desiring to pass will give three long blasts of whistle and follow the procedure as heretofore laid down.

Warning—

There will be no sound signals at any time.

40

3 TRAFFIC REGULATIONS—

- (1) Vessels proceeding with the tide shall have the right of way but no vessels shall pass through the opened span until signalled to do so.
- (2) Vessels are cautioned against attempting the passage of the bridge when the visibility is less than one cable.
- (3) Vessels towing logs, scows, etc., are warned that it is dangerous to attempt the passage of the bridge when proceeding with a tide having a velocity exceeding the speed at which the vessel or vessels and the tow can travel in still water.
- 10 (4) No boom of logs or other tow shall be towed either under or through the bridge unless under complete control of the vessel or vessels in charge.
- (5) Vessels which can be equipped with lowerable stacks and masts shall not signal for the span to be opened.
- (6) Vessels able to pass under the bridge when towing logs, scows, or other vessels must keep to the northward of the movable span. Other vessels must comply in the strictest terms with Rule No. 25 of the International Rules of the Road.
- 20

RECORD

*British Columbia
Admiralty Dist.*Plaintiff's
ExhibitNo. 23
Notice to
MarinersNo. 76
1925

(Contd.)

A. JOHNSTON,
Deputy Minister.

EXHIBIT No. 39

DOMINION OF CANADA
NOTICE TO MARINERS

No. 80 of 1925

(Pacific No. 20)

BRITISH COLUMBIA

- 30 (214) Burrard inlet—Vancouver harbour—Second narrows bridge—Time of slack water

The following results giving the time of slack water at Second narrows bridge have been obtained by the Tidal and Current Survey Branch of this Department, from observations made during 1925.

High Water Slack.—The time of High Water slack for navigation purposes is practically simultaneous with the time of High Water in Vancouver harbour, as given in the Tide Tables.

Defendant's
Exhibit
No. 39
Notice to
Mariners
No. 80
1925

RECORD
British Columbia
Admiralty Dist.
 Defendant's
 Exhibit
 No. 39
 Notice to
 Mariners
 No. 80
 1925
 (Contd.)

Low Water Slack.—The time of Low Water slack may be found by adding 13 minutes to the time of Low Water in Vancouver harbour as given in the Tide Tables.

Duration of Slack Water.—The duration of Slack Water at both High and Low water is brief and is 10 minutes on the average.

Seymour Creek.—When Seymour creek is in freshet this water extends across the Narrows towards the south shore. Care should be taken when navigating this point during the freshet season. 10

(Rest of Exhibit not relevant to this appeal)

Defendant's
 Exhibit
 No. 51
 Letter
 E. A. James to
 Plaintiff
 Jan. 14th,
 1925

EXHIBIT No. 51

North Vancouver, B. C.
 Jan. 14th, 1925.

SECOND NARROWS BRIDGE,
 MONTHLY REPORT NO. 16.

P. Ward, Esq.,
 Secretary,
 Burrard Inlet Tunnel & Bridge Co.
 Fairfield Building,
 VANCOUVER, B.C. 20

Dear Sir:

I beg to report that the struts connecting Piers No.'s 3 and 4 have been concreted and Pier No. 3 has been completed to grade and the grillages for the steel tower span set in position.

Rapid progress is being made with the building of the shaft of Pier No. 2 and it is expected to complete this Pier by the end of January.

One of the two cylinders for Pier No. 4A has been sunk and the other is in process of sinking. 30

The gravel hearting for the Rock and gravel fill on the South shore is making satisfactory progress and also the grading work for the South roadway approach.

The Dominion Bridge Co. have started operations in preparation for the erection of the steel spans and it is intended to start assembly on Feb. 5th, according to their schedule. Every effort is being made to push this work ahead. The first span to be erected will be the 150' span between Piers 4A and 5.

Yours truly,

E. A. James, 40
 Resident Engineer.

EXHIBIT No. 45

RECORD

*British Columbia
Admiralty Dist.*

MEMORANDUM OF AGREEMENT made this Twentieth day
of February, nineteen hundred and twenty-five

BETWEEN:

BURRARD INLET TUNNEL AND BRIDGE COMPANY,
hereinafter called "the Company,"
of the one part,

AND

NORTHERN CONSTRUCTION COMPANY, LIMITED,
10 and J. W. STEWART,
hereinafter called the "Contractors,"
of the other part:

SUPPLEMENTAL to an agreement dated 26th September 1922,
(hereinafter referred to as "the Principal Agreement"), to an
agreement dated 1st. February, 1923 (hereinafter referred to as
"Supplemental Agreement No. 1"), and to Articles of Agreement
dated 25th July 1923, (hereinafter referred to as "the Contract"),
and to an agreement dated the 5th day of March, 1924, (herein-
after referred to as "Supplemental Agreement No. 2"), between
20 the parties hereto:

WHEREAS by the above mentioned agreements the Con-
tractors have agreed to construct a bridge across the second Nar-
rows of Burrard Inlet and approaches, upon the terms set out in
the said agreements, the said bridge and approaches now being in
process of construction:

AND WHEREAS the Company has entered into an agree-
ment with the Vancouver Harbour Commissioners whereunder
the said Commissioners have agreed to provide the moneys for
the raising of the height of the said bridge an additional five (5)
30 feet, the said moneys to be advanced upon progress certificates of
the Engineer of the Company.

AND WHEREAS the Contractors have agreed to raise the
height of the said bridge and approaches as now being constructed
an additional five feet (5) feet as an extra for the price and upon
the terms hereinafter set out:

AND WHEREAS the Government of Canada has agreed to
provide by subsidy estimates at present before Parliament the
additional moneys required for the substitution of two (2) one
hundred and fifty (150) foot steel spans for the timber trestle
40 immediately north of the three hundred (300) foot steel span as
shewn in the present plans and specifications of the said bridge:

Defendant's
Exhibit
No. 45
Supplemental
Contract
Plaintiff to
Northern
Construction
Co.
Feb. 20th,
1925

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 45
Supplemental
Contract
Plaintiff to
Northern
Construction
Co.
Feb. 20th,
1925

AND WHEREAS the Contractors have agreed to make such substitution as an extra for the price and upon the terms herein-after set out:

NOW THIS AGREEMENT WITNESSETH that the parties hereto mutually agree in manner following:

1. The Contractors shall raise the height of the said bridge and approaches an additional five (5) feet over the height of the said bridge and approaches now being constructed, such work to be executed in conformance with the plans thereof settled and executed by the parties hereto and with such specifications as the engineer of the company may require, for the price of eighty-six thousand four hundred and five dollars (\$86,405.00) additional to the contract price as shewn by the said agreements, and the said agreements and all plans and specifications thereunder shall be amended accordingly wherever necessary. 10

2. The Contractors shall substitute two (2) one hundred and fifty (150) foot steel spans immediately north of the present three hundred (300) foot steel span, for timber trestle at present in place, such work to be executed in conformance with the plans thereof settled and executed by the parties hereto and with such specifications as the engineer of the company may require, for the price of one hundred and sixty-three thousand four hundred dollars (\$163,400.00) additional to the contract price as shewn by the said agreements, and in addition, and as part of the said price, the Contractors shall be entitled to as much of the timber forming part of the said timber trestle as will be rendered unnecessary by reason of such substitution, and the agreements, and all plans and specifications thereunder, shall be amended accordingly wherever necessary. 20 30

3. The contract price shall be and is hereby increased to one million seven hundred and eighteen thousand one hundred and eleven dollars (\$1,718,111.00).

4. The Company shall pay to the Trustee for the purposes of the said agreements and this supplemental agreement the sum of eighty-six thousand four hundred and five dollars (\$86,405.00) as and when the same shall be received from the Vancouver Harbour Commissioners, and the sum of one hundred and sixty-three thousand four hundred dollars (\$163,400.00) as and when the same shall be received from the Government of Canada, and further covenants and agrees with the Contractors that the said moneys, or, failing them or any portion thereof, other moneys to be provided by the Company 40

to the extent of the deficiency shall be paid to the Trustee in time so that no delay in payment under the said agreements or this supplemental agreement shall occur. The provisions contained in Paragraph 11 of the Contract as to the rights of the Contractors in the event of default in payment of the moneys arising from the subsidy from the Parliament of Canada or in the payment of moneys in substitution thereof, shall apply to the said sums of eighty-six thousand four hundred and five dollars (\$86,405.00) and one hundred and sixty-three thousand four hundred dollars (\$163,400.00) to the same extent and with the same effect as if the said provisions had been included in this paragraph.

10

20

5. The time limit within which the construction of the said bridge and approaches shall be completed shall be and the same is hereby extended so that the said bridge and approaches shall be completely constructed on or before the 31st day of October 1925, provided that the Company shall notify the Contractors in writing on or before the 31st day of March, 1925, to proceed with the construction of the bridge across Lynn Creek forming part of the northern approach to the said bridge, either in accordance with the present plans thereof or with any amended plans mutually agreed upon by the parties hereto.

6. The Principal Agreement, Supplemental agreement No. 1, the Contract and Supplemental agreement No. 2 shall remain in full force and effect save as hereby amended or varied.

IN WITNESS WHEREOF the corporate seals of the Burrard Inlet Tunnel and Bridge Company and Northern Construction Company Limited, have been hereunto affixed, and J. W. Stewart has hereunto set his hand and seal the day and year first above written.

30

The corporate seal of the Burrard
Inlet Tunnel & Bridge Company
was affixed in the presence of: }

The Corporate seal of the Northern
Construction Company Limited,
was affixed in the presence of }

Signed, sealed and delivered by
40 J. W. Stewart in the presence of }

RECORD
*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 45
Supplemental
Contract
Plaintiff to
Northern
Construction
Co.
Feb. 20th,
1925

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 30
Order of
Railway
Commissioners
No 36317
March 6th,
1925

EXHIBIT No. 30

RL.

ORDER No. 36137.

THE BOARD OF RAILWAY COMMISSIONERS FOR
CANADA.

FRIDAY, THE 6th DAY OF
MARCH, A.D. 1925.

S. J. McLEAN,
Asst. Chief Commissioner.

A. C. BOYCE, K.C.,
Commissioner.

HON. FRANK OLIVER,
Commissioner.

IN THE MATTER OF the
application of the Burrard In-
let Tunnel & Bridge Company,
hereinafter called the "Appli-
cant Company," under section
251 of the Railway Act, 1919,¹⁰
for approval of Plans Nos.
V-147, V-148, and V-149 show-
ing proposed changes in the
bridge over the Second Nar-
rows, Burrard Inlet, involving
the construction of two addi-
tional spans on the north end
of the bridge and the raising
of the bridge five feet,—the
said plans being on file with the²⁰
Board under file No. 15732.4:

UPON the report and recommendation of its Chief Engin-
eer—

THE BOARD ORDERS that the proposed changes in the
Applicant Company's bridge over the Second Narrows, Burrard
Inlet, in the Province of British Columbia, as shown on the said
plans on file with the Board under file No. 15732.4, be, and they
are hereby, approved.

(S'G'D.) S. J. McLean,

Assistant Chief Commissioner, 30
Board of Railway Commissioners for Canada.

EXHIBIT No. 52

North Vancouver, B. C.,

March 19th, 1925.

SECOND NARROWS BRIDGE.
MONTHLY REPORT No. 18.

P. Ward, Esq.,
Secretary,
Burrard Inlet Tunnel & Bridge Co.,
Fairfield Building,
VANCOUVER, B.C.

10

Dear Sir:—

I beg to report that all the original Pier work is now complete with the exception of the upper diagonal struts between Piers 4 and 4A which are held back on account of the raising of the Bridge.

The work of raising is now well in hand. The two additional cylinders for Pier 1 are now sunk and the work of setting the steel and filling these cylinders is in progress. The pedestals have been poured on Piers 3, 4, 4A and 5 and the forms are in place for the
20 lower diagonal struts between Piers 4 and 4A which will be poured in a few days. The trestle approach at the South end has been completed to Pier 5 and the track is now laid as far as Pier 4.

The 150' span between Piers 4A and 5 was floated into place on the 6th inst. The 300' span is now completely erected and the riveting in progress. A start is being made with the erection of the bascule tower span and the 30' span between Piers 4 and 4A is in place, being supported on a temporary bent on Pier 4.

Work has been started on the raising of the gravel embankment on the North side and the dismantling of the trestle super-
30 structure has been commenced.

Yours truly,

E. A. James,
Resident Engineer.

RECORD

*British Columbia
Admiralty Dist.*

Defendant's
Exhibit
No. 52
Letter
E. A. James to
Plaintiff
March 19th,
1925

RECORD

EXHIBIT No. 26

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 26
Order-in-
Council
No. 1310
Aug. 20,
1925

IH/2.

P. C. 1310.

CERTIFIED TO BE A TRUE COPY OF A MINUTE OF
A MEETING OF THE COMMITTEE OF THE PRIVY
COUNCIL, APPROVED BY THE DEPUTY OF HIS
EXCELLENCY THE GOVERNOR GENERAL ON THE
20th AUGUST, 1925.

The Committee of the Privy Council have had before them a Report, dated 5th August, 1925, from the Minister of Marine and Fisheries, submitting that he has had under consideration an application of the Corporation of the Vancouver Harbour Commissioners, for approval under the provisions of their Act of Incorporation of plans, specifications and estimates, as follows: 10

SECOND NARROWS BRIDGE, (MARINE No. V-74/25)

For the necessary labour and material to raise
all spans five feet, also the Lynn Creek approach,
Estimated cost\$100,000

The Supervisor of Harbour Commissions reports he has considered the report of the Board of Consulting Engineers called to consider the best means of altering the bridge so as to lessen the rapidity of the current of the waters of the harbour which pass under the bridge, also the technical description of the work necessary with the estimate of its cost; that the Corporation have entered into an agreement with the bridge company by which they shall have the right to control traffic over the bridge both railway, vehicular and passenger, and to route their terminal railway thereover; and in consideration of this agreement they have agreed to bear the cost of the raising of the bridge. 20

This officer considers the proposal a satisfactory one and that the expenditure may be approved as for work authorized in the terms of the legislation providing for advances on loan to the Corporation for the construction of harbour improvements, and he recommends approval of the plans and of the carrying out of the work under them; and also of the appropriation, out of any balance remaining of the total amount authorized for an advance on loan to the Corporation by the legislation referred to, of the estimated cost of this work, amounting to \$100,000, providing the cost of the completed work amounts to this sum. If not, any balance remaining under the total hereby to be approved, to be automatically returned to the balance available for further appropriations; and in these recommendations the Deputy Minister of Marine and Fisheries concurs. 30 40

The Minister, therefore, recommends approval of the plans and of the estimate of \$100,000, for the work of raising the spans and approach of the Second Narrows bridge in the harbour of Vancouver, B. C., on the terms and conditions above set out.

The Committee concur in the foregoing recommendation and submit the same for approval.

E. J. Lemaine,
Clerk of the Privy Council.

RECORD
*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 26
Order-in-
Council
No. 1310
Aug. 20,
1925

(Contd.)

SECOND NARROWS BRIDGE.

10 DESCRIPTIVE SPECIFICATION OF RAISING BRIDGE 5' 0".

The general specification covering the construction of the Bridge will apply to the work of raising and to the additional spans and piers.

The raising of the Bridge by 5' 0" will be carried out as follows:—

20 The gravel embankment forming part of the North approach will be raised and the original grade of six tenths per cent. retained. As the two additional spans are being held to a level grade this involves raising the embankment an amount of 6.8 ft. at the outer end, the six tenths grade being retained until it joins the level part of the fill. The length of embankment affected being about 2,200 ft., the additional amount of gravel required is approximately 21,000 c. yds.

The existing framed trestle superstructure on the North side will be dismantled and rebuilt with new posts of 6.8 ft. greater length. All timber other than the posts being used again. The girts connecting the substructure pile bents will be lifted and moved to accommodate the wider bases of the framed bents.

30 Two additional piers in accordance with the accompanying drawings will be constructed between the South end of the trestle and the existing Pier No. 1. These piers are numbered 0 and 00 and two 150' 0" steel spans will be provided similar in design to the 150' 0" span at the South of the Bascule span, these spans being set at a level grade. The foundations of the two new piers will be carried to a depth sufficient to permit of dredging beneath the spans to a depth of 35' below low water, the top of the dredge cut at its Northern edge to pass through the centre of Pier 00 and to slope downwards to the South at the natural slope of the gravel.

40 The existing Pier No. 1 will be strengthened by the addition of two additional cylinders heavily reinforced and will be raised

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 26
Order-in-
Council
No. 1310
Aug. 20,
1925

(Contd.)

5' by means of concrete pedestals of a size as shown on the drawings, the bridge shoes being mounted on these pedestals. The foundation bolts will be lengthened to carry them up through the pedestals.

Piers No's. 2, 3, 4, 4A and 5 will be raised by means of concrete pedestals as in the case of Pier No. 1, the foundation bolts being lengthened in the same way. Additional horizontal diagonal bracing composed of 24" I beams encased in concrete will be placed between Piers 4 and 4A for the purpose of strengthening Pier No. 4A.

10

The trestle work on the South side will be raised an amount of 5' 0" at its junction with the steel work, this raising running into the original grade at the overhead crossing of the C. P. R. in the case of the highway trestle and at the junction with other tracks at C. P. R. grade in the case of the railway.

As instructions could not be given to the Dominion Bridge Co. with reference to the raising before they had completed their temporary work there is a sum of \$4,000.00 required to reimburse them for reconstruction which has to be included in the cost of the raising.

20

Details of cost of the raising are attached hereto.

If the two additional spans were set on the same grade as the trestle work which they replace as was contemplated in the estimate presented by the Committee of Enquiry the embankment at the North end would only be required to be raised 5' 0" involving only an additional 13,000 c. yds. of gravel or a reduction of 8,000 c. yds., with corresponding reduction in cost.

E. A. JAMES,
RESIDENT ENGINEER.

EXHIBIT No. 31

RECORD

RL.

ORDER No. 36996.

*British Columbia
Admiralty Dist.*THE BOARD OF RAILWAY COMMISSIONERS FOR
CANADA.Plaintiff's
Exhibit
No. 31
Order of
Railway
Commissioners
No. 36996
Oct. 31st,
1925

10 SATURDAY, the 31st day
of October, A.D. 1925.

HON. H. A. McKEOWN, K.C.,
Chief Commissioner.

S. J. McLEAN,
Asst. Chief Commissioner.

20 A. C. BOYCE, K.C.,
Commissioner.

IN THE MATTER OF the application of the Burrard Inlet Tunnel & Bridge Company, hereinafter called the "Applicant Company," under Sections 251 and 276 of the Railway Act, 1919, for authority to use and operate the bridge over the Second Narrows of Burrard Inlet, in North Vancouver, British Columbia; and to Open for the carriage of traffic that portion of its line of railway from its temporary connection with the siding of the Canadian Pacific Railway Company on the South shore of Burrard Inlet, Station—1-50 to Station 20-50 on the north shore of Burrard Inlet, a distance of 2200 feet: File No. 15732.4.

UPON the report and recommendation of its Chief Engineer, and the filing of the necessary affidavit—

30 THE BOARD ORDERS that the Applicant Company be, and it is hereby, authorized—

(a) to use and operate the said bridge over the Second Narrows of Burrard Inlet, in the Province of British Columbia; and

(b) to open for the carriage of traffic that portion of its line of railway from its temporary connection with the siding of the Canadian Pacific Railway Company on the south shore of Burrard Inlet, Station 1-50, to Station 20-50 on the north shore of Burrard Inlet, a distance of 2200 feet.

40 BOARD OF RAILWAY
COMMISSIONERS FOR
CANADA. Examined
and certified as a
true copy under Section 23
of "The Railway Act."

(Sgd) H. A. McKeown,
Chief Commissioner,

Board of Railway Commissioners
for Canada.

"A. D. Cartwright."

Sec'y. of Board of Railway Commissioners
for Canada. OTTAWA, OCT. 31, 1925.

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 65
Notice to
Mariners
No. 18
April 21st,
1928

EXHIBIT No. 65

DOMINION OF CANADA
NOTICE TO MARINERS

No. 18 of 1928

(Pacific No. 3)

BRITISH COLUMBIA

- (57) Burrard inlet—Vancouver harbour—Second narrows bridge—Regulations governing the conduct, management and operation of the bridge and Regulations governing the conduct, management and operation of vessels passing thereunder. 10

BY-LAW No. 127, VANCOUVER HARBOUR COMMISSION
Interpretation.

(a) The expression "vessel" includes every kind of boat, barge, dredge, floating elevator, scow or other floating craft, and includes house-boats.

(b) "Raft" includes any raft, crib, drag or bag boom of logs, timber or lumber of any kind and logs, timber or lumber boom being towed. 20

(c) The "Company" means the Burrard Inlet Tunnel and Bridge Company, its successors or assigns, and includes its agents, servants or employees.

(d) The "Bridge" means and includes all the structure bridging the Second narrows in Burrard inlet in the territorial limits of Vancouver harbour.

1. Equipment.

The following equipment shall be installed and maintained by the company upon the bridge:— 30

(a) At the east and west end of the piers 2 and 3, and at the east end and the west end of pier 4, one gauge with clear painted figures showing in feet, the distance between water level and the lowest chord of the steel span.

(b) At the east end and the west end of piers 0, 1, 2, 3, 4A and 5 a white light so placed as to indicate the height of the clear headroom under the bridge.

(Light so arranged as to make the outline of the ends of these

piers visible at night may also be provided if not visible at a higher elevation than the white lights described above.)

(c) On the east and the west side of the bascule tower: a red light and a green light having a spread of not less than 15 degrees and a colour visibility of not less than three to four miles in bright daylight.

2. Signals.

(a) By Vessels—

Bascules required to be opened—
10 Three prolonged blasts on whistle. Repeat until answered.

(b) By operator on bridge—

Signal heard and vessel seen—
Red daylight signal lamp in bascule tower.
All clear for passage—
Red signal lamp in bascule tower extinguished and replaced by green signal light.

Warning not to approach bridge—

In daytime, a semaphore arm in horizontal position. At
20 night a fixed red light of same power as that specified under "Equipment" (c), and ten feet distant vertically from that light.

3. Traffic Regulations—

(1) The bascule span shall be attended at all times by a competent person or persons who shall promptly answer the signals of vessels requiring the span to be opened.

(2) Vessels proceeding with the tide shall have the right of way but no vessel shall pass through the opening span until signalled to do so.

30 (3) Vessels are cautioned against attempting the passage of the bridge when the visibility is less than one mile.

(4) Vessels towing rafts, scows and/or other vessels, are warned that it is dangerous to attempt the passage of the bridge when proceeding with a tide having a velocity exceeding the speed at which the vessel or vessels and tow can travel in still water.

(5) No boom of logs or other tow shall be towed either under or through the bridge unless under complete control of the vessel or vessels in charge.

(6) Vessels equipped with lowerable masts, funnels, derricks and/or other equipment, which, by means of lowering same,
40 can pass under a fixed span, shall not signal for the bascule span

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit
No. 65
Notice to
Mariners
No. 18
April 21st,
1928

(Contd.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's
Exhibit

No. 65

Notice to

Mariners

No. 18

April 21st,

1928

(Contd.)

to be opened provided, however, that such prohibition shall not apply to vessels which although having such equipment are prevented by circumstances from using same.

(7) Vessels able to pass under the bridge when towing logs, scows, or other vessels must, when safe and practicable, keep to the northward of the movable span. Other vessels must comply in the strictest terms with Article No. 25 of the International Rule of the Road.

(8) Any vessel signaling for the bridge to open when it can be proven that such vessel could, without risk, have passed under a fixed span shall be deemed to have committed a breach of this by-law. 10

(9) No person shall attempt the passage of the bridge in an unskilful, careless or reckless manner.

4. The Harbour Master shall have the right, at all times, to inspect the method of opening and operating the bridge, and to be supplied with any information relative to the passage of vessels or other information as may be required.

The Harbour Master shall have authority to inspect the lights and signals on the bridge, which are for the guidance of vessels, and to require them to be maintained in a state of efficiency. 20

5. All street and other lights to be installed on the bridge or plans and specifications thereof, shall first be submitted to the Minister of Marine and Fisheries for approval.

6. The company shall, prima facie, be deemed to be a party to any breach of this by-law by its servants, agents, or employees, and liable to penalties prescribed for the offence as a principal offender, notwithstanding the offence was committed by a servant, agent or employee of the company who is not proved to have been acting under the instructions of the company, or within the scope of his authority as servant, agent or employee of the company, in doing or omitting to do the act complained of. 30

Nothing contained in this section shall relieve the person actually committing the offence from liability therefor.

Everyone commits a breach of this by-law who,—

(a) In whatever capacity he is acting, fails or neglects to comply with, violates, infringes, or in any other manner contravenes any provision of this by-law; or

(b) Is the master, owner or person in charge of any vessel in the navigation, conduct, management, operation, piloting, un- 40

skilful, careless and/or reckless handling of which any breach is committed, whether or not such breach is known to, acquiesced in, or allowed by such master, owner, or person in charge. But nothing herein contained shall relieve the person actually committing the offence from liability therefor.

NOTE: Notice to Mariners No. 75 (203) of 1925 is hereby cancelled.

N. to M. No. 18 (57) 21-4-28.

A. JOHNSTON
Deputy Minister.

10

(The rest of exhibit not relevant to this appeal.)

RECORD

*British Columbia
Admiralty Dist.*

Plaintiff's

Exhibit

No. 65

Notice to

Mariners

No. 18

April 21st,

1928

(Contd.)

STATEMENT SHOWING COST OF DELAY TO AND DAMAGES SUSTAINED BY VESSELS OWNED AND/OR OPERATED
 BY IMPERIAL OIL LIMITED ARISING OUT OF THE CONSTRUCTION AND OPERATION OF BRIDGE OVER SECOND
 NARROWS, VANCOUVER, B. C.

COST OF DELAYS.	DEADWEIGHT	NO. OF HOURS	RATE PER	COST OF
YEAR.	TONNAGE	DELAYED	HOURLY	DELAY
1924.	S.S. "Mina Brea" 5950	79.43	\$40.00	\$3,177.20
	S.S. "El Grillo" 10358	78.20	55.00	4,301.00
	S.S. "Albertolite" 11917	3.26	57.50	208.15
	S.S. "Imperial" 938	101.13	15.00	1,516.95
				\$ 9,203.30
1925.	S.S. "Mina Brea" 5950	173.82	40.00	6,952.80
	S.S. "Calgarolite" 11942	29.86	57.50	1,716.95
	S.S. "El Grillo" 10358	56.17	55.00	3,089.35
	S.S. "Imperial" 938	91.29	15.00	1,369.35
				13,128.45
1926.	S.S. "Mina Brea" 5950	287.59	40.00	11,503.60
	S.S. "Vancolite" 15100	29.20	67.50	1,971.00
	M.S. "Reginolite" 12001	9.20	60.00	552.00
	M.S. "Trontolite" 15559	15.10	67.50	1,019.25
	M.S. "Trontolite" 9150	20.44	52.50	1,073.10
	M.S. "Ontariolite" 12033	15.40	60.00	924.00
	S.S. "Imperial" 938	81.05	15.00	1,215.75
	S.S. "Fuelite" 500	44.14	15.00	662.10
				18,820.80
1927.	S.S. "Mina Brea" 5950	205.72	40.00	8,228.80
to June 30th	M.S. "Trontolite" 9150	69.69	52.50	3,627.23
	M.S. "Ontariolite" 12033	11.30	60.00	678.00
	S.S. "Imperial" 938	18.58	15.00	278.70
	S.S. "Fuelite" 500	192.55	15.00	2,888.25
COST OF DAMAGES				15,700.98
	S.S. "Mina Brea"	Accident of January 9, 1926.		32,382.75
	—do—	February 25, 1926.		24,459.44
	S.S. "Vancolite"	February 25, 1926.		47.66
	S.S. "Fuelite"	February 5, 1927.		22.10
	S.S. "Fuelite"	January 12, 1928.		1,400.00
				58,311.95
				<u>\$115,265.48</u>

EXHIBIT No. 24.

837

No. 20

IN THE PRIVY COUNCIL
ON APPEAL FROM THE EXCHEQUER COURT
OF CANADA

*In the
Privy Council*

No. 20
Registrar's
Certificate
June.....1930

BETWEEN :

BURRARD INLET TUNNEL AND BRIDGE COMPANY
Plaintiff (Respondent),

AGAINST :

THE S. S. "EURANA"
Defendant (Appellant).

10

I, the undersigned Registrar of the Exchequer Court of Canada, DO HEREBY CERTIFY that the foregoing printed document from Page 1 to Page 837 inclusive (together with accompanying folder of plans, photographs and tide table therein referred to) constitutes the Record of Proceedings in the above cause.

DATED at Ottawa

June 1930.

.....
Registrar of the Exchequer Court.