



Neutral Citation Number: [2022] EWHC 3082 (KB)

Case No: QB-2021-003772

IN THE HIGH COURT OF JUSTICE
KING'S BENCH DIVISION

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: Friday 2nd December 2022

Before:

JEREMY HYAM KC
(Sitting as a Deputy Judge of the High Court)

Between:

EMMA JANE WHITE (1)
SUSAN MARY WHITE (2)
STEPHEN THOMAS WHITE (3)
(EXECUTORS OF THE ESTATE OF THOMAS
ALBERT WHITE DECEASED)
- and -

Claimants

SECRETARY OF STATE FOR HEALTH AND
SOCIAL CARE

Defendant

GEORGE MURRAY (instructed by James Murray Solicitors) for the Claimant
PHILIP TURTON (instructed by Clyde and Co.) for the Defendant

Hearing date: 3rd November 2022

Approved Judgment
.....

The Deputy High Court Judge:

Introduction

1. This is a claim for damages brought under the Law Reform (Miscellaneous Provisions) Act 1934 in respect of the death of Thomas White (d.o.b. 23 November 1932) who died on 8th April 2020, aged 87, from mesothelioma. This condition had been diagnosed in or about September 2019 (when he was 86), prior to which the deceased had been in reasonably good health.
2. The Claimants are the executors of the estate of the deceased. The Claimants claim that the deceased's death was caused or materially contributed to by wrongful exposure to asbestos while working at Sefton General Hospital in Liverpool in two discrete periods: between around 1949 and 1960, when he worked as a junior lab technician; and between 1973/1974 and 1991/1992 when he worked there as a senior biochemist. In the intervening period between those dates of employment he had worked at the University of Liverpool also as a biochemist.
3. The Defendant is the successor body upon whom the liabilities of the Sefton Hospital have devolved. The Defendant has accepted that the Claimant was employed by Sefton General Hospital and does not dispute the alleged dates of employment.

Summary of Issues

4. The issues in dispute in these proceedings are:-
 - i) What were the nature and circumstances of any exposure to asbestos when the deceased was employed by Sefton General Hospital and/or in other employments, and in particular to what level of asbestos was the deceased exposed during the first and second periods of his employment with the Defendant.
 - ii) Having regard to the nature and circumstances of the exposure to asbestos which is proved, whether that level of exposure to asbestos gave rise to a duty of care at common law and/or under the provisions of the Asbestos (Licensing) Regulations 1983, the Asbestos (Prohibitions) Regulations 1985 and the Control of Asbestos at Work Regulations 1987;
 - iii) If there was such a duty either at common law or under any relevant statutory provisions was such duty breached by the Defendant by failing to take adequate precautions to reduce or avoid the risk in question or at the very least made enquiries about what precautions if any they should take.
 - iv) If liability is proved, the quantum of the claim for damages.
5. By way of narrowing the issues, in its skeleton argument for these proceedings the Defendant summarised its position as follows:

“The Defendant’s case is that the Claimant’s evidence establishes low level exposure during the course of his employment during the first period of his employment, up to 1960, and not the second from 1973, at a time when the risk of

injury in the form of mesothelioma from low levels of exposure was not generally known”

6. As is pleaded in the Claimant’s Reply, the Defendant advances no positive case on the facts, nor defence under the Limitation Act 1980. Thus the central issues in the claim on the facts turn on the amount of asbestos dust to which the deceased is likely to have been exposed in each period of employment and whether that level of exposure was sufficient to trigger a duty to take precautionary steps to reduce the risk of exposure, or to avoid it altogether, or at least take advice on what precautionary steps ought to be taken.

Evidence

7. By order of Master Thornett dated 23 February 2022 the parties were given permission to exchange evidence of fact by 13th April 2022 and to obtain expert evidence from respiratory consultants and engineers/occupation hygienists by 10th June 2022. Permission to call evidence at trial from such experts was limited to the matters on which they remained in disagreement.
8. The Claimants served two factual witnesses: A witness statement from the deceased dated 27th February 2020, just six weeks before his death; and one from his daughter, who is one of the Claimants, Emma Jane White, dated 13 April 2022. The Defendant served no evidence of fact and did not require the Claimant’s daughter to give oral evidence or be cross examined.
9. As to expert evidence, the Claimants served a respiratory expert’s report from Dr Warburton and the Defendant’s served a report from Dr Moore-Gillon. A joint statement was produced. There was no disagreement. Neither expert was required to give evidence at trial. Their joint statement recorded:-

“1) Mr White had malignant mesothelioma, which was the cause of his death.

2) We attribute this to occupational exposure to asbestos the source or sources of which are for the finding of the Court. We are agreed that if the information available to us is found by the Court to be broadly correct, then there was probably a medically significant increase in risk of mesothelioma attributable to his work with the Defendant. We note the conflict of information regarding whether or not there was exposure at the University of Liverpool, but resolution of this conflict is for the Court.

3) Symptoms attributable to Mr White’s mesothelioma commenced in about July 2019 when he developed breathlessness. He was diagnosed as having mesothelioma in September 2019. He did not receive active treatment and although his health certainly declined, he was still living alone at the time of his death, albeit with support from his family and others

...

5) *We are agreed that if he had not succumbed to a malignant mesothelioma his expectation of life would have been around 4.2 years*”

10. In respect of engineering/occupational hygiene evidence, although the Claimants identified an appropriate expert occupational hygienist in accordance with the Master’s direction, and a draft report was prepared and a conference with Counsel held, no such report was ever served by the Claimants. The consequence was that the only expert occupational hygienist evidence before the Court was that of the Defendant’s expert Mr Graeme Hughson, dated 1st July 2022. That report was accompanied by 5 lever arch files of relevant literature in respect of the developing knowledge of asbestos over time.
11. An issue arose at trial as to the extent to which it was open to the Claimants, having:-
 - (i) declined to serve any expert occupational hygiene evidence of their own;
 - (ii) declined to pose Part 35 questions to the Defendant’s expert; and
 - (iii) declined to seek an order permitting that expert to be cross-examined as to the contents of his report,nonetheless to impugn the evidence or expertise of the Defendant’s expert on the matters in his report. In particular, the Claimants argued that:-
 - a) insofar as Mr Hughson’s evidence of fact is in conflict with that of the deceased, it is the latter which should be preferred;
 - b) insofar Mr Hughson’s evidence of opinion is no more than an unreasoned assertion, or based on assumptions other than those accepted by the Court, it must be rejected.
 - c) where Mr Hughson gives a reasoned opinion on a matter within his expertise the Court may be willing to accept it, though it is under no obligation to do so.
12. I considered these submissions in the light of the Court of Appeal’s decision in *Griffiths v. TUI* [2022] 1 WLR 973 where the majority of the Court of Appeal - Asplin and Nugee LJ; (Bean LJ in strong dissent at §99) held that there was no strict rule that the court was bound in all circumstances to accept the uncontroverted evidence of an expert witness which complied with the formal requirements of CPR Pt 35; that, rather, such evidence fell to be evaluated and assessed by the court in the usual way, and the approach to be taken, and weight to be given, to such evidence would depend on the circumstances of the individual case, the nature of the report itself and the purposes for which it was being used in the claim.
13. The approach indicated by the majority of the Court of Appeal is the approach which I intend to adopt to Mr Hughson’s evidence. I do not read that case as saying that the factors alluded to above in relation to the decision of the Claimants not to serve evidence of their own, not to pose Part 35 questions, and not to seek to cross examine Mr Hughson, are irrelevant to a proper evaluation of Mr Hughson’s evidence and the

weight that may be given to it. I consider that the correct distillation of paragraphs §65-67 of Asplin LJ's judgment in *Griffiths* is that I should have regard to these matters as part of all the circumstances, and while not bound to reach conclusions which accord with the views of Mr Hughson, any departure from a properly reasoned opinion of his on matters of expert assessment which are within his expertise would require cogent explanation.

14. Ultimately, as the Court of Appeal in *Coopers Payen Ltd v. Southampton Container Terminal Ltd* [2003] EWCA Civ 1223 observed:

“at the end of the trial the duty of the court is to apply the burden of proof to all the evidence in the case which will or may include both evidence of fact and evidence of opinion which may interrelate”.

15. In the present case that interrelation is plainly important. Mr Hughson is not a witness of fact, but he does have very considerable expertise in assessing likely exposure to asbestos dust in claims of this type. He has previously been employed as a scientific technician and a senior scientist by the Institute of Occupational Medicine advising clients on management of asbestos in buildings routine air monitoring for verification of asbestos containment, and assessment of operator exposures. I have considered the entirety of the written evidence both factual and expert and together with the parties' submissions when reaching my conclusions below.

Factual findings

16. I consider the proper approach in this case is to make detailed factual findings before addressing the questions of whether a breach of duty was owed at common law or statute, and whether the Defendant, who does not advance any positive case that any steps were in fact taken to mitigate the risks of the use of asbestos, was in breach of any relevant duty.
17. I have paid close regard to the factual evidence of the deceased and Emma White, alongside both the relevant documents, including the hospital records of 1st August 2019 and 2nd August 2019, the photograph of the deceased exhibited to Emma White's statement, his application for payment under the Pneumoconiosis Etc (Workers Compensation) Act 1979; and his application for Industrial Injuries Disablement Benefit ('IIDB') and the expert evidence of Mr Hughson.
18. The burden of proof remains on the Claimant and standard of proof is the balance of probabilities. If I am not able to make a positive finding because the evidence is unsatisfactory, then I am obliged to find the relevant fact or facts not proved. In doing so I follow the position as authoritatively stated in Phipson on Evidence, 20th Edtn. at 6-07

“While a judge or tribunal of fact should make findings of fact if it can, in exceptional cases it may be forced to the conclusion that it cannot say that either version of events satisfies the balance of probabilities. In such a case the burden of proof may determine which party succeeds. The judge or tribunal of fact may only dispose of a case on this basis if it cannot reasonably

make a finding one way or the other on a disputed issue. A judge should only do this where the state of the evidence is so unsatisfactory that no other course was open to them.”

19. With these comments in mind – which are particularly pertinent in this case where, because of the long latency period before mesothelioma develops, neither party is likely to have access to good contemporaneous documentary information as to the state of the employer’s premises, the precise equipment used, or the exact conditions of working - I make the following findings on the balance of probabilities.
- (i) The deceased was employed by the Defendant between 1949 and 1960 and again between 1973/4 and 1991/2.
 - (ii) The deceased was, as his daughter relates in her statement, extremely precise and pedantic in character. The same is demonstrated by the nine handwritten corrections he made to a draft statement prepared on his behalf. Each of those corrections shows a close attention to detail by the deceased.
 - (iii) The deceased was a laboratory assistant at Alsop High School for a period of about a year between 1948 and 1949 (when he was 16-17 years old). I find that he was not exposed to any significant asbestos during this period. I say so because, although in a document completed at the time he made an application for a diffuse mesothelioma payment, he appears to have ticked a box in respect of asbestos exposure during his employment there, a similar box is not ticked in his statement of 27th February 2020, and I consider that the statement of February 2020, which he has carefully checked and corrected (in some instances against his interest, e.g. the correction made at Point 7 in respect of asbestos lagging at the hospital “*possibly don’t know for sure*”) is likely to be accurate on this issue.
 - (iv) He was employed as a junior lab technician at Sefton General hospital between 1949 and 1960 (from age 17 to age 29)
 - (v) The photograph at of him working in a lab at p.73 of the trial bundle is likely to have been taken during this period. It is described by his daughter Emma White as a photograph taken in Sefton Laboratory and I accept that evidence. The deceased appears young. The photograph is old. Mr Hughson considers that the lab equipment is similar to the old equipment he had observed in the 1970s and 1980s (a time when he, Mr Hughson was at school) and concludes: “*it seems obvious that the Deceased was a young man at the time which tends to suggest it was taken in the 1950/1960s*”. Since I accept that the photograph was taken at Sefton hospital, and I also accept it dates from a period prior to 1973, this fixes the photograph at some point during the 11 year period of employment 1949-1960. It is impossible to say more accurately than that when it was taken.
 - (vi) Under the Bunsen burner in the photograph which I date from this first period of employment is a protective mat. Mr Hughson isolates this part of the photograph at 3.3.17 in a separate box. I find that mats similar to

that depicted in the photograph were likely to have been used throughout the period that the Claimant was working at the hospital between 1949 and 1960. I say so because Mr Hughson says that although heat protective mats he encountered at school in the mid-1970s, working as a lab technician in the 1980s and surveying a range of premises in the 1990s were “*hard cement-like tile or slate*” his understanding is that “*softer materials were used prior to this time*”. While the mat in the photograph could be a soft asbestos mat, or a harder cement like mat, I consider it is likely to be a soft asbestos mat which was friable in nature.

- (vii) In reaching the above conclusion, I have considered and I accept Mr Hughson’s opinion at §6.5.28 of his report where he says:

“In my opinion scientific laboratories were so closely aligned with educational establishments that the management of hospital laboratories ought to have been aware of the DoE guidance or received similar guidance through their own hierarchy”

This is important because he also refers specifically to a Department of Education and Science Memorandum (18th July 1967) which recorded:-

“In circumstances in which asbestos is used in schools there would seem to be little if any risk of creating such heavy quantities of dust as to cause either asbestosis cancer of the lung in later years. Even so, inhalation of any form of asbestos dust by pupils and teachers should be reduced to a minimum...”

...The occurrence of mesothelioma is associated especially with products made from one of the naturally occurring forms of asbestos, crocidolite (blue asbestos). Exposure to even low concentrations of dust may be hazardous. Present evidence suggests that the association of mesothelioma with asbestos derived from other naturally occurring forms of asbestos than crocidolite is exceptional. In view of the uncertainty about the subject it would seem proper to eliminate the use of crocidolite and crocidolite products and reduce the use of all other forms of asbestos by seeking a substitute wherever possible.

4...hard asbestos mats should be used in preference to soft ones (mats should be disposed of when they become frayed) any drilling or sawing of asbestos cement products should be carried out in the open air or under exhaust ventilation....

...

5...The Secretary of state asks local education authorities and other responsible bodies to ensure the most careful regulation and use of asbestos types within all types of educational establishments”

- (viii) By 1976 a revised memo had been issued by the Department of Education and Science warning of the risk of dust being formed by abrasion of asbestos products in the course of normal usage. The text in the 1976 memo says, amongst other things: “*soft asbestos mats should not be used in science, in home economics or elsewhere in the establishment*”. That memo in conjunction with Mr Hughson’s expert evidence leads me to three conclusions on the balance of probabilities. First, that prior to 1967, the use of soft asbestos mats was reasonably widespread in schools and by extension, and as I think likely, other public institutions containing biochemical laboratories, e.g. hospitals. Second, that soft asbestos mats were (if appropriate guidance was followed) likely to have started being removed from schools and hospitals from at least 1967. Third that soft asbestos heat protective mats were capable of giving off dust by abrasion even in the course of normal usage.
- (ix) I also find that the soft asbestos mats which were likely to have been used during the first period of employment were likely to have been made of asbestos millboard or Asbestos Insulating Board (‘AIB’) rather than asbestos cement. I say so because I find, in accordance with Mr Hughson’s evidence at §4.3.1, that Asbestos Cement is a hard brittle material when compared to AIB which is relatively soft and friable. I have already found that on the balance of probabilities the mats used in this first period of employment were likely to be soft. That makes it considerably more likely that the mat was made of millboard or asbestos insulating board and is consistent with the deceased description of the mats or boards being ‘friable’. My findings in relation to the second period of employment are dealt with separately below.
- (x) As between Asbestos Insulating Board and Millboard – it may not matter which of these substances were used - but I consider the evidence of the deceased combined with the evidence of Mr Hughson, in particular at §4.3.18 to §4.3.30 of his report makes it slightly more likely that the mat was made from asbestos millboard. Asbestos millboard was used as a versatile product (it could easily be cut to size) and was used for heat protection between the 1930s and when it was phased out in the 1970s. The HSE description given by Mr Hughson of asbestos millboard having a “*high asbestos content and low density so was quite easy to break and the surface was subject to abrasion and wear*” fits very closely with the deceased’s own description of the mats in question at §22 of his statement: “*the mats were asbestos and were very fragile; they would simply break and the edges would be flaky. As the material was friable, if you placed the board down onto the desk heavily it would just break into pieces and cause so much dust to emerge from the same*”. If it was asbestos millboard, then it is possible that crocidolite was possibly used in its manufacture but unlikely that this persisted after 1965 – see Hughson at 4.3.20. If it was AIB then it was probably a mixture of amosite and chrysotile – see Hughson at 4.3.15.
- (xi) I do not consider the deceased was exposed to asbestos at Liverpool University. I accept his evidence that he would have been working

measuring drugs and would not have been exposed during this time. I do not consider the information which might be said to suggest to the contrary included on either the IIDB form or the diffuse mesothelioma payment form, is likely to be reliable. Unlike his witness statement there are no carefully thought-through annotated amendments to the entries. Indeed the only handwriting of his which appears on either form is his signature. The forms are undated.

- (xii) While I do consider that abrasion of such soft asbestos mats by normal usage would be likely to cause small amounts of dust to be emitted, I am not persuaded by the deceased's evidence that "*the benches would be covered with asbestos dust*" or that there was a "*constant flow of asbestos dust and fibres from the boards into the environment*". Rather I think it is likely that whenever the Bunsen burners were used, or the mats were moved around the lab, (i.e. intermittently) some dust was likely to be emitted, mostly by normal usage and occasionally by breakage of the mats. In a hospital laboratory, I consider it is likely that the lab benches would be regularly wiped down either with a wet or dry cloth, and in the course of that activity dust particles left on the benches would be likely to enter into the work environment. More so if dry rather than wet cloths were used. Occasionally, I accept the mats might break and emit larger quantities of dust but as a general rule the dispersion of dust particles into the air would have been intermittent rather than constant and probably at low quantities.
- (xiii) I do not consider it likely that the deceased was exposed to any or any significant quantity of asbestos, when going down to the hospital basement. I say so for three reasons. First because the deceased himself says that it is only possible that the pipes in the basement were lagged with asbestos – he annotates his statement: "*possibly, don't know for sure*", although I accept that point may be countered by Mr Hughson's acceptance that steam pipes in a hospital at that time were likely to be lagged with asbestos. Second, because there is no evidence that such visits (described as 'frequent' by the deceased) were for particularly long periods (perhaps 10 minutes only), and third, and perhaps most importantly, because of Mr Hughson's expert evidence that even if the pipes were lagged with asbestos, because such visits were intermittent and for short periods there is unlikely to have been any significant exposure to asbestos dust.
- (xiv) In terms of the actual level of exposure, while this is clearly difficult to determine by back-calculation, or more pejoratively, "back-guestimation", I do not consider the state of the evidence is so unsatisfactory that I cannot make a finding on the balance of probabilities of the likely level of exposure (at least in general terms) by reference to my earlier findings of fact in respect of the first period of employment.
- (xv) In reaching my conclusions I am greatly assisted by Mr Hughson's report in particular at §5.3.5-§5.3.6 and §6.3.1 -§6.3.5. In the light of that evidence I conclude:

- that handling of a friable form of asbestos such as millboard would likely create an asbestos dust concentration of around 1-2 fibre/ml for short periods of time. Mr Hughson says this would have been if the Bunsen burner mats were dropped down onto bench tops, and where they tended to break apart and where the deceased was in close proximity to others who did the same, or when he wiped away dust deposits from the bench tops. I accept Mr Hughson's evidence that when sitting on the work benches, and not being used or moved, such boards would not have released asbestos dust. Thus, although use of the mats, abrasion of their surfaces by moving them, or dropping such mats is likely to have caused asbestos dust to be emitted into the air in the locality where the deceased was working such emissions were not constant but intermittent, and probably at very low levels. In terms of actual periods of emission Mr Hughson who himself has worked in scientific labs, estimated a period as probably for no more than for 12 minutes in an 8-hour working day. Although not a witness of fact, this estimate seemed a reasonable estimate from a highly experienced expert who had relevant experience of working in and advising on, similar environments. There was no expert evidence from the Claimants to suggest to the contrary.
- In the light of those findings, I accept Mr Hughson's evidence that the deceased was potentially exposed to an average asbestos concentration of around 0.02 to 0.05 fibre/ml (8-hr TWA) on those days when the activities took place, which I find, based on the deceased's evidence, to be the majority of the time he was working. He says in his statement that he would "*be working around testing most days and as part of the tests we would be using Bunsen burners*". I consider in the circumstances it is fair to estimate that majority as 75% of the time, notwithstanding Mr Hughson's reservations about whether Bunsen burners would be in daily use.
- I therefore consider that Mr Hughson's estimate at §5.4.4. of his report is of assistance. In that paragraph he says, if the Court were to accept that the Deceased was exposed to asbestos for around 75% of the time for the full 11 years (and I do make that finding on the balance of probabilities on the evidence I have read) "*then I would estimate his cumulative asbestos exposure to be 0.2 to 0.4 fibre/ml years*". While considerable caution needs to be taken with respect to such back calculations, I consider this illustrative calculation is not an unreasonable estimate of the likely cumulative asbestos exposure during the first period of employment. At the very least I am persuaded by Mr Hughson's evidence that the likely level of exposure during this period was modest and infrequent, and in overall terms, not more than minimal.
- That said, I also consider that that level of exposure: 0.02 to 0.05 fibre/mol (8-hr TWA); or 0.2 to 0.4 fibre/ml years, is, as Mr Hughson says at 5.4.2 a "*marginal increased level above background*". As the respiratory experts have agreed in the joint statement, on the proviso

that the information available to them is found by the court to be broadly correct (which it is in respect of the first period of employment) then although only a marginal increase in level above the background it is nonetheless a medically significant increase in risk of mesothelioma attributable to his work with the Defendant.

20. With regard to the second period of employment I make the following findings:-
- (i) The deceased was employed again at Sefton hospital between 1973/4 and 1991/2, this time though his responsibilities were different.
 - (ii) The deceased himself was clearly less than confident that he was exposed to asbestos during this second period of employment because he leaves the exposure box blank at §18 of his statement.
 - (iii) When employed between 1973 and 1991/2 the deceased was employed as a senior biochemist. He has made a correction to his statement based on a mishearing by his solicitor. The solicitor drafting the statement wrote: *“I was based in the Civil Hall. During my time in the Civil Hall I was not exposed to asbestos”*. What the Claimant meant was: he was based with Ms Sybil M Hall, principal biochemist. He therefore wrote *“Ms S.M. Hall”* as his annotation. This annotation (and the source of the mishearing) was clearly a reference to Ms Sybil M Hall who was, at that time, the principal biochemist at Sefton Hospital: see for example her co-authorship of the article (as principal biochemist at Sefton): *“Late treatment of paracetamol poisoning with mercaptamine”* in the British Medical Journal (1978), Vol 1 at 331.
 - (iv) The deceased’s correction to this statement means that the proper reading of §34 is as follows: *“I was based with Sybil M Hall. During my time with Sybil M Hall I was not exposed to asbestos”*.
 - (v) Although at first sight it seems hard to reconcile that statement with the sentence that follows at §35 of his witness statement:

“I spent a lot of the time in the main lab discussing tests and results with other technicians. Whilst I was in the lab I would be exposed to the asbestos that was being disturbed by the technicians as I have previously explained. They would still be using in the early years the asbestos boards. All I can say is that whenever a Bunsen burner was used asbestos was being disturbed as simply placing the Bunsen burner and the tripod upon the board would cause the asbestos dust to emit into the air and as a consequence we would inhale the same.”

I consider that reconciliation is possible on the basis that while he was working with Ms S M Hall, he would not regularly have been working with asbestos but he would take trips to the main lab to discuss tests and results with technicians in the lab. It is only whilst he was in the lab for such discussions that any exposure might have occurred and even then only: (i) if soft mats were still in use; (ii) when Bunsen burners were being used or moved; and (iii) in what the deceased describes as: “the early years”.

- (vi) I find that the evidence as to the nature of the mats which were used in the “*early years*” of the deceased second period of employment is entirely unsatisfactory. It would be unwonted speculation to say that the mats were still the soft asbestos mats during that period when the development of knowledge of risks in relation to asbestos suggests that if soft asbestos mats remained in use after 1967 it would have been contrary to the DoE Guidance to schools and other public institutions. I do not believe I have sufficient evidence to conclude on the balance of probabilities that in the period of the ‘*early years*’ in the second period of employment that asbestos mats which were used continued to be soft asbestos mats, rather than harder materials which did not produce the same quantities of asbestos dust.
- (vii) While there is evidence from Mr Hughson that soft asbestos mats could still be found in buildings at the time of the publication of Asbestos materials in buildings in 1983 – (see §6.2.2.) I think on the basis of the memoranda from the Department of Education and Science which suggests that if the hospital retained them it would have been contrary to advice, that it is simply not possible to say whether soft asbestos mats continued in use during the second period of the deceased’s employment. I cannot therefore reliably conclude that soft mats did continue to be used by reference to the phrase ‘*the early years*’ in his second period of employment.
- (viii) In summary I consider it unlikely that soft asbestos boards/mats were used by the hospital during the second period of employment. If hard mats were used then they were unlikely to give off dust to any significant degree and would have been the very mats which the Department of Education and Science had suggested the soft mats be replaced with.
- (ix) In this regard I have ultimately agreed with Mr Hughson’s opinion at §5.4.7 where he says that he does not consider that friable forms of Bunsen burner mats would have been used in the Defendant’s laboratory “*during the second period of the deceased’s employment*”.
- (x) I also have had regard to what is said by Mr Hughson at §5.4.7 to the effect that “*In any case I do not consider[ed] that he was likely to be exposed to any significant amount of asbestos during this period in time because he had no direct contact with the mat*”. I accept that evidence. Any exposure in the second period of employment to dust emitted from asbestos mats (whether soft or otherwise) was, on the balance of probabilities, (and on a fair assessment of the deceased’s own evidence in respect of his time with Ms Sybil M Hall), likely to be insignificant/*de minimis*.
- (xi) Thus I conclude that any exposure to asbestos during the period 1973 to onwards would have been very intermittent and at such a low level that I do not find there was any relevant exposure in the second period of employment.

Distillation of factual findings

21. For the reasons I have set out above, I have made the following key factual findings:-

- (i) That during his first period of employment the deceased was likely to have been exposed to asbestos dust but intermittently and in very low quantities. Mr Hughson has estimated the exposure equated to 0.02 to 0.05 fibre/mol (8-hr

TWA); or 0.2 to 0.4 fibre/ml years. On the basis of the joint medical evidence and Mr Hughson's evidence and notwithstanding this is a level which is only a "*marginal increased level above background*", it is a statistically significant increase in risk, and I find, consistently with the Defendant's respiratory expert, Dr Moore-Gillon, sufficient to amount to a material increase in the risk of the deceased developing mesothelioma. It follows that, if I am satisfied that the Defendant was in breach of a duty of care to the deceased during this period to protect him from the risk of asbestos-induced injury, then the Claimants are entitled to succeed.

- (ii) That during the second period of employment the level of exposure was likely to be insignificant in causal terms. This is for two reasons. First the Claimants have failed to prove on the balance of probabilities that soft asbestos mats (as opposed to harder, less dust emitting mats) continued to be used by the hospital during the '*early years*' referred to by the deceased in his statement. Second because any such exposure was much more intermittent than in the first period of employment by virtue of the deceased's more senior position. Thus my conclusion is that regardless of any question of breach of duty, the deceased was not during this period exposed to a sufficient quantity of asbestos dust for me to find it proved that there was a material increase in the risk of the Claimant developing asbestos related injury.

Duty of Care

22. The starting point is the classic statement of the duty owed by an employer by Swanwick J. in *Stokes v. Guest Keen and Nettlefold (Bolts and Nuts) Ltd* [1968] 1 WLR 1776:

"From these authorities I deduce the principles, that the overall test is still the conduct of the reasonable and prudent employer, taking positive thought for the safety of his workers in the light of what he knows or ought to know; where there is a recognised and general practice which has been followed for a substantial period in similar circumstances without mishap, he is entitled to follow it, unless in the light of common sense or newer knowledge it is clearly bad; but, where there is developing knowledge, he must keep reasonably abreast of it and not be too slow to apply it; and where he has in fact greater than average knowledge of the risks, he may be thereby obliged to take more than the average or standard precautions. He must weigh up the risk in terms of the likelihood of injury occurring and the potential consequences if it does; and he must balance against this the probable effectiveness of the precautions that can be taken to meet it and the expense and inconvenience they involve. If he is found to have fallen below the standard to be properly expected of a reasonable and prudent employer in these respects, he is negligent."

23. In *Thompson v Smiths Shiprepairers (North Shields) Ltd* [1984] ICR 236, 247; [1984] QB 405, 415—416, an industrial deafness case, Mustill J set out the above passage and added:

“I shall direct myself in accordance with this succinct and helpful statement of the law, and will make only one additional comment. In the passage just cited, Swanwick J drew a distinction between a recognised practice followed without mishap, and one which in the light of common sense or increased knowledge is clearly bad. The distinction is indeed valid and sufficient for many cases. The two categories are not, however, exhaustive: as the present actions demonstrate. The practice of leaving employees unprotected against excessive noise had never been followed “without mishap”. Yet even the plaintiffs have not suggested that it was “clearly bad”, in the sense of creating a potential liability in negligence, at any time before the mid-1930s. Between the two extremes is a type of risk which is regarded at any given time (although not necessarily later) as an inescapable feature of the industry. The employer is not liable for the consequences of such risks, although subsequent changes in social awareness, or improvements in knowledge and technology, may transfer the risk into the category of those against which the employer can and should take care.”

24. In *Bussey v. 00654701 Ltd (formerly Anglia Heating)* [2018] ICR 1242 Jackson LJ at [40] confirmed that these quotations from the *Stokes* and *Thompson* decisions accurately state the general duty of an employer in relation to developing areas of knowledge which affect the safety of employees. The present is one such case.
25. While there are many first instance decisions on foreseeability of the risk of mesothelioma at different dates and it is important to note that as Jackson LJ observed at §38 of the decision in *Bussey v. 00654701 Ltd (formerly Anglia Heating)* [2018] ICR 1242: “each one turns upon the circumstances of that case and the expert evidence which was called”. Of the authorities that were cited before me, I considered the following decisions of the Court of Appeal to be most relevant.
26. First, *Jeromson v. Shell Tankers (UK) Ltd* [2001] EWCA Civ 101. In this case, two former employees of Shell developed mesothelioma. They had both been exposed to asbestos while working in the engine rooms of ships, in one case between 1952 and 1957, in the other case between 1957 and 1961. They were working in confined spaces containing a great deal of asbestos which might have to be disturbed at any time. The claims were brought by their widows and succeeded at trial. The appeals by Shell were dismissed by the Court of Appeal. Hale LJ gave the leading judgment. She noted that the known risk in the 1950s was of asbestosis not mesothelioma. At paragraph [37] she said that:

“However, where an employer cannot know the extent of any particular employee’s exposure over the period of his employment, knows or ought to know that exposure is variable, and knows or ought to know the potential maximum as well as the potential minimum, a reasonable and prudent employer,

taking positive thought for the safety of his workers, would have to take thought for the risks involved in the potential maximum exposure. Only if he could be reassured that none of these employees would be sufficiently exposed to be at risk could he safely ignore it.”

27. After a review of the evidence and literature, Hale LJ observed at [51] a divergence in the decisions at first instance between Waterhouse J. in *Gunn v. Wallsend Slipway and Engineering Co Ltd* (unreported 7 November 1988), and by Buxton J. in *Owen v. IMI Yorkshire Copper Tubes Ltd* (unreported 15 June 1995), and that the Deputy Judge (an experienced personal injury practitioner, Mr Raymond Machell QC) could not agree with Waterhouse J. that “*the literature justifies the conclusion that until 1960, that asbestosis was attributable only to heavy and prolonged exposure*” and had preferred the formulation of Buxton J that from the beginning of Mr Owen’s employment in 1951:-

“the difficulties related to and the threats posed by asbestos were sufficiently well known, and sufficiently uncertain in their extent and effect, for employers to be under a duty to reduce exposure to the greatest extent possible”

28. She then held at [52]:-

“The point which impressed the judge was the certain knowledge that asbestos dust was dangerous and the absence of any knowledge and indeed any means of knowledge, about what constituted a safe level of exposure...

..

...the judge was entitled to conclude that a prudent employer would have taken precautions or at the very least made enquiries about what precautions if any they should take”.

29. In *Maguire v. Harland and Wolff plc* [2005] PIQR P21, a claim was made by the wife of a boiler maker who developed mesothelioma as a result of washing her husband’s clothes. Thus the exposure was “secondary”.

30. At first instance, Morland J had addressed the question whether, given the state of actual or imputed knowledge in the period 1961– 1965, Harland & Wolff ought reasonably have foreseen that Mrs Maguire was at risk of pulmonary injury, not necessarily mesothelioma, from the amount and frequency of exposure to asbestos dust. He concluded that they should have done so, commenting:

“the risk of serious injury to Mrs Maguire's health was, and should have been by Harland & Wolff, reasonably foreseeable, indeed obvious, in the period 1961 to 1965.”

31. The case was important because such decision was irreconcilable with the reasoning of Waterhouse J in *Gunn v Wallsend Slipway and Engineering Company Ltd*, who, on very similar facts, concluded:

“The reality of the matter is that ... no-one in the industrial world before October 1965 directed his or her mind to the risk of physical injury from domestic exposure to asbestos dust, except in what I will call “the asbestos neighbourhood cases” ... It is most unlikely that they (the defendants) would have become aware of the risk from domestic exposure to asbestos dust before about the end of 1965.”

32. Judge LJ reviewed the evidence and literature which was before Morland J. and concluded at [12] that:-

“What can be said with confidence is that Mrs Maguire sustained a series of peak exposures, rather than a persistent, constant exposure of the kind suffered by Mr Maguire himself. These coincided with her husband's return from work and the arrangements by which she shook and then cleaned and washed his working clothes. Some degree of contamination would also have been brought into and remained in their home.”

33. There was no dispute that a claim by Mrs Maguire's husband would have succeeded. That, as Mance LJ observed in his dissent, made the case a hard one. But the decision of the majority of the Court of Appeal (Judge and Longmore LJJ) to reverse Morland J.'s decision was based on the fact that until 1965, notwithstanding the increasing concerns and developing knowledge about the risks of exposure to asbestos among employees, nothing in the literature warned against the risks of familial or secondary exposure.

34. In *Williams v. University of Birmingham* [2011] EWCA Civ 1242 the estate of the deceased who had died of mesothelioma at age 54, brought proceedings in respect of exposure to asbestos whilst he undertook speed of light experiments as part of his degree course between 1970 and 1974. The experiments were carried out in a service tunnel some 90 ft long containing asbestos lagged pipes. When the University carried out asbestos tests some 30 years later, asbestos dust was found. The Defendant accepted that the Claimant “*would have received some exposure to asbestos whilst carrying out experiments at the university*” but argued that the exposure was ‘*de minimis*’ so it was not liable in respect of the subsequent mesothelioma. The judge at first instance found for the Claimant but the Court of Appeal allowed an appeal by the Defendant on the ground that the judge had misdirected herself as to the test for breach of duty, and failed to make the necessary finding of fact that the risk of exposure to asbestos related injury was foreseeable to the University back in 1974. Summarising this conclusion, Aikens LJ at [60] held:-

“In my view it was not sufficient for the judge only to make the general findings on the state of knowledge about asbestos and

mesothelioma noted at [53] above, even if coupled with the finding that if the University had had a report about the actual level of exposure to asbestos fibres as found, then the University would know that to send someone into the tunnel inevitably carried "a risk". I agree with Mr Feeny's submission that there could only be a breach of duty of care by the University if the judge had been able to conclude that it would have been reasonably foreseeable to a body in the position of this University in 1974 that if it exposed Mr Williams to asbestos fibres at a level of just above 0.1 fibres/ml for a period of 52-78 hours, he was exposed to an unacceptable risk of asbestos related injury.

[61] In my view the best guide to what, in 1974, was an acceptable and what was an unacceptable level of exposure to asbestos generally is that given in the Factory Inspectorate's "Technical Data Note 13" of March 1970, in particular the guidance given about crocidolite. The University was entitled to rely on recognised and established guidelines such as those in Note 13. It is telling that none of the medical or occupational hygiene experts concluded that, at the level of exposure to asbestos fibres actually found by the judge, the University ought reasonably to have foreseen that Mr Williams would be exposed to an unacceptable risk of asbestos related injury."

35. And at [62]:-

"...In short, the fact that the judge did not make any finding that the condition of the lagging in 1974 was such that the University ought to have been alerted to a reasonably foreseeable risk of asbestos related injury means that the judge's conclusion that the University was in breach of the duty of care cannot stand. Therefore, even if the judge was entitled to conclude that the lagging was in poor condition and that the level of exposure to asbestos fibres was as found, the judge could not properly have concluded that the University was in breach of its duty of care to Mr Williams."

36. Lurking in paragraph 61, is an unspoken assumption that it was appropriate for the Defendant to use expert evidence to try and back calculate the actual level of exposure and then ask the question whether that level of exposure, was or was not above a relevant guideline level e.g. TDN 13.

37. *Williams* itself, and that underlying assumption was considered by the Court of Appeal in *Bussey*. In *Bussey* the Claimant was the widow of a plumber who had died of mesothelioma having been exposed to asbestos in his working life with the defendant between 1965 and 1968. The claim had failed because the Judge found that the deceased had not been exposed to levels of asbestos dust in excess of those set out in Technical

Data Note 13, issued by the Factory Inspectorate in 1970, and concluding that he was bound by Court of Appeal authority to hold that, therefore it had not been reasonably foreseeable that the deceased would be exposed to an unacceptable level of asbestos related injury.

38. The Court allowed the appeal and remitted the matter back to the Judge for reconsideration, on the basis that the Judge erred in concluding that *Williams* and the specific reference to Technical Data Note 13, mandated a universal test of foreseeability in mesothelioma cases. As Jackson LJ explained at [59] “*TDN13 sets out the exposure levels, which, after May 1970, would trigger a prosecution by the Factory Inspectorate. That is a relevant consideration. It is not determinate of every case*”. Jackson LJ went out his way at [50] to say that he was not criticising the actual decision in *Williams*, nor disputing any of the legal principles which were stated in it. The only gloss he respectfully placed on it was that paragraph 61 should not be read as making TDN13 a universal test of foreseeability in mesothelioma cases.
39. Underhill LJ confronted the assumption of back-calculation in paragraph 61 of *Williams* head on. He said:-

“I think that the judge was wrong to treat this court in Williams v University of Birmingham [2012] PIQR P4 as having laid down a binding proposition that employers were entitled to regard exposure at levels below those identified in TDN13 as “safe” even in the period 1970—1976, still less at a period prior to its publication. There is the further point that in the present case, and I suspect in many others; there is no reason to suppose that the employer took any steps to measure the level of exposure which Mr Bussey or others doing similar work encountered and could not have accordingly known whether it was above or below any supposed “maximum safe limit” Attempting to answer the issue in this case by comparing back-calculations (it might be fairer to say (back-guestimations) of Mr Bussey’s exposure against subsequently published figures of the kind appearing in TDN13 is in my view unsound.”

40. He then set out at [63] (in terms consistent with what Jackson LJ says at [49] the necessary inquiry in a case such as the present:-

“In my view the right approach in principle to the necessary inquiry is twofold:

a) The first question is whether Anglia should at any time during Mr Bussey's employment - that is, between 1965 and 1968 (the precise dates are not known) - have been aware that the exposure to asbestos dust which his work involved gave rise to a significant risk of asbestos-related injury. (I say "significant" only so as to exclude risks which are purely fanciful: any real risk, albeit statistically small, of a fatal illness is significant.) That will depend on how quickly the knowledge, first widely published in 1965, of the fact that much lower exposures than had previously been thought to be dangerous could cause

mesothelioma was disseminated among reasonable and prudent employers whose employees had to work with asbestos. One aspect of this question is whether, even though Anglia may have been aware of the risk in general terms, it was reasonable for it at the material time to believe that there was a level of exposure below which there was no significant risk, and that Mr Bussey's exposure was below that level.

b) If the answer to the first question is that Anglia should have been aware that Mr Bussey's exposure gave rise to such a risk (including that there was no known safe limit) the second question is whether it took proper precautions to reduce or eliminate that risk. On the facts of the present case, that question may not be difficult to answer, since, as Jackson LJ says at para. 56, the Judge found that there were two simple precautions that could have been taken, and there seems to be no suggestion that they were either impractical or unreasonably expensive: even if the risk was understood to be small, given its seriousness if it eventuated, the precautions ought to have been taken."

41. I consider that the *Jeromson* approach as further clarified by Underhill LJ in *Bussey* is the approach I intend to adopt in this case. I do so mindful of the fact that, in the present case, and similarly to Underhill LJ's assessment in *Bussey*, there is no reason to suppose that the Hospital took any steps to measure the level of exposure which the deceased was exposed to and could not have known and did not know whether it was above or below any supposed "*maximum safe limit*".
42. I start with the overall question derived from *Jeromson* at [35] and [52]. That is whether the risk of personal injury arising from his exposure to asbestos ought reasonably have been foreseen by a careful employer to the extent that the employer should have taken precautions or at the very least sought advice as to what, if any, precautions he could take.
43. The approach to that question as clarified by *Bussey* should be dealt with in two stages:
 - (i) Should Sefton Hospital in either the first period of employment (1949-1960) or the second period of employment (1973 to 1990) have been aware that the exposure to asbestos dust which his work involved gave rise to a significant risk of asbestos-related injury. Where "*significant*" is meant to exclude risks which are purely fanciful: any real risk, albeit statistically small, of a fatal illness is significant.
 - (ii) If yes, did Sefton Hospital take proper precautions to reduce or eliminate that risk or at the very least seek advice as to what, if any, precautions he could take
44. In my view, in a case where no positive case is advanced by the Defendant that any steps were taken at all in respect of the risk of asbestos dust, there is a necessary relationship between stage (i) and (ii). It would seem to me to be odd to find the Defendant in breach of duty, if, had appropriate advice been sought, the hospital would

reasonably have been advised that the risk of asbestos-related injury was sufficiently low or negligible as to be not worth troubling about. Equally, it would seem odd, not to find a breach of duty, if, had appropriate advice been sought, the hospital would have been reasonably advised to take at least some precautions to reduce the risk of asbestos related injury. In my view Smith J. was thinking along similar lines when she said in *Abraham v. Ireson* [2009] EWHC 1958 (QB) (a case about a plumber intermittently using asbestos “scorch” pads) at §86 that it was unlikely that even if the defendants had sought advice as to the use of asbestos string or asbestos scorch pads during the period of the Claimant’s employment with them that they would have been advised to take any precautions.

45. On this issue, Mr Hughson’s evidence is helpful. He explains that throughout the 1950s and early 1960s the prevailing view was that occasional and relatively low-level exposure to asbestos even in industrial processes and the application of asbestos lagging, was not thought to be hazardous and would not have warranted precautions such as segregation of the workplace or use of respiratory protection. Thus even if it was accepted that a necessary part of the deceased employment included cutting asbestos sheets made of millboard or AIB, for use as protective heat mats, that activity would not have been classed as a hazardous one. He also explains at §6.5.7 that from around 1945 employers in the shipbuilding and ship-repairing industries were warned that young persons (under 18) should not be employed in dusty asbestos processes. Nevertheless on the basis of the deceased’s evidence he says “*I do not consider that the Defendant would need to have taken specific precautions for the work done by the deceased when he was aged 18 or under because this still would have been considered to present negligible risk*”
46. This position may be contrasted with the position during the second period of employment. Mr Hughson explains that during the late 1960s and 1970s there was increased knowledge about the hazards associated with the use of asbestos construction materials and in 1967 the Department of Education and Science issued the memorandum on Inhalation of Asbestos Dust which warned specifically of the dangers of mesothelioma. Although it advised that the circumstances in which asbestos was normally used in schools was not likely to give risk to levels of asbestos dust which could cause asbestosis or cancer, it did advise that inhalation of any form of asbestos dust should be reduced to a minimum. The guidance specifically referred to the use of hard asbestos mats in preference to soft ones and that ‘*mats were to be disposed of when they became frayed*”.
47. By 1976 the Advisory Committee on Asbestos had issued the first of a series of reports and the recommendations for substitution and reduction of exposure were made explicit and wide-ranging. Where asbestos materials could not be avoided the release of asbestos dust was to be minimised at the source of emission as far as reasonably practicable. Also by 1976 the Department of Education and Science had issued revised guidance. The guidance stated that soft asbestos mats should not be use in science or elsewhere.
48. I find that had the employer sought advice on the risks of asbestos related injury in the deceased’s workplace post-1973, then any advice sought between 1967 and 1976 from an occupational hygienist or equivalent expert adviser, then that advice, on a precautionary basis would have been along the lines that hard asbestos mats should be used in preference to soft ones, and to dispose of mats when they became frayed. By

1976, the advice would have been that no soft asbestos mats should be used at all. This does not avail the Claimants because for reasons already given I have concluded that soft asbestos mats were not likely to have been used by the hospital after 1973.

Breach of duty – the first period of employment

49. I have found that during his first period of employment the deceased was exposed to a very low level of asbestos. If a back calculation is valid at all then an estimate of 0.02 to 0.05 fibre/ml (8-hr TWA); or 0.2 to 0.4 fibre/ml years would seem appropriate on the basis of Mr Hughson’s evidence. But since at that time there is no evidence that the hospital would have been measuring asbestos levels or monitoring levels to ensure a maximum safe limit, the actual likely level of exposure by back-calculation is far less important than the question whether, given the knowledge that:-

- (i) Soft asbestos mats were in use as heat protective mats
- (ii) Such mats were probably known to be liable to emit small amounts of asbestos dust by abrasion when used, moved or dropped.

the Defendant hospital ought to have considered that this intermittent and relatively light level of exposure to asbestos mandated at the very least seeking advice on what precautions to take. To answer this question it is necessary to review the relevant state of knowledge as to asbestos risks as set out in the evidence and authorities.

50. As to the relevant state of knowledge at the material time (1949-1960) I make the following findings based on the expert evidence and literature before me and having regard to the authorities cited to me, one of the most helpful of which was the decision of Simon J. in *Asmussen v. Filtrona United Kingdom Limited* [2011] EWHC 1734 QB which contains at §§28- 50 a very helpful summary of the publicly available material and relevant statutory provisions in the period 1930-1970.

51. Certainly by 1938, and the Annual Report of the Chief Inspector of Factories, asbestos dust in industry was recognised as ‘*highly dangerous*’. As Simon J. explains, at this stage the focus was on those industries in which asbestos was habitually handled and used as an inherent part of the production process including, shipbuilding, ship-repairing, and the mixing of asbestos for use as lagging in power stations.

52. By 1949, the Annual Report of the Chief Inspector of Factories (published in 1951) had referred to the danger of exposure to asbestos dust arising in workplaces outside the asbestos industry, including the advice:

“it is very necessary to keep an ever watchful eye for the new use of asbestos in some manufacturing or other process, for example, on ships or buildings where the work may be undertaken by someone not fully realising the necessity of preventing as far as possible the inhalation of asbestos fibre and dust”

53. The primary concern at this time was still the suppression of asbestos fibre and dust in manufacturing and other processes which used asbestos rather than the use of asbestos containing products such as Asbestos Insulating Board or Millboard, for a variety of uses, e.g. as a heat protective mat in hospitals or school classrooms.
54. It was only in 1965, with the publication of the Newhouse and Thompson Paper, *Epidemiology of Pleura and Peritoneum*, that the link between asbestos and mesothelioma was recognised. Undoubtedly, and as has been recognised in other cases, October 1965 marked a change in the state of knowledge which was or should have been available to employers. The publication of this paper fell after the last date of employment in the first period and before the commencement of first date of employment in the second period of employment with the hospital.
55. Technical Data Note 13 was published in 1970 and provided enforcement guidance on how the Factory Inspectorate would interpret the expression ‘*dust consisting of or containing asbestos to such an extent as is liable to cause danger to the health of employed persons*’ and how measurements might be made. For Chrysotile and Amosite, the guidance was:-

“Where the average concentration of asbestos dust over any 10 minute sampling period is less than 2 fibres/cc... HM Factory inspectorate will not seek to enforce the substantive provisions of the Regulations.”

56. Mr Hughson’s conclusion is that given the nature of knowledge of asbestos risks during the 1950s and considering the nature of the work done by the deceased between 1949 and 1960, it is unlikely that the Defendant could be in breach of duty at common law because there was no foreseeable or understandable risk that the deceased would develop mesothelioma or some other malignant disease from exposure to asbestos.
57. I have already found that for a period of 11 years, during the Claimant’s first period of employment he was likely exposed to modest levels of asbestos dust. In the light of Underhill LJs observations at §62 I am naturally cautious about comparing back calculations or “back-guestimations” of the deceased’s exposure against subsequently published figures such as TDN13, but I do not consider the estimate made by Mr Hughson entirely unhelpful. He says that in his view, the level of exposure is unlikely to have exceeded 0.02-0.05 fibre/ml a day - (8hr TWA). He explains at §6.4.2 that in the early 50s there was no published exposure limit value for asbestos, although HM Inspector of Factories would have referred to the USACGIH Threshold Limit value which Mr Hughson explains is broadly similar to 30fibres/ml. There is a close parallel here with the reasoning of the experts and the Court in *Abraham v. Ireson and Reynolds* [2009] EWHC 1958 (QB) where at §65 Swift J. explained:-

65. In 1960, a booklet, Toxic Substances in Factory Atmospheres, was published by the Ministry of Labour. This document contained a section on “maximum permissible concentrations” of various substances used in industry, including asbestos. It stated:

“While systems of control should be as effective as it is practicable to make them, it is desirable to have some guide to

which the efficiency of the control measures can be related. In the List at the end of this booklet there are set out figures of maximum permissible concentrations of certain substances used in industry. For each substance a figure of concentration in atmosphere is given. If this concentration is exceeded, further action is necessary to achieve satisfactory working conditions.

...

The concentrations given ... relate to an average concentration for a normal working day. They are based on the last available information at the present time, and are subject to annual review in the light of existing scientific knowledge”.

66. The maximum permissible concentration for asbestos was identified as 5 million particles per cubic foot of air (mppcf). While there are difficulties in converting mppcf (a US measurement) to fibres/ml (the traditional UK unit), Dr Jones said that 5 mppcf approximates to a UK equivalent of 30 fibres/ml. The booklet was re-issued on two subsequent occasions. In both subsequent versions (the second of which was published in 1966), the maximum permissible concentration identified remained the same as in 1960. In 1970, with the introduction of the Asbestos Regulations, a reduced control limit was specified and, since then, further significant reductions have been made.

58. This led to Swift J’s conclusion at §85:-

“Having considered the relevant literature with care, I consider it highly unlikely that an employer whose employee’s only exposure to asbestos dust arose as a result of the infrequent use of asbestos string and/or asbestos scorch pads (even with the occasional removal of an asbestos flue pipe) would have believed, on reading the literature (including the 1949 Annual Report), that he was or might be exposing that employee to risk of an asbestos-related injury. Indeed, some degree of actual reassurance might have been afforded by the contents of the 1960 booklet. It is true that the booklet stressed the importance of keeping contamination of the workplace to a minimum and did not profess to set a “safe” level of asbestos exposure. Nevertheless, the level at which the maximum average permissible concentration of asbestos dust over a working day was set was so much in excess of the levels to which the claimant was likely to be exposed that it may well have encouraged the defendants to believe (if they considered it) that the levels of asbestos dust to which the claimant was being exposed gave rise to no risk of injury. It seems to me that it was not until after the publication of the Newhouse and Thomson paper in 1965 at the earliest that employers could have been aware that asbestos

exposure at the levels to which the claimant was subjected gave rise to a risk of injury.”

59. Whether or not one accepts the soundness of the back-calculation of Mr Hughson, the fact is that the levels of exposure which the deceased was subjected to by the intermittent use of Bunsen burners and the mats which were used to protect the benches they were placed on was likely to be very low indeed. On the estimation of Mr Hughson (which in the absence of any expert evidence to the contrary I take to be reasonably reliable) this would have been for a few minutes, probably no more than 12 minutes per day. In the light of this, Mr Hughson reaches what I consider to be a reasonable conclusion that the levels of exposure implied by the deceased's evidence would have been considered to be 'trivial' by the standards of the day. It follows that, similarly to Swift J in *Ireson*, at §86 were expert advice to have been sought by the Hospital in the period 1949 to 1960, while it is a possibility that an adviser might have advised the hospital to eliminate the use of soft asbestos mats, I consider, having regard to the fact that during that period asbestos heat mats were still being used in many other everyday settings such as schools, the response would (at least until the end of the first period of employment in 1960) on the balance of probabilities have been that there was no need for the defendants to be concerned about any risk of asbestos related injury from the continued use of those mats. That advice would necessarily have changed after 1965, and most obviously after the Department of Education and Science memo of 1967.
60. In the absence of any expert evidence to support their case, the Claimants were driven to rely in submissions on propositions of general applicability as to the state of knowledge in respect of asbestos which it was argued could be taken from the relevant case-law and read directly across to the present situation. The Claimant in particular relied on *Jeromson* and *Bussey* (above) and the first instance decision of Mr Peter Marquand sitting as a Deputy High Court Judge in *Hawkes v. Warmex Ltd.* [2018] 2 WLUK 190.
61. In that case Mrs Hawkes was employed by the Defendant in the manufacture of electric blankets in the period 1946 to 1952. Her case was that inner lining of the blanket consisted of an asbestos blanket with electrical wire fed through the blanket to generate heat. The claim failed because the Claimant did not prove that the inner lining was made of asbestos. Rather, the Court found that the only asbestos that was used was insulation around an electrical wire that was threaded through the product. Nonetheless the Judge went on to consider whether breach of duty would have been proved had the lining been made of asbestos and the claimant been exposed to asbestos dust because of her work in a factory threading needle through such lining. The judge concluded that if the lining had been made of asbestos there would have not have been a breach of the Asbestos Industry Regulations 1931. As to the actual exposure levels the Court concluded that the Claimant had failed to prove that there was a substantial amount of dust.
62. After referring to *Jeromson* and *Williams*, the Judge said at §97-§98:
- “Practically and in the absence of the ability to measure the amount and nature of the dust, how was an employer working with asbestos to gauge the dust levels unless they were minimal (which would include “light and intermittent” as per Abraham)? It would seem that the correct response to more than minimal*

dust where an employer could not be confident that it was not coming from a source of asbestos would be to consider that a risk was posed....

98...If bits of inner lining were coming off all the time and getting on her clothes during the stitching process I view this as more than minimal and enough to require Warmex Ltd to consider practicable measures to protect employees against dust inhalation ... although it might be said that “bits” are not “dust” I think one can infer from Mrs Hawkes evidence that this at some level was a friable material producing bits and associated dust.”

63. The Claimants argue by reference to this case that:-
- (i) In the first period of the Claimant’s employment there was no known level of asbestos below which there was no significant risk of injury
- Even if such a level had been known, in the absence of an ability to measure asbestos dust levels, the Defendant could not be confident that a safe level was maintained;
- (ii) The Defendant knew the deceased was working in close proximity to asbestos containing materials in the lab and in the basement;
 - (iii) The level of dust was “more than minimal”
 - (iv) It was incumbent on the Defendant to consider reasonably practicable measures to reduce the amount of asbestos dust in the Claimant’s working environment.
64. There are in my view a number of points of distinction between the facts of *Hawkes* and the present case but most important is whether the amount of exposure was ‘*more than minimal*’. That is a phrase that the Deputy Judge derives from *Abraham v. Ireson and Son Ltd and Stanley Reynolds* [2009] EWHC 1958 referred to above. In that case, Mr Abraham worked between 1956 and 1962 (8 years) using an asbestos pad to protect items from his blow torch. The Judge found that the level of exposure to dust was intermittent only and while impossible to reach any conclusions as to the precise levels of asbestos dust to which the claimant was exposed, the judge concluded that the asbestos exposure he had with the First Defendant was very light and occurred intermittently, and that although his exposure with the Second Defendant was somewhat more frequent, it was nevertheless “*modest and infrequent*”.
65. My findings of fact already recited above are that although there was some exposure to asbestos dust while working at the Hospital during the first period as a result of the use of asbestos boards or mats when using a Bunsen burner, or when such mats were moved or broken, and possibly when going down to the basement, the exposure was light and intermittent and, and never more than modest or infrequent, and always at a level which cannot properly be described as “more than minimal” or (to use Mr Hughson’s word) ‘trivial’. This would put the Claimant’s case in a different category to that of *Hawkes* or *Jeromson*, where the exposure was considerably more significant.

66. Thus having regard to the evidence of Mr Hughson, and in the absence of any expert evidence from the Claimants to the contrary, my answers to the questions derived from *Jeromson* and *Bussey* posed above are as follows:
- (i) Should Sefton Hospital in either the first period of employment (1949-1960) or the second period of employment (1973 to 1990) have been aware that the exposure to asbestos dust which his work involved gave rise to a significant risk of asbestos-related injury? **No: in respect of both the first and second period.** I have found that the exposure to dust was not more than minimal and certainly not at a level which would have triggered a duty on the Defendant to take precautions or seek advice on what precautions to take.
 - (ii) If yes, did Sefton Hospital take proper precautions to reduce or eliminate that risk or at the very least seek advice as to what, if any, precautions he could take. **Not applicable. There was insufficient exposure to trigger the duty to take precautions or seek advice.**
67. In the light of those findings I do not consider it either necessary or appropriate, to consider the alternative scenario as to what I would have concluded had my factual findings been other than they were. The crucial issue of liability in this case turns not on the application of the law which on close analysis is not really disputed between the parties, but on whether the Claimant has proved on the balance of probabilities that by reason of working in a scientific lab at the Defendant's hospital for two periods: first between 1949 and 1960, and again between 1970 and 1991, he was exposed to a more than minimal amount of asbestos dust such that a duty of care was owed and then breached by the Defendant in failing to take precautions to reduce the risk of asbestos induced disease by taking appropriate precautionary steps or taking advice as to what steps to take.
68. For the reasons I have given, I have concluded that the Defendant did not know and cannot reasonably have been expected to have known during the period 1949 to 1960 or between 1973 and 1991 that asbestos dust in the minimal quantities in which the Claimant was likely to be exposed was a risk against which they should have guarded by taking reasonable steps or by taking advice.
69. Different considerations might have applied to the second period of employment particularly after the Department of Science Memorandum of 1967 to which I have referred, had the Defendant continued to use soft asbestos mats on a regular basis in the labs and had the Claimant remained a lab technician working regularly with such mats. But those are not the facts as I have found them. When he returned to work at the hospital in 1973 I have not found it proved on the balance of probabilities that soft asbestos mats remained in use and also have not found that any significant quantities of dust were emitted by whatever mats were used in that period. In any event, the deceased was by then working as a senior biochemist whose visits to the labs would have been intermittent and not of long duration.
70. It follows that I have found that the Defendant was not in breach of duty at common law nor in breach of any of the statutory duties pleaded in the Particulars of Claim.

Quantum

71. Had I been required to adjudicate on the quantum of the claim I would have found that the damages for PSLA fell near the lower middle of the Judicial College Guidelines, having regard to the nature of the disease (pleural mesothelioma), the loss of life expectation (just over 4 years); and the relatively rapid deterioration from diagnosis to death. I would have awarded £75,000. The funeral expenses were agreed. For care, the evidence was vague in the extreme. There clearly was an amount of gratuitous care provided by family but equally, the hours and amounts are impossible precisely to estimate on the basis of the evidence provided. There is good evidence that until very shortly before the deceased's death he remained living independently. The period between the onset of symptoms and death in the joint statement is approximately 7 months. The Claimants argue in their Schedule that full time care was provided for around 10 hours per day from 15 August 2019 until the deceased's death. A calculation of £11.45ph (day aggregate rate) x 10/day x 238per hour x 0.75 (because the care was gratuitous) is claimed, giving a total of £20,444.20.
72. I consider this claim excessive and poorly evidenced. Indeed despite the care being said to be provided by 'the family' there is no clear evidence of the regularity of such care, the hours which were spent, or by whom it was provided. Accepting as I do that there was some gratuitous provision of care, I consider a realistic assessment of the loss on a broad-brush basis and taking into account that the deceased continued to live alone but would probably have had increasing levels of assistance from family as his health deteriorated overtime. I consider an appropriate sum in compensation would be/would have been £7,500, the equivalent of approximately 4 hours a day for 7 months. The funeral expenses figure of £2965 was agreed.

Judgment

73. While I have the greatest sympathy for deceased who as I have found, is likely to have contracted mesothelioma as a result of exposure to asbestos at work, and for his children who have lost their father to this terrible disease, I find that the claim against the Defendant must fail on the facts, and I therefore give judgment for the Defendant.