



Neutral Citation Number: [2011] EWCA Civ 1242

Case No: B3/2009/2640

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM THE LEEDS COUNTY COURT
HER HONOUR JUDGE BELCHER
7LS56503

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 28/10/2011

Before:

LORD JUSTICE MAURICE KAY, VICE PRESIDENT OF THE COURT OF APPEAL,
CIVIL DIVISION
LORD JUSTICE AIKENS
and
LORD JUSTICE PATTEN

Between:

**WILLIAMS (ON BEHALF OF THE ESTATE AND
DEPENDANTS OF MICHAEL WILLIAMS, DECEASED)**

Appellant

- and -

UNIVERSITY OF BIRMINGHAM & ANR

Respondent

MR CHARLES FEENY (instructed by DWF LLP) for the Appellant
MR JULIAN GOOSE QC (instructed by ISON HARRISON) for the Respondent

Hearing date: 25 July 2011

Approved Judgment

Lord Justice Aikens:

I. An outline of the case so far.

1. On 24 November 2006 Michael Williams died of malignant mesothelioma of his left lung. He was 54 and left a widow and three dependent children. On 6 November 2007, his widow, Julie Williams, (“the claimant”), brought proceedings on behalf of the estate of her late husband (“Mr Williams”) pursuant to the Law Reform (Miscellaneous Provisions) Act 1934 and also on behalf of herself and the children pursuant to the Fatal Accidents Act 1976. The defendant to the proceedings and the appellant on this appeal is the University of Birmingham (“the University”), where Mr Williams had studied physics as an undergraduate between 1970 and 1974.
2. In Mr Williams’ final year at the University he undertook speed of light experiments as part of his degree course. Those experiments were carried out in a service tunnel, some 90 feet long, which ran from the basement of a building which was part of the University’s science department, called the Poynting Building, to the basement of another building called the Nuffield Building. The tunnel, which was not ventilated and was kept locked at one end, had central heating pipes running through it. They were lagged with asbestos lagging which, it was agreed at the trial, was likely to have been the original lagging installed in the 1930s or 1940s, at the same time as the heating system. The University carried out asbestos dust tests in 2004, 2006 and 2007 on dust residues taken from the tunnel and adjacent basement areas. The tests found all forms of asbestos in the dust: in particular, crocidolite (blue asbestos), amosite (brown asbestos) and chrysotile (white asbestos).
3. After graduation Mr Williams trained as a pilot. Between 1976 and 1983 he was employed as an airline pilot by Brown & Root UK Limited (“B&R”) at Heathrow Airport. He worked frequently inside a hanger which was in a poor condition. At one stage those acting for the claimants alleged that the hanger contained significant amounts of asbestos and, originally, B&R were joined to the present proceedings as second defendants. However, the proceedings against them were subsequently withdrawn. B&R denied that Mr Williams had been exposed to asbestos whilst employed by them.
4. Shortly before Mr Williams died, on 2 November 2006, when legal proceedings were already in prospect, the University’s insurers wrote to his solicitors. They stated that, following their enquiries “...it is not disputed that your client would have received some exposure to asbestos whilst carrying out experiments at the University”. It was accepted by the University that Mr Williams was exposed to all three types of asbestos that had been found in the dust tests. However, the University’s defence to the proceedings was, and remains, that the extent and the circumstances of Mr Williams’ exposure to asbestos during those experiments in the tunnel was *de minimis*, so that the University was not liable to Mr Williams, his estate and his dependents in respect of the subsequent fatal mesothelioma.

5. A trial on liability only was held at the Leeds County Court before HHJ Penelope Belcher from 16 – 18 September 2009. The case put forward originally by the claimant was that the University was in breach of its common law duty of care to Mr Williams and also its common duty of care under the Occupiers' Liability Act 1957. However, at the trial it was agreed that the judge need only deal with the former basis of claim, as nothing was to be gained by investigating the latter as an alternative. In its defence the University pleaded that it had not breached any duty of care to Mr Williams; nor, it said, was any of the admitted exposure to asbestos causative of the mesothelioma which had been diagnosed in August 2004 and from which he had subsequently died.
6. The judge heard oral evidence of fact from only one witness: Mr Richard Brough of the University's Estates Department. Mr Brough gave evidence about the history and maintenance of the tunnel and surrounding area, the pipework and the lagging. The judge also had evidence before her in the form of a number of statements from various witnesses. These included two statements taken from Mr Williams before he died. There were also statements from the solicitor who took those statements and from witnesses in relation to construction materials used in the premises at Heathrow where Mr Williams had worked for B&R.
7. The judge heard medical expert evidence from Dr Muers for the claimant and Dr Gibbs for the University. She also heard expert evidence from two occupational hygiene consultants: Mr Alvin Woolley for the claimant and Mr Martin Stear for the University.
8. The judge delivered her reserved judgment on 17 November 2009. She found as a fact that the asbestos lagging of the pipes in the tunnel was in poor condition when Mr Williams conducted his experiments there in 1974 and that there was a lot of dust on the floor of the tunnel which contained asbestos fibres which would have been disturbed when the experiments were carried out by Mr Williams.¹ The judge concluded that Mr Williams' exposure in the tunnel to asbestos fibres, particularly crocidolite fibres was at a level close to or above 0.1 fibres per ml² but less than 0.2 fibres/ml.² The judge further concluded that each period of Mr Williams' work in the tunnel, which she found to have been between 52 and 78 hours in total,³ materially increased the risk of him contracting mesothelioma as a result of his exposure to asbestos fibres in the tunnel, which would have contained crocidolite.⁴ The judge also concluded that the University knew or ought to have known that the pipe lagging in the tunnel was asbestos and that low-level exposure, particularly to crocidolite, could cause mesothelioma.⁵
9. On the question of whether the University was in breach of its admitted duty of care to Mr Williams, the judge concluded that:

¹ [27]

² [41]

³ [37] and [41]

⁴ [42]

⁵ [29]

*“...the repeated visits to the tunnel even if only over a period of 8 weeks were nevertheless such that there was a material increase in the risk of Mr Williams contracting mesothelioma as a result. In those circumstances I find that there was a breach of duty and that the Defendant was negligent”.*⁶

10. The judge then considered issues on causation. The medical experts agreed that Mr Williams died as a result of malignant mesothelioma of the left pleura and that it was likely that this mesothelioma was caused by exposure to crocidolite asbestos.⁷ However, Mr Feeny, counsel for the University at the trial and on this appeal, argued before the judge that the exposure of Mr Williams to asbestos in the course of the experiments he conducted in the tunnel was so small compared with other exposures to asbestos to which Mr Williams might have been subject that the “university exposure” had to be regarded as *de minimis*. Therefore, he argued, the exposure to asbestos in the tunnel had not materially increased Mr William’s risk of contracting mesothelioma. Thus, even if the University was in breach of duty, that did not, in law, *cause* the subsequent mesothelioma.
11. The judge rejected this argument. First, she considered section 3 of the Compensation Act 2006 (“the 2006 Act”).⁸ The judge held that:

*“...the question of whether an exposure [to asbestos] is de minimis is relevant only to the question of whether there is a breach of duty. Once a claimant has successfully established a breach of duty as a result of an exposure with a material increase in the risk of developing mesothelioma, the extent to which that particular exposure contributes to the overall level of disease is irrelevant save to the extent of seeking contribution from others who have similarly exposed the victim to a material increase in the risk of developing mesothelioma”.*⁹

12. The judge went on to characterise the correct question in relation to causation as follows:

⁶ [42]

⁷ [45]

⁸ Section 3(1), (2) and (5) provide: “(1) This section applies where (a) a person (“the responsible person”) has negligently or in breach of statutory duty caused or permitted another person (“the victim”) to be exposed to asbestos, (b) the victim has contracted mesothelioma as a result of exposure to asbestos, (c) because of the nature of mesothelioma and the state of medical science, it is not possible to determine with certainty whether it was the exposure mentioned in paragraph (a) or another exposure which caused the victim to become ill, and (d) the responsible person is liable in tort, by virtue of the exposure mentioned in paragraph (a), in connection with damage caused to the victim by the disease (whether by reason of having materially increased a risk or for any other reason). (2) The responsible person shall be liable – (a) in respect of the whole of the damage caused to the victim by the disease (irrespective of whether the victim was also exposed to asbestos – (i) other than by the responsible person, whether or not in circumstance in which another person has liability in tort, or (ii) by the responsible person in circumstances in which he has no liability in tort) and (b) jointly and severally with any other responsible person....(5) In subsection (1) the reference to causing or permitting a person to be exposed to asbestos includes a reference to failing to protect a person from exposure to asbestos.”

⁹ [60]

*“...once a breach of duty is established and it is established that the victim has contracted mesothelioma as [a] result of exposure to asbestos, the proper question is whether because of the nature of mesothelioma and the state of medical science, it is not possible to determine with certainty whether it was the exposure caused by the breach of duty or some other exposure which caused the victim to become ill....”*¹⁰

13. The judge recorded that Dr Gibbs, the consultant histopathologist who gave expert evidence on behalf of the University, concluded that Mr Williams must have been exposed to substantial amounts of crocidolite somewhere other than the University.¹¹ The judge further recorded that Dr Gibbs also confirmed that his figures on Mr Williams’ exposure to asbestos did not exclude the possibility that some of the crocidolite found in Mr Williams’ lungs as a result of post mortem tests came from exposure in the tunnel.¹² The judge then set out her conclusion on causation and so the liability of the University:

“In those circumstances, in my judgment, having found on the balance of probabilities that Mr Williams was exposed to asbestos in the tunnel at the University and that that exposure constituted a material increase in the risk of him contracting mesothelioma, that Mr Williams contracted mesothelioma as a result of exposure to asbestos, and that it is not possible to determine with certainty whether it was the exposure at the University or another exposure which caused him to become ill, I find that the University is liable in damages from the resulting mesothelioma and any consequent losses”.¹³

14. The judge therefore gave judgment for the claimant for damages to be assessed.¹⁴ The University appeals with the leave of Smith LJ.

II. The arguments of the parties on the appeal and the issues to be determined

15. Mr Feeny, on behalf of the University, made three principal criticisms of HHJ Belcher’s judgment. First, he submitted that the judge failed to apply the correct legal test when considering whether the University was in breach of its admitted common law duty of care to Mr Williams. Mr Feeny argued that the University could only be negligent and so in breach of its duty of care to Mr Williams if it was found that the University should reasonably have foreseen that permitting him to do the experiments in the tunnel would expose Mr Williams to the risk of asbestos related injury because the state of the asbestos lagging and/or the existence of dust in the tunnel made it reasonably

¹⁰ [62]

¹¹ The judge recorded that post mortem tests showed that the total level of exposure to asbestos fibres was up to twice that of normal background exposure expected: [47]. Dr Gibbs’ tests showed that there were 6 million fibres of crocidolite per gram of dry lung tissue which was well above the upper level for background (which is 1 million fibres/gram). There was no recording of amosite or chrysotile. Dr Gibbs thought it *“...surprisingly high and is not explained by the claimed level of exposure at the University”*. Dr Gibbs said that he would also have expected to have found substantial amounts of amosite from exposure in the tunnel, but that was not the case: [48].

¹² [62]

¹³ [63]

¹⁴ [64]

foreseeable that Mr Williams would be exposed to such asbestos related injury. Mr Feeny submitted that the “foreseeability” question had to be judged on the basis of the knowledge and standards of 1974, not those of today. Instead, Mr Feeny submitted, when the judge was deciding whether the University was in breach of its common law duty to Mr Williams, she concentrated solely on the question of whether Mr Williams’ exposure to asbestos in the tunnel was more than *de minimis*. Mr Feeny submitted that the question of whether the exposure was *de minimis* or was such as to lead to a *material* increase in the risk of contracting mesothelioma only arises at the point when a court is considering the issue of causation, ie. after it has concluded that there has been negligence and therefore a breach of duty by a defendant. Therefore, he submitted, the judge erred in law in her approach to the prior question of whether there was a breach of duty.

16. Secondly, Mr Feeny attacked the judge’s finding of fact that the lagging in the tunnel was “*in poor condition*” or “*not in good condition*” in 1974.¹⁵ He further submitted that, in any event, the judge did not make any finding that the condition of the lagging in the tunnel in 1974 (or before) was such that should have alerted the University to a reasonably foreseeable risk of asbestos related injury to people using the tunnel for experiments like that undertaken by Mr Williams. Therefore there was no factual basis on which the judge could have concluded that the University was in breach of its common law duty of care to Mr Williams.
17. Thirdly, in relation to causation, Mr Feeny submitted that the judge had misconstrued section 3 of the Compensation Act 2006 (“the 2006 Act”) and had applied the wrong legal test. Mr Feeny submitted that the Supreme Court’s very recent decision in *Sienkiewicz v Grief (UK) Ltd*¹⁶ (“*S v G*”) establishes that section 3 of the 2006 Act has not altered the common law on the question of whether and in what circumstances liability in tort attaches to someone who has materially increased the risk of a victim contracting mesothelioma as a result of exposure to asbestos. Furthermore, he submitted, *S v G* confirms that a claimant has to prove (on a balance of probabilities) that a defendant’s tortious exposure to asbestos had caused a material, as opposed to *de minimis*, increase in the risk that the victim would develop mesothelioma.
18. Mr Feeny submitted that, on the facts, Mr Williams’ exposure to asbestos in the tunnel was clearly very small indeed, either in absolute terms or by comparison with other possible exposures. He accepted that, at the trial, the University did not contend that the exposure for which it was held responsible could not have been sufficient *on its own* to increase materially the risk of malignant mesothelioma, nor that that exposure would, on its own, be considered *de minimis*.¹⁷ However, Mr Feeny submitted that, by comparison

¹⁵ See [30] and [36] respectively.

¹⁶ [2011] 2 WLR 523 particularly at [70] per Lord Phillips of Worth Matravers PSC, with whom all the other Justices agreed on this point: [131] per Lord Rodgers of Earlsferry; [168] per Baroness Hale of Richmond; [183] per Lord Brown of Eaton-under-Heywood; [189] per Lord Mance; [203] per Lord Kerr of Tonaghmore; [223] per Lord Dyson.

¹⁷ Appellant’s Supplemental Skeleton Argument on the appeal para 3.

with the overall likely exposure of Mr Williams to asbestos which must be inferred from Dr Gibbs' findings on the high level of crocidolite fibres in Mr Williams' lungs *post mortem*, the likely exposure in the tunnel was *de minimis* by reference to the overall exposure of Mr Williams to asbestos fibres.

19. Mr Feeny submitted that because the judge had wrongly considered in absolute terms the question of whether Mr Williams' exposure to asbestos in the tunnel was *de minimis* or the increase in the risk of him suffering from mesothelioma as a result of that exposure was *de minimis*, the judge did not deal properly with the causation issue. He submitted that the judge should have found that the claimant had failed to prove that Mr Williams' exposure to asbestos during his experiments in the tunnel caused a material increase in the risk of contracting mesothelioma, *by comparison with* the other exposures to asbestos that he encountered.
20. Mr Goose QC, who appeared for the claimant both at the trial and on the appeal, submitted that the judge correctly identified the issues of law and fact to be determined and that her conclusions could not properly be impugned. He submitted that the judge had to find whether Mr Williams' admitted exposure to asbestos during the experiments in the tunnel was more than *de minimis* both in relation to the question of breach of duty and in relation to causation. He submitted that the judge's conclusion on the University's breach of duty at [42] of the judgment constituted a finding that Mr Williams' exposure to asbestos in the tunnel was "material" with a consequent "material increase in risk" to Mr Williams such that, on the state of knowledge in 1974, a body in the position of the University should and would, if acting in accordance with its duty of care, have taken steps to avoid the risks to which Mr Williams was exposed. The judge correctly found that the University had failed to do so and was therefore in breach of duty.
21. Mr Goose submitted that the judge was entitled, on the evidence, to reach her conclusion that the lagging was in a poor condition in 1974 and that this resulted in Mr Williams' exposure to asbestos being more than *de minimis*. He also submitted, in relation to causation, that the judge was entitled to conclude and did conclude that because Mr Williams' exposure to asbestos in the tunnel was more than *de minimis*, that exposure was itself causative of a material increase in the risk of Mr Williams contracting mesothelioma; that, he said, was the effect of [62] and [63] of the judgment. Furthermore, Mr Goose submitted, *S v G* is not authority for the proposition that if a particular case involves exposures to asbestos other than that alleged against the defendant, it is necessary for the claimant to prove that, *by comparison with* the other exposures, the exposure for which the defendant was responsible was more than *de minimis* before the judge could find that the exposure for which the defendant was responsible caused a material increase in the risk of the claimant suffering from mesothelioma.
22. In my view, the following issues arise on this appeal:
 - i) In a case where the claimant alleges that the defendant is liable in negligence at common law for the consequences of a victim contracting mesothelioma, what is the correct legal test for deciding

whether the defendant has been in breach of duty? Did the judge apply the correct test in this case? I will call this issue “breach of duty – law”.

- ii) Was the judge entitled to conclude that the lagging in the tunnel was in poor condition in 1974? Either way, what are the consequences? I will call this issue: “breach of duty – fact”.
- iii) Did the judge apply the correct test when considering the issue of causation in this case. Either way, what are the consequences? I will call this “the causation issue”.

III. Mesothelioma cases: the legal approach in general terms

- 23. I think it would be helpful to summarise very briefly what I believe to be the current state of the law in cases where a claim is brought as a result of a person contracting mesothelioma and it is alleged that this is the result of the person being exposed to asbestos, in breach of a duty of care by one or perhaps multiple defendants. There may (or may not) be other possible sources of the person’s exposure to asbestos.
- 24. A mesothelioma is a malignant tumour of the pleura or, occasionally, peritoneum. In 2008 the number of reported deaths in the UK from mesothelioma was 2249.¹⁸ It has been widely known since the 1960s that exposure to asbestos dust and fibres could give rise to the risk of developing a mesothelioma. The disease is very rare in the absence of an occupational exposure to asbestos, but if there is such an exposure, the risk is about 1000 times greater. The presence of asbestos fibres in the pleura (or peritoneum) increases the likelihood of genetic alterations in cells. Such alterations may, ultimately, lead to the production of malignant cells. The mechanisms involved in this process and the precise part played by asbestos fibres are not fully understood. It is generally held that the risk of developing a mesothelioma increases in proportion to the quantity of asbestos dust/fibres inhaled. However, inhalation of a small number of fibres can result in a mesothelioma. Once the genetic mutation of cells in the pleura/peritoneum has resulted in a mesothelioma, no further exposure to asbestos will itself aggravate the condition.
- 25. Generally there will be a period of between 30 – 40 years between the exposure to asbestos and the detectible appearance of the disease. Detection of the disease is very late in its development because the tumour grows along the surface of the lung like a fungus. The first sign of the disease is usually impaired breathing of the patient. A mesothelioma is invariably fatal and death usually occurs between 1 and 2 years from diagnosis.
- 26. A person could be exposed to asbestos fibres as a result of a job. It has been recognised, for instance, that particular occupations such as ship building, plumbing, carpentering and working as a heating engineer, which could all involve work with insulation material containing asbestos, would give rise to

¹⁸ Health and Safety Executive statistic.

an increased risk of contracting mesothelioma. People can be exposed to asbestos in various other circumstances, as this case indicates. But people living in an urban environment, even without any occupational exposure to asbestos, will inhale large numbers of asbestos fibres and yet not develop a mesothelioma.¹⁹

27. The courts have recognised that these characteristics of mesothelioma and the state of medical knowledge (or lack of it) about its aetiology produce special legal problems concerning proof of causation. In *Fairchild v Glenhaven Funeral Services Ltd*²⁰ (“*Fairchild*”) the House of Lords had to grapple with three cases where the claimants had been employed in jobs where they had been exposed to asbestos dust. The claimants had contracted mesothelioma as a result of inhaling asbestos dust at some stage during the course of their employments. The claimants could demonstrate that their employers owed them a duty of care and that they had negligently breached that duty by exposing them to asbestos dust and so the consequent risk of contracting mesothelioma. But the claimants’ problem was that they could not identify, even on a balance of probabilities, the asbestos fibres which initiated the genetic process which culminated in the malignant tumour. Therefore the claimants could not demonstrate that “*but for*” the breach of duty of any one particular employer, that claimant would probably not have contracted mesothelioma. Therefore at first instance and on appeal, each of the claimants failed because they could not prove a particular employer’s breach of duty *caused* the mesothelioma which the claimants had contracted. Accordingly, as Lord Bingham put it at [2] of his speech: “*The crucial issue on appeal is whether, in the special circumstances of such a case, principle, authority or policy requires or justifies a modified approach to proof of causation*”.
28. The House of Lords’ decision in *Fairchild* was therefore about proof of causation in mesothelioma cases where there was more than one defendant who was said to be in breach of duty and the claimant could not succeed against any one employer using the traditional “*but for*” test of causation. The House of Lords held that because of what Lord Bingham described at [7] as “*the rock of uncertainty*” created by medical science’s inability to pinpoint the crucial link between fibres inhaled and the gestation of the genetic process leading to the disease, for mesothelioma cases and in certain well-defined circumstances it was necessary to modify English law’s general causation rule.²¹ Following the subsequent House of Lords decision in *Barker v Corus UK Ltd*,²² and Parliament’s intervention to overturn the effect of that decision by enacting section 3 of the 2006 Act, the state of the law, before the Supreme

¹⁹ The information set out in these paras (apart from that noted at fn 18) is derived from Lord Bingham’s speech in *Fairchild v Glenhaven Funeral Services Ltd* [2003] 1 AC 32 at [7] and the Annex to the judgment of Lord Phillips of Worth Matravers PSC in *S v G*: [2011] 2 WLR 523 at 558-562.

²⁰ [2003] 1 AC 32.

²¹ The specific circumstances are exemplified in Lord Bingham’s six conditions set out at [2] of his speech, which he emphasized at [34] were the only conditions he was considering in that decision.

²² [2006] 2 AC 572

Court dealt with the specific issues raised in *S v G*, was summarised by Lord Phillips of Worth Matravers at [1] of his judgment in that case. He stated:

“..when a victim contracts mesothelioma each person who has, in breach of duty, been responsible for exposing the victim to a significant quantity of asbestos dust and thus creating a “material increase in risk” of the victim contracting the disease will be held to be jointly and severally liable for causing the disease”.

29. In *S v G* the Supreme Court confirmed that the essence of the modified rule for attributing causation in mesothelioma cases was that the claimant had to prove, on a balance of probabilities, that the acts or omissions of a particular defendant had *materially increased the risk* of the victim contracting mesothelioma. *S v G* held that this rule applied both to cases where multiple defendants were said tortiously to have exposed the victim to asbestos fibres and also to cases where only one defendant was proved tortiously to have exposed the victim to asbestos fibres, even where there was a risk of developing mesothelioma because of environmental exposure to asbestos fibres. The so-called “doubles the risk” test for causation was rejected, even in cases of a single defendant who was alleged tortiously to have exposed the victim to asbestos fibres.²³
30. In *S v G* the Supreme Court stated two further important propositions, both of which relate particularly to causation in mesothelioma cases. First, it held that a “*material*” increase in the risk of contracting mesothelioma meant a degree of increase that is more than minimal; and it was for the trial judge to determine on the facts of each case whether the increase was “*material*”.²⁴ (I will here not go into the question of whether the Court’s statements on this issue support Mr Feeny’s submission that the exposure must be “*material*” in proportion to all other possible exposures, tortious or not. I discuss that below). Secondly, the Supreme Court stated that section 3 of the 2006 Act does *not* provide that, in cases of mesothelioma, the “*responsible person*”, as defined in the Act, will be liable in tort if he has materially increased the risk of a victim contracting mesothelioma. Rather, whether and in what circumstances liability in tort attaches to a person who has materially increased the risk of a victim contracting mesothelioma remains a question to be decided according to the common law. But, once such a person is held liable at common law, then section 3 stipulates that he is liable for the whole of the damage so caused and will be liable jointly and severally with any others held liable in respect of the same victim, but subject to any issue of contributory negligence or rights of contribution from other tortfeasors.²⁵

²³ Per Lord Phillips at [107]; Lord Rodgers at [161]; Baroness Hale at [170]; Lord Mance at [188]; Lord Kerr at [203] and Lord Dyson at [212]. Lord Brown agreed with Lord Phillips and Lord Rodgers on this point: [174].

²⁴ Per Lord Phillips at [107]-[108]; Lord Dyson specifically endorsed Lord Phillips’ remarks in those paragraphs: see [223]. The other JJSC agreed with Lord Phillips on this point.

²⁵ Per Lord Phillips at [70][71]; Lord Rodgers at [129]-[132]; Lord Brown at [183]; Lord Dyson at [223]. Baroness Hale and Lord Kerr agreed with Lords Phillips and Rodgers on this point.

31. It must follow from the decisions in *Fairchild*²⁶ and *S v G*²⁷ that when a claimant sues a defendant in tort for damages because either the claimant or, more usually the victim who has since died, has contracted mesothelioma, the claimant must prove, on a balance of probabilities, the usual four elements if the claim is for breach of a common law duty. However, the causation element is modified to deal with the “*rock of uncertainty*” created by the current paucity of medical knowledge on the aetiology of mesothelioma. Therefore, the claimant must show, first, that the defendant owed the victim a duty of care not unreasonably to expose him to asbestos fibres and the consequent risk of asbestos related injury, including mesothelioma. Secondly, the claimant must show that the defendant was in breach of that duty by being negligent in exposing the victim to asbestos fibres and consequent asbestos related injury that was the reasonably foreseeable result of that negligence. Thirdly, the claimant must prove, on a balance of probabilities, that the defendant’s negligent breach of duty caused a material increase in the risk that the victim would develop mesothelioma. Lastly, the claimant must prove the loss and damage suffered in consequence of the injury and that it is within the usual “remoteness” rules.
32. It is the second of these elements that is important in relation to the first two issues raised on this appeal. On the assumption (accepted at the trial) that the claimant has proved that the University owed Mr Williams a duty of care not unreasonably to expose him to asbestos fibres, how does a court approach the issue of whether the defendant was in breach of that duty? The answer must be comparing what steps the defendant took to prevent the victim from being exposed to asbestos fibres with an objective standard of what reasonable steps should have been taken to avoid reasonably foreseeable injury in the factual circumstances prevailing at the time. The “reasonably foreseeable injury” in this case must be that of contracting mesothelioma.
33. This approach will accord with the standard of care laid down by Lord Atkin in *Donoghue v Stevenson*²⁸ that “...[you] must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour”. But there are two important points to note. The first is Lord Atkin’s emphasis on the requirement that it must be reasonably foreseeable that the relevant injury will be suffered if reasonable care is not exercised. This emphasis on the reasonable foreseeability of the injury was underlined in the subsequent House of Lords’ decision of *Bolton v Stone*²⁹, the case of the cricket ball that was hit out of the ground and injured a passer by. Lord Porter elaborated Lord Atkin’s statement by saying:³⁰ “...it is not enough that the event should be such as can reasonably be foreseen; the further result that injury is likely to follow must be also such as a reasonable man would contemplate, before he can be convicted of actionable negligence. Nor is the remote possibility of injury occurring enough; there must be

²⁶ See the statement of Lord Bingham of Cornhill at [2]; Lord Hoffman at [48] and Lord Hutton at [77].

²⁷ Lord Phillips at [2], [70] and [110]; Lord Rodgers at [139] and [160] and Lord Brown at [183].

²⁸ [1932] AC 362 at 380

²⁹ [1951] AC 850

³⁰ At page 858

sufficient probability to lead a reasonable man to anticipate it". In the same case, Lord Normand referred to statements of various of their Lordships in ***Glasgow Corporation v Muir***³¹ concerning the proper test to define the standard of care that must be adopted by the reasonable man. Lord Normand agreed³² with a statement of Lord Clauson in the ***Glasgow Corporation*** case³³ that the test is whether the person owing the duty of care "*had in contemplation that, unless some further precautions were taken, such an unfortunate occurrence as that which in fact took place might well be expected*".

34. The degree of foreseeability of risk of injury or harm necessary to establish a breach of duty was reconsidered in the Privy Council case of ***Overseas Tankship (UK) Ltd v The Miller Steamship Co Pty: The Wagon Mound (No 2)***.³⁴ Lord Reid put the issue of breach of duty in terms of whether someone is negligent or not: "*...a person must be regarded as negligent if he does not take steps to eliminate a risk which he knows or ought to know is a real risk and not a mere possibility which would never influence the mind of a reasonable man. What [Bolton v Stone] did was to recognize and give effect to the qualification that it is justifiable not to take steps to eliminate a real risk if it is small and if the circumstances are such that a reasonable man, careful of the safety of his neighbour, would think it right to neglect it*".
35. In the context of the present case, I would formulate the test for whether the University was negligent and in breach of duty in the following manner. Ought the University reasonably to have foreseen the risk of contracting mesothelioma arising from Mr Williams' exposure to asbestos fibres by undertaking the speed of light experiments in the tunnel in the manner contemplated - and done in fact - to the extent that the University should (acting reasonably) have refused to allow the tests to be done there, or taken further precautions or at the least sought advice.³⁵
36. That brings me to the second important point. The understanding of asbestos - related diseases and the extent to which exposure to even very small quantities of asbestos fibres can have dire consequences has grown over the years. The question of what the University ought reasonably to have foreseen about the consequences of any exposure to asbestos fibres in the course of experiments in the tunnel and the reasonable conduct that the University ought to have adopted must be judged by reference to the state of knowledge and practice as at 1974. In ***Baker v Quantum Clothing Group Ltd***³⁶ the majority of the Supreme Court reaffirmed that, in relation to the common law duty of care of employers, the standard of conduct to be expected is that of a reasonable and prudent employer at the time, but taking account of

³¹ [1943] AC 448

³² [1951] AC 850 at 861

³³ At page 468

³⁴ [1967] 1 AC 617 at 642-3.

³⁵ Cf: ***Lilian Rose Asmussen v Filtrona United Kingdom Limited*** [2011] EWHC 1734 (QB) at [54], where Simon J used this test, but in terms of what an employer must foresee in relation to the possible exposure of an employee to asbestos fibres.

³⁶ [2011] 1 WLR 1003

developing knowledge about the particular danger concerned. In the context of the statutory duty imposed on employers by section 29(1) of the Factories Act 1961,³⁷ the majority of the Supreme Court held that safety must be judged according to the general knowledge and standards of the time. Whether working conditions are “safe” within the 1961 Act involves asking the questions: was a risk reasonably foreseeable and was it reasonably foreseeable that an injury would be caused by some risk or other, bearing in mind that some degree of risk to employees may be acceptable.³⁸

37. I would adopt the same approach in relation to the standards by which the University is to be judged in the present case. What is not acceptable now may have been regarded as acceptable in 1974. As Simon J summarized the position in *Lilian Rose Asmussen v Filtrona United Kingdom Limited*³⁹ (but substituting “the University” for “the employer” to apply to this case):

“...the foreseeability of injury has to be tested against the standard of the well-informed [University] who keeps abreast of the developing knowledge and applies [its] understanding without delay, and not by the standard of omniscient hindsight. [A University] can rely upon a recognised and established practice to exonerate itself from liability in negligence for failing to take precautionary steps unless (a) the practice is clearly bad practice, or (b) in the light of developing knowledge about the risks involved in some location or operation a particular [University] acquired greater than average knowledge of the risks”.

38. In short, to adapt Denning LJ’s graphic phrase in *Roe v Ministry of Health*,⁴⁰ we must not look at what happened in the tunnel in 1974 through 2009 or 2011 spectacles.

IV. Issue (1): breach of duty – law.

39. Judge Belcher set the scene for her discussion of whether the University was in breach of its duty of care to Mr Williams at [29] of her judgment. She noted, first, that it was common ground that the University owed Mr Williams a duty of care in respect of his safety whilst a student at the University. This must include, in general terms, a duty of care not to subject Mr Williams to risks associated with exposure to asbestos fibres. Secondly, the judge noted that the pipework in the tunnel contained all three types of asbestos. Thirdly, the judge stated:

“Plainly, the University knew or ought to have known that the pipe lagging in the service tunnel was asbestos and that low-level exposure, particularly to crocidolite, can cause mesothelioma. In those

³⁷ This provides: “(1) There shall, so far as is reasonably practicable, be provided and maintained safe means of access to every place at which any person has at any time to work and every such place shall, so far as is reasonably practicable, be made and kept safe for any person working there.”

³⁸ Lord Mance’s summary of the position at [80]; see also Lord Dyson’s judgment at [111] to [125]. Lord Saville agreed with Lords Mance and Dyson JJSC. Lords Kerr of Tonaghmore and Clarke of Stoke-cum-Ebony JJSC dissented.

³⁹ [2011] EWHC 1734 (QB) at [55].

⁴⁰ [1954] 2 QB 66 at 84

circumstances, the University plainly had a duty to take all reasonable measures to ensure that [Mr Williams] was not exposed to a material increase in the risk of mesothelioma.”

40. I think that the last part of this statement which I have underlined is not quite an accurate statement of the law. The duty of care must be to take reasonable care (including measures if necessary) to ensure that Mr Williams was not exposed to a foreseeable risk of asbestos related injury. A reference to exposure “*to a material increase in the risk of mesothelioma*” brings the test for causation in mesothelioma cases into the prior questions of the nature of the duty and what constitutes a breach of it. There is nothing in either *Fairchild* or *S v G* to suggest that either the House of Lords or the Supreme Court has altered the “breach of duty” test in mesothelioma cases so that a claimant only has to demonstrate that the defendant failed to take reasonable steps to ensure that the claimant or victim was not exposed to a “*material increase in the risk of mesothelioma*”.
41. But in any event the judge’s formulation also leaves open two vital questions. First, assuming that the University had no more than the state of knowledge about risks from low-level exposure that was reasonably to be expected from a body in its position in 1974, (and no one suggested it had special knowledge), what could and should the University have *reasonably foreseen* as being the risk of exposure to asbestos for someone who undertook the experiments in the circumstances in which Mr Williams did so? Secondly, in the light of that knowledge and what the University should have foreseen as the risks of exposure to asbestos, what were the “reasonable measures” that it should have undertaken?
42. The first of these questions must depend primarily on the conditions in the tunnel and in particular the state of the lagging, because that will have had an effect on the level of exposure to asbestos of anyone in the tunnel. The judge found the lagging was not in good condition when Mr Williams conducted his experiments, with the consequence that there was a lot of dust on the floor of the tunnel which contained asbestos fibres which would have been disturbed during the experiments, so that asbestos dust in the air would be likely to linger in the tunnel during the experiments.⁴¹ The judge also found that the University ought to have been aware of the poor condition of the lagging in the tunnel.⁴² I accept those fact findings for the purposes of discussing this first issue.
43. Given those findings and the further finding that Mr Williams spent between 52 and 78 hours in the tunnel when he was exposed to asbestos fibres,⁴³ the judge concluded that Mr Williams’ exposure to asbestos fibres was “*close to*

⁴¹ [27]

⁴² [30]

⁴³ [37]

*or just above 0.1 [fibres/ml] but, for the reasons given, less than 0.2”.*⁴⁴ That finding is not challenged on the appeal by either side.

44. HHJ Belcher set out her conclusions on whether the University was in breach of duty to Mr Williams at [42]. To decide that issue the judge appears to have posed this test: was this a “*material increase in the risk*”.⁴⁵ In my view, given what I have said above, that is not what must be determined when deciding whether the University was in breach of its duty to Mr Williams. I accept, of course, that a judge must determine the degree of exposure to asbestos fibres to which Mr Williams was actually subjected and whether that was a *de minimis* exposure or a *material* exposure. If it was a *de minimis* exposure then there could be no question of a breach of duty, as the judge recognised. But, assuming that the exposure was more than *de minimis*, it was, in my view, necessary to ask a further question. That is whether, given the degree of actual exposure, it ought to have been reasonably foreseeable to the University (with the knowledge a reasonable University should have had in 1974) that, as a result, Mr Williams would be likely to be exposed to the risk of personal injury in the form of contracting mesothelioma. To determine that question, it seems to me the judge had to make findings about (1) the actual level of exposure to asbestos fibres to which Mr Williams was exposed; (2) what knowledge the University ought to have had in 1974 about the risks posed by that degree of exposure to asbestos fibres; (3) whether, with that knowledge, it was (or should have been) reasonably foreseeable to the University that, with that level of exposure, Mr Williams was likely to be exposed to asbestos related injury; (4) the reasonable steps that the University ought to have taken in the light of the exposure to asbestos fibres to which Mr Williams was exposed in fact; and (5) whether the University negligently failed to take the necessary reasonable steps.
45. I therefore conclude that Mr Feeny is correct in his submission on the first issue to this extent; the judge did not expressly pose the correct test when considering whether the University was in breach of duty. However, it may be implicit in the judgment that, in effect, the five questions I have set out above were dealt with correctly. Therefore I think it is necessary to consider the next issue: breach of duty – fact.

V. Issue (2): breach of duty – fact.

46. I have set out above the five questions that I think have to be answered to decide whether the University was, in fact, in breach of its duty of care to Mr Williams. Mr Feeny concentrated on two particular issues in his attack on the judgment, viz. (1) the finding that the lagging was in poor condition in 1974, and (2) the lack of any finding that the University ought to have been alerted by the lagging’s poor condition to a foreseeable risk of asbestos related injury to those using the tunnel for experiments like that undertaken by Mr Williams. As I will explain below, those two issues relate to questions (1), (2) and (3) above.

⁴⁴ [41]. The judge had analysed the respective views of the experts on this issue before reaching this conclusion.

⁴⁵ [41]

47. **Sub-issue (i): The actual level of exposure to asbestos: was the lagging in poor condition in 1974?** It was common ground between Mr Woolley and Mr Stear that if the asbestos lagging was in good condition, undisturbed and with no asbestos contaminating the dust in the tunnel, then Mr Williams' exposure to asbestos fibres in the tunnel would have been very low, ie. at a level below 0.1 fibres/ml. That low level must be regarded as not a "material" exposure to asbestos fibres, so that, in those circumstances the University could not have been in breach of duty not to expose Mr Williams to a material level of asbestos fibres.
48. The judge considered the expert evidence of Mr Woolley and Mr Stear on the actual level of Mr William's likely exposure to crocidolite and the time of his exposure.⁴⁶ As already noted, the judge found the level of exposure was close to or above 0.1 fibres/ml and the time of exposure was between 52 – 78 hours. The finding on the level of exposure is based itself on the judge's conclusion that the lagging was not in good condition. It is clear that the experts' views on the level of Mr Williams' actual exposure, as summarised by the judge at [34] and [35], were dependent on the judge's conclusion on the condition of the lagging and the degree to which it would be disturbed by anyone working in the tunnel. That is why the condition of the lagging is central to deciding what I have called question (1) at [44] above.
49. The judge's conclusions on the condition of the lagging was based on the following factors: (1) Mr Brough's evidence, given some 30 years after the events in 1974, was not enough to persuade the judge that the lagging was in good condition.⁴⁷ (2) The fact of the removal of some, but not all, of the lagging from the tunnel in the 1970s (at a time when the health risks posed by asbestos and crocidolite in particular had been known since the 1960s) was sufficient to infer that the lagging was in poor condition at the time of the removal and that was the reason for that being done.⁴⁸ (3) That inference was fortified by the fact that the experts agreed that there had to be some disturbance of the asbestos for it to be released into the air. (4) Given the age of the lagging in the 1970s,⁴⁹ it was highly unlikely that it was in perfect condition in 1974 and simply deteriorated thereafter till all the asbestos was finally removed some 30 years later.⁵⁰ However, the judge rejected the submission of Mr Goose that because the University had been unable to adduce any evidence of a system of inspection or maintenance of the lagging that fact meant that there was no such system or that the lagging was in poor condition.⁵¹ The judge's inference that the lagging was in a poor condition in 1974 is a finding of fact based, in short, upon a negative conclusion regarding Mr Brough's factual evidence, the evidence in Mr Williams' draft statement taken just before he died,⁵² the expert evidence about how asbestos

⁴⁶ [34]-[40].

⁴⁷ [18]

⁴⁸ [19] and [20]

⁴⁹ It was common ground that it had been installed in the 1930s or 1940s.

⁵⁰ [20]

⁵¹ [17]

⁵² In which he said, at para 3, that there was "*lots of dust on the floor*" of the tunnel.

dust got into the air in the tunnel and an intuitive view that lagging that had been installed 30 or 40 years ago was highly unlikely to be in perfect condition by 1974.

50. Many cases have emphasised that the Court of Appeal can only interfere with findings of fact of a trial judge, particularly if based on oral evidence, if the finding is clearly wrong or unreasonable. Here the judge made a finding of fact which she said was the inference that she could properly make from other facts, expert evidence and inherent likelihoods. The question we have to ask is whether the judge's inference that the lagging was in poor condition was unreasonable to make on the material that was before her; or, put another way, was it clearly wrong or unreasonable for the judge to have concluded that, on a balance of probabilities, she could be satisfied that the lagging in the tunnel was in poor condition in 1974?
51. I have looked carefully at all the evidence on this issue to which we were referred by Mr Feeny and Mr Goose. I note particularly the following highlights. (1) In his first report Mr Woolley (for the claimant) did not say in terms that the lagging must, in his view, have been in poor condition in 1974, but he does say that *if* the lagging had been disturbed it could have released fine fibres and so provide ample scope for exposure of anyone in the tunnel to asbestos dust. (2) In his comments on the report of Mr Stear (for the University) Mr Woolley notes that Mr Williams had referred to "*lots of dust*" in his statement, indicating the possibility of significant exposure to asbestos fibres in the tunnel. (3) In his oral evidence, Mr Woolley accepted that for Mr Williams to be exposed to asbestos fibres the lagging had to have deteriorated, decayed or been damaged and that something had to happen to disturb the lagging whilst Mr Williams was there.⁵³ (4) Mr Woolley also accepted that it was not uncommon in the 1970s, when asbestos was removed, to leave behind small residues, mainly because, in his opinion, the asbestos removal operations were not properly managed.⁵⁴
52. **Conclusion on the judge's finding of poor condition of the lagging.** I have come to the conclusion that there was just sufficient evidence for the judge properly to make the finding that, on the balance of probability, the lagging was in poor condition in 1974. I have approached the issue as follows: (1) There is no direct evidence on the state of the lagging either way. (2) There was no evidential basis on which the judge could reasonably infer, on the balance of probabilities, that the reason for the removal of the majority of the asbestos in the 1970s was that the lagging was in poor condition. It is just as likely, though equally speculative, that the reason for its removal was a realisation that asbestos lagging could create a "risk" to those who used the tunnel. (3) However, the judge was entitled to accept the evidence of Mr Woolley that for Mr Williams to be exposed to asbestos fibres the lagging had to have deteriorated, decayed or been damaged. Add to that the fact that the University's insurers accepted, in their letter of 2 November 2006, that Mr Williams would have been exposed to asbestos fibres whilst carrying out the

⁵³ XX by Feeny: transcript page 332

⁵⁴ XX by Feeny: transcript page 317

experiments in the tunnel and the evidence in Mr Williams' statement that there was "*lots of dust*". (4) It must follow from those three facts that the judge could infer that the reason for Mr Williams being exposed to asbestos fibres (to whatever extent) was that the lagging had deteriorated, decayed or been damaged producing dust containing asbestos fibres which was disturbed whilst he worked in the tunnel. (5) Is that conclusion fortified by the judge's finding that it was inherently likely that lagging installed in the 1930s or 1940s would have deteriorated, decayed or been damaged by the 1970s and so be in poor condition? I accept that this last conclusion was possible, but I also note that the judge had specifically rejected Mr Goose's submission that the absence of documentary proof from the University on a system of maintenance or inspection necessarily meant that there was no such system or that the lagging must therefore have been in a poor condition.⁵⁵ (6) Overall, however, it is the admission of the University that Mr Williams was exposed to asbestos fibres when doing his experiment combined with Mr Woolley's evidence that Mr Williams could only have been exposed to asbestos fibres if the lagging had deteriorated, decayed or been damaged and Mr Williams' statement that there was "*lots of dust*", which, in my view, entitled the judge to conclude, on a balance of probabilities, that the lagging was indeed in a poor condition in the 1970s.

53. Therefore I must reject the first part of Mr Feeny's attack on the judge's conclusions of fact concerning breach of duty. But that leaves the second part of his attack.
54. **Sub-issue (ii): Even if the lagging was in poor condition, was the risk of exposure to asbestos related injury reasonably foreseeable to the University?** Mr Feeny submitted that even if the judge was entitled to conclude that the lagging was in poor condition and that the judge was therefore entitled to find that Mr Williams was therefore exposed to a level of asbestos fibres of just above 0.1 fibres/ml, it did not follow that the University was in breach of duty to Mr Williams. Mr Feeny submitted it was still necessary to ask whether the judge could find that Mr Williams was being unreasonably exposed to the risk of asbestos related injury so that the University should have taken reasonable precautions to prevent that exposure. The answer to this question depends on what degree of knowledge the University ought to have had in 1974 about the risks of exposure to that level of asbestos fibres.
55. **Knowledge the University ought to have had in 1974 about the risks exposed by that degree of exposure.** The judge does not record any specific conclusion, based on expert evidence or other materials, about the degree of knowledge the University should have had in 1974 on the dangers of exposure to asbestos at any particular levels.⁵⁶ The judge states three general propositions: first, at [19], that the health risks posed by asbestos in general

⁵⁵ [17]

⁵⁶ Mr Woolley and Mr Stear had said in their Joint Statement that they agreed that "...the association of mesothelioma to asbestos exposure has been known since the 1960s and that low level exposure, particularly to crocidolite, can cause the disease".

and by crocidolite in particular were known by the mid-1960s; secondly, at [29], that the association of mesothelioma with asbestos exposure had been known since the 1960s and that “*low level*” exposure, particularly to crocidolite, can cause the disease; and thirdly, also at [29], that the University knew or ought to have known by 1974 that the pipe-lagging in the tunnel was asbestos.

56. The judge also does not indicate whether any of the experts would have regarded the level of exposure to asbestos fibres (as found) for the length of time found (52-78 hours) as giving rise to a reasonably foreseeable risk of asbestos related injury, in the sense that a reasonably informed body in the place of the University in 1974 ought to have appreciated that if it had been told that Mr Williams was exposed to that level and length of exposure to asbestos fibres it should have foreseen that it would (or even could) expose Mr Williams to an unacceptable risk of personal injury, viz. contracting mesothelioma.⁵⁷
57. Instead, the judge stated, at [42], that if the University had had a report about the actual level of exposure to asbestos fibres she had found, then the University would know that to send someone into the tunnel inevitably carried “*a risk*”. The judge noted that Mr Williams made repeated visits to the tunnel over 8 weeks, which increased the risk of mesothelioma, because even low-level exposure (particularly to crocidolite) can cause mesothelioma. The judge therefore concluded that there was a “*material increase in the risk*” of Mr Williams contracting the disease and thus there was a breach of duty.
58. The history of the development of knowledge and the relevant statutory provisions and guidance concerning the risks of exposure to asbestos has been considered in a number of cases. The position was set out very clearly by Simon J at [29] to [50] of his judgment in *Lillian Rose Asmussen v Filtrona United Kingdom Limited*.⁵⁸ I am not going to repeat it all here. I have set out what I think are the principal relevant milestones in an Appendix to this judgment.
59. At [31] and [32] of her judgment, HHJ Belcher records the rival submissions of counsel at the trial on the relevance (or not) of the guidance in *Technical Data Note 13*, produced by the Factory Inspectorate in March 1970.⁵⁹ Mr

⁵⁷ Mr Woolley had said, effectively, that it was foreseeable at a level of 0.2 fibres/ml but did not say what the minimum level had to be for a foreseeable RISK.

⁵⁸ [2011] EWHC 1734 (QB). In the *Asmussen* case the claimant had alleged that she was exposed by the defendant to asbestos dust in the course of her employment in two factories between 1955 and 1960 and 1962 and 1972. She was diagnosed as having malignant mesothelioma in 2010. Simon J held that, on the knowledge that a reasonably informed employer ought to have had at the time that the claimant worked in the two factories and the degree of her actual exposure to asbestos fibres, it was not foreseeable that she would have been exposed to the risk of contracting mesothelioma.

⁵⁹ See the Appendix for the full text. In summary it stated that where the average concentration of chrysotile, amosite and fibrous anthophyllite was recorded as below 2 fibres/cm³ or 0.1 mg/m³ the Inspectorate would not seek to enforce the substantive regulations. In relation to crocidolite it required that breathing apparatus be worn unless the concentration in the breathing zone of a worker in a crocidolite process could be maintained below 0.2 fibres/cc or 0.01 mg/m³ when measured as the average concentration over a 10 minute period.

Feeny had submitted that the levels laid down in the note could be considered to be those reasonably regarded as giving rise to a reasonably foreseeable risk of injury if those levels were exceeded; if they were not, the exposure would be *de minimis* so there was no breach of duty even if the lagging was in poor condition in 1974. Mr Goose had submitted that the guidance was of no help because it only indicated levels above which the Inspectorate would prosecute. Mr Goose's submission was that the correct test was whether Mr Williams was exposed in circumstances where there was a material increase in the risk of mesothelioma. The judge effectively accepted Mr Goose's submission when reaching her conclusions on breach of duty at [42].

60. 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.⁶⁰ 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.
62. I would therefore accept Mr Feeny's other submission on the question of whether there was a breach of duty in fact by the University. 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.
63. Accordingly, I would allow the appeal on these first two issues.

⁶⁰ Compare *Ward v The Ritz Hotel (London) Ltd* [1992] PIQR P315, where the majority of the Court of Appeal held that in deciding whether the risk of injury from falling over a low level balustrade was reasonably foreseeable, a hotel should have been aware of and be guided by minimum heights and safety standards published by the British Standard's recommended standard for the height of any balustrade.

VI. Issue (3): causation

64. The basis for Mr Feeny’s submission on causation is the judge’s finding of fact that Dr Gibbs, the consultant histopathologist who gave expert evidence on behalf of the University, examined one sample of tissue from Mr Williams’ left lung and found 6 million fibres per gram of dry lung tissue of crocidolite, but recorded neither amosite nor chrysotile.⁶¹ The judge stated that Dr Gibbs concluded from his finding that Mr Williams must have been exposed to substantial amounts of crocidolite somewhere other than at the University. But the judge also recorded that Dr Gibbs accepted that his figures did not exclude the possibility that some of the crocidolite found in Mr Williams’ lung came from exposure in the tunnel; his sampling results did not exclude or confirm exposure in the tunnel.⁶²
65. Mr Feeny’s argument on causation before the judge and before us was based upon the assumption that the University was in breach of duty. As I have already pointed out, that necessitates acceptance that Mr Williams had been exposed to asbestos fibres to an extent greater than *de minimis*. Mr Feeny’s argument is that the proportion of exposure to asbestos fibres that Mr Williams suffered when working in the tunnel was, *by comparison with* the exposure that he must have suffered elsewhere, a *de minimis* proportion, which meant that it would not be possible to find that the exposure in the tunnel had caused a material increase in the risk of Mr Williams contracting mesothelioma.
66. In support of his submission Mr Feeny relied in particular on the statement of Lord Phillips in *S v G* at [108], particularly the part I have underlined. I will quote the whole passage:

“I doubt whether it is ever possible to define, in quantitative terms, what for the purposes of the application of any principle of law, is de minimis. This must be a question for the judge on the facts of the particular case. In the case of mesothelioma, a stage must be reached at which, even allowing for the possibility that exposure to asbestos can have a cumulative effect, a particular exposure is too insignificant to be taken into account, having regard to the overall exposure that has taken place. The question is whether that is the position in this case”.

67. When Lord Phillips came to consider the facts in Mrs Costello’s particular case⁶³ he put the question slightly differently: viz. could anyone reasonably conclude that there was no significant possibility that the incremental exposure to which Grief had subjected Mrs Costello was instrumental in causing her to contract the disease. Mr Feeny also relied on the passage at [111], where Lord Phillips stated:

“The reality is that, in the current state of knowledge about the disease, the only circumstances in which a court will be able to

⁶¹ [48]

⁶² [62]

⁶³ At [110] of his judgment.

conclude that wrongful exposure of a mesothelioma victim to asbestos dust did not materially increase the victim's risk of contracting the disease will be where that exposure was insignificant compared to the exposure from other sources....".

The underlining is mine. The other members of the Supreme Court did not make any particular comments on this point.

68. Mr Feeny argued that these statements supported his proposition that the court has to see whether, on the assumption that the University was in breach of duty, that wrongful exposure was insignificant compared with the other exposures to which, on the medical evidence, it is clear Mr Williams must have been exposed.
69. I think that, on analysis, there are two sub-issues that need to be dealt with on causation. The first is whether Mr Feeny is correct in saying that in a case where there is one defendant who is held to be in breach of duty to the victim but it is clear that there was at least some other (unidentified) significant source of exposure to asbestos, the law requires a judge to do a comparison between the two (or more) sources to see if the wrongful exposure at the hands of the defendant is, by comparison with the other exposures, too insignificant to be taken into account. Or, is it enough for a judge to find as a fact that the wrongful exposure at the hands of the defendant materially increased the risk that the victim would contract mesothelioma?
70. If the answer is the first of the two alternatives, then I understand it is common ground that the judge did not make that comparison and it would be for this court to do so now. If the answer is the second of the two alternatives posed above, the second sub-issue is: did the judge actually deal with the causation issue by asking whether the wrongful exposure of Mr Williams to asbestos fibres in the tunnel materially increased the risk that he would contract mesothelioma?
71. **Sub-issue (i): does there have to be a comparative exercise?** The "material increase in risk of contracting mesothelioma" test is posed so a court can decide whether the claimant has established that there is sufficient of a causative link between the wrongful exposure of the victim to asbestos and the fact that the victim subsequently contracted mesothelioma. When a judge has to decide whether a causative sufficient link has been established (on a balance of probabilities), it is clearly necessary to take into account all other possible sources of exposure to asbestos fibres. I can see that a judge might conclude that, having examined all the other possible sources of exposure, the source which is proved to have been the result of a tortious exposure to asbestos fibres is so insignificant that it could not, in fact, have materially increased the risk of the victim contracting the disease. That is what I understand Lord Phillips to be saying in the passages at [108] and [111] of his judgment in *S v G*.
72. However, as Lord Phillips also stated, the question of whether the tortious exposure to asbestos fibres was material is a question of fact for the judge in each case. The judge might or might not be assisted by mathematical

comparisons with other real or hypothetical exposure situations as was attempted at the trial in this case. The judge might be assisted by epidemiological evidence. But, as I read the judgments in *S v G*, all the judge has to do, ultimately, is make a finding of fact that the tortious exposure of the victim to asbestos fibres at the hands of the defendant materially increased the risk that the victim would contract mesothelioma. He does not have to do a comparative exercise. So I would reject Mr Feeny's primary submission on the causation issue.

73. **Sub-issue (ii): did the judge answer the question “did the exposure of Mr Williams to asbestos fibres in the tunnel materially increase the risk he would contract mesothelioma”?** I have carefully read and re-read the section of HHJ Belcher's judgment on causation. With respect I think that there are problems with it. First, there is the statement, (at [60] when rejecting Mr Feeny's submission on the “comparison test”), that this argument would “..put a coach and horses through section 3 of the [2006 Act]”. The judge continues:

“In my judgment, the way [section 3] is framed is such that the question of whether an exposure is de minimis is relevant only to the question of whether there is a breach of duty. Once a claimant has successfully established a breach of duty as a result of an exposure with a material increase in the risk of developing mesothelioma, the extent to which that particular exposure contributes to the overall level of disease is irrelevant save to the extent of seeking contribution from others who have similarly exposed the victim to a material increase in the risk of developing mesothelioma”.

74. That statement is, with respect, not a complete or accurate statement of the law. The claimant has to establish a breach of duty. Whether the exposure to asbestos fibres was *de minimis* is relevant at that stage, because, as I have already pointed out, if the exposure is only *de minimis*, it is hard to see how there could be any breach of duty. But if a breach of duty is established, the claimant still has to establish causation. The court must ask whether the exposure was such as materially to increase the risk of the claimant contracting mesothelioma. That exercise is all conducted on common law principles as adapted for mesothelioma cases. The judgment of Lord Phillips in *S v G* makes it clear that section 3 of the 2006 Act only operates once a claimant has proved breach of duty and causation on common law principles.⁶⁴
75. Secondly, at [61] the judge referred to the statement of Maurice Kay LJ in *Rolls-Royce Industrial Power (India) Ltd v Cox*⁶⁵ where the Lord Justice said that:

“For the Claimant to succeed, the judge needed to be satisfied that the extent and duration of the exposure had constituted a material increase in the risk to the Deceased of contracting mesothelioma. No specific measurement of the duration is necessary and the Recorder was right to

⁶⁴ See the citations at fn 25 above.

⁶⁵ [2007] EWCA 1189 at [21]

resist the invitation to fix one. Exposure that would fall within the de minimis formula would be insufficient.”

Judge Belcher said that it followed from this statement that “*no specific percentage measurement of crocidolite in lung tissue could be said to support or undermine...the question of whether the exposure constituted a material increase in the risk of the deceased contracting mesothelioma*”. With respect, I am not sure what that sentence means. It may refer to a calculation of crocidolite fibres found in lung tissue which are attributable to one exposure expressed as a percentage of the total crocidolite fibres found, which could then have to be compared with the percentage of fibres found attributable to other sources. If that is the meaning, I agree with the statement but it does not advance the argument.

76. Thirdly, the judge states, at [62], that once a breach of duty is established and given that the victim has contracted mesothelioma then:

“...the proper question is whether because of the nature of mesothelioma and the state of medical science, it is not possible to determine with certainty whether it was the exposure caused by the breach of duty or some other exposure which caused the victim to become ill”.

With respect to the judge, that sentence only states the central problem, what Lord Bingham called “*the rock of uncertainty*”, which led to the reformulation of the causation rule for mesothelioma cases. It is not a correct statement of the question that has to be answered on the causation issue, which is whether the tortious exposure to asbestos fibres materially increased the risk of the victim contracting mesothelioma.

77. The judge then records, at [62] that Dr Gibbs did not conclude that there was no exposure of Mr Williams to asbestos fibres at the University and that his sampling results neither excluded exposure in the tunnel nor confirmed it. Finally the judge states her overall conclusion on liability at [63], which I have already quoted at [13] above. Given the judge’s earlier conclusion⁶⁶ (based on her reading of section 3 of the 2006 Act) that the question of whether an exposure is *de minimis* is relevant only to the question of whether there is a breach of duty by the defendant, I am not entirely confident that the judge’s statement in [63] that Mr Williams’ exposure in the tunnel constituted “*a material increase in the risk of him contracting mesothelioma*” constitutes a finding of fact on the causation issue.
78. To summarise my position on the causation issue: first, that I am not satisfied that the judge posed the correct legal test on the causation issue. Secondly, that must throw some doubt on whether the judge made a proper finding of fact on causation, at [63], to the effect that the exposure of Mr Williams to asbestos fibres in the tunnel was such as materially to increase the risk of him contracting mesothelioma so that the claimant had proved causation. However, in the end I have concluded that the judge did intend her conclusion

⁶⁶ At [60]

at [63] to be a finding of fact on causation. Moreover, if I am wrong on issue two, it cannot be said that a finding that the exposure in the tunnel materially increased the risk of Mr Williams contracting mesothelioma was an unreasonable conclusion of fact. Therefore I would reject this third ground of appeal.

VII: Conclusion

79. I would allow this appeal on the first two grounds raised. In summary: (1) the judge did not pose the correct legal test on the issue of breach of duty of care. (2) The conclusions of fact on whether there was a breach of duty were not sustainable. (3) Although the judge erred in framing the test on what had to be proved on causation, there was a sufficient finding of fact in favour of the claimant on the causation issue which cannot be impeached.

Appendix: Summary of History of Development of Knowledge of Dangers of Exposure to Asbestos Fibres

1. The 1956 Annual Report of the Chief Inspector of Factories mentioned, in chapter 15, a very hazardous process to which the Asbestos Industry Regulations 1931 did not apply, namely the removal of old heat insulation lagging. Then in 1960 a booklet called “Toxic Substances in Factory Atmospheres” was published by the Ministry of Labour. It set out various maximum permissible concentrations of certain substances used in industry in terms of particles per cubic centimetre per normal working day. The maximum permissible concentration for asbestos was given as 177 particles per cubic centimetre, or 5 million particles per cubic foot of air.
2. In 1965 the dangers of mesothelioma came to general attention following the publication of two papers on the topic, one in the USA and one in the UK. The UK paper, called *Epidemiology of Pleura and Peritoneum following exposure to Asbestos in the London Area*, was by Mrs Hilda Thompson and was published in the Journal of Industrial Medicine. This epidemiological study recognised the link between asbestos exposure and mesothelioma and also reported on the occurrence of mesothelioma in people who had no direct exposure to asbestos but who lived near a source eg. an asbestos factory; or who had come into contact with clothes of a relative who was exposed to asbestos. It concluded that there was “*little doubt*” as to the risks of both occupational and domestic exposure to asbestos. The US and the UK studies were given wide publicity in the UK by an article in the Sunday Times in its 31 October 1965 edition. It is now accepted that October 1965 marked a change in the state of knowledge, which should have been available to employers of those who were exposed to asbestos. In my view the University should also have been aware of this knowledge.
3. The Chief Inspector of Factories’ report for 1966 identified the particular connection between crocidolite and mesothelioma and said that the only safe course was “*to eliminate the escape of asbestos into the air*”. The need for cleaning to ensure that dust was collected and not just re-dispersed in working environments was emphasised in the Ministry of Labour’s pamphlet “*Dust and Fumes in Factory Atmospheres*” published in 1967.
4. In the same year, HM Factory Inspectorate issued a booklet entitled “*Problems Arising from the use of Asbestos – Memorandum of the Senior Medical Inspectors Advisory Panel*”. Paragraph 33 noted the growing evidence linking mesotheliomal tumours with even slight exposure to asbestos and called it one of the most serious aspects of the asbestos problem from the point of view of public health. The 1967 Annual Report of the Chief Inspector of Factories made the same point, noting that in many instances the exposure had been of a slight degree and without evidence of asbestosis.
5. The Asbestos Regulations 1969, which were published in May 1970, revoked the Asbestos Industry Regulations 1931. Regulation 3(2) of the new Regulations stipulated that they applied to “*every process involving asbestos or any article comprised wholly or partly of asbestos except a process in connection with which asbestos dust cannot be given off*”. So, as was recognised at the trial, those

Regulations did not apply to the University, because there was no question of any “process” being undertaken there.

6. in connection with those Regulations, the Factory Inspectorate issued “*Technical Data Note 13*” in March 1970. It was entitled “*Standards for Asbestos Dust Concentration for Use with the Asbestos Regulations 1969*”. Note 13 contained guidance on how the Factory Inspectorate would interpret the definition of “*asbestos dust*” used in Regulation 2(3) of the 1969 Regulations, which included “*dust consisting of or containing asbestos to such an extent as is liable to cause danger to the health of employed persons*” for the purposes of deciding when it should enforce the 1969 Regulations. In summary, where the average concentration of chrysotile, amosite and fibrous anthophyllite was recorded as below 2 fibres per cubic centimetre or 0.1mg/m^3 the inspectorate would not seek to enforce the substantive regulations. In respect of crocidolite, the Note stated:

*“The Regulations will apply in full whenever workers are engaged in processes involving crocidolite because the concentration of this mineral, that is believed to be liable to be dangerous to health, is very small indeed. An approved form of respirator will be required to be worn unless the concentration in the breathing zone of a worker in a crocidolite process can be maintained below 0.2 fibres/cc or 0.01 mg/m^3 when measured as the average concentration over a 10 minute sampling period...”*⁶⁷

7. In 1970 the Department of Employment published Health and Safety at Work Booklet No 44 entitled “Asbestos: Health Precautions in Industry”. Under the heading “Health Hazards” the Booklet stated:

“...Whereas asbestosis and the lung cancer associated with [asbestos] have only arisen in workers who have been exposed for years to heavy concentrations of the dust in asbestos factories or in processes in which asbestos is used, mesothelioma has developed in some individuals with short periods of exposure. It is still a rare tumour amongst the general population, but not uncommon amongst those exposed to asbestos dust...”

8. In the same document, under the heading “Cleaning”, there is the following:

“Dust lying on floors, ledges and plant surfaces can become a source of air contamination when it is disturbed by draughts or by workroom activity and thus re-enters the atmosphere from which it originally settled. This settled dust can be a serious and persistent cause of harmful concentrations if it is not removed by efficiently directed cleaning. It has long been known that simple sweeping can prove to be an ineffective way of removing dangerous industrial dust. It tends to waft the finest and most dangerous particles into the air from which it is deposited on more

⁶⁷ A note explains that: “... “*fibres/cc*” means particles of length between 5 microns and 100 microns and having a length to breadth ratio of at least 3:1, observed by transmitted light by means of a microscope at a magnification of approximately 500x and mg/m^3 means milligrammes per cubic metre”.

inaccessible ledges. The problem is not confined to asbestos, and equipment is available which enables cleaning methods to be applied which do not themselves raise dust”.

9. The Health and Safety at Work Act 1974 widened the legal need to control all hazardous materials including asbestos beyond such usage as shipbuilding, factories and construction sites. Under this Act the Asbestos Regulations 1969 applied to every situation where asbestos was in use. The Health and Safety Commission was given the power to approve and issue Codes of Practice.

Lord Justice Patten:

80. I agree that this appeal should be allowed on the grounds that the judge seems to have 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 reasonably foreseeable to the University back in 1974.
81. The judge's formulation of the test for breach of duty in terms of a duty to take reasonable measures to avoid exposing Mr Williams to a material increase in the risk of mesothelioma is perfectly understandable in the light of the changes made to the test of causation in such cases. In most cases the common law duty of care is related to the nature of the harm which should have been envisaged and the issues of breach of duty, causation and remoteness are not readily distinguishable in terms of what has to be foreseen. There is therefore a respectable logic in the argument that the changes made to the test of causation should be reflected in the prior issue of breach of duty and an obvious danger that the retention of a test based on the foreseeability of a risk of asbestos related injury may set an inconsistent standard of care.
82. But, for the reasons which Aikens LJ has explained, it is not open to us as a matter of authority to sanction a test for breach of duty in the terms adopted by the judge and, for that reason, I would allow the appeal.

Lord Justice Maurice Kay:

83. I agree with both judgments.