IN THE HIGH COURT OF NEW ZEALAND
WELLINGTON REGISTRY

I TE KŌTI MATUA O AOTEAROA
TE WHANGANUI-A-TARA ROHE

CIV 2018-485-951
[2019] NZHC 1581

UNDER	the Accident Compensation Act 2001
IN THE MATTER OF	an application under section 162 of the Act to appeal to the High Court on questions of law
BETWEEN	ANGELA CHRISTINE CALVER as Executrix and Trustee of the ESTATE OF TREVARTHEN Appellant
AND	ACCIDENT COMPENSATION CORPORATION Respondent

Hearing: 16 May 2019

Counsel: B H Woodhouse and T W R Lynskey for Appellant
P J Radich QC and L I van Dam

Judgment: 8 July 2019

JUDGMENT OF MALLON J

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Introduction

[1] Deanna Trevarthen died on 5 December 2016 aged 45. Her death was caused by mesothelioma, which is a fatal cancer caused by exposure to asbestos. It can arise in individuals with relatively low exposure to asbestos. A small but significant group of New Zealanders contract it each year. It differs from asbestosis (a fibrotic lung disease) which develops from a high asbestos fibre concentration in the lungs resulting from inhaling very high doses of asbestos fibres.[1]

[2] Ms Trevarthen contended her mesothelioma arose from contact with her father when she was a young girl. Her father worked as an electrician, an occupation which at that time had high exposure to asbestos. When she was between the ages of four and 10 she would hug her father when he was wearing his work clothes and she would also sometime play at his work sites.

[3] Before she died she sought cover under the Accident Compensation Act 2001 (the Act). Acceptance of cover would have given her a range of entitlements: for example, treatment costs, weekly compensation, a lump sum, and funeral expenses. Her claim for cover is continued by her estate.

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[1] Office of the Prime Minister's Chief Science Advisor *Asbestos exposure in New Zealand: Review of the scientific evidence of non-occupational risks* (8 April 2015) at 10-11. The report was included in the appellant's Bundle of Authorities without objection from ACC. I have referred to it for the purposes of general non-contentious background. This background includes: that mesothelioma is a cancer of the mesothelium, which lines the pleural, pericardial, and abdominal cavities and the outer surface of the lungs, heart, and abdominal organs; that exposure to asbestos can also cause pleural plaques, diffuse pleural thickening and pleural effusions, lung cancer and laryngeal cancer and possibly other cancers: see p 9; and details of the number of cases of mesothelioma each year (for example, 90 cases in 2010 and 78 cases in 2011) at p 16-17.

[4] The Accident Compensation Corporation (ACC) declined cover. ACC's position was that mesothelioma was a gradual process condition and, as such, needed to be the result of work exposure for there to be cover. ACC's decision was upheld by the Reviewer and by the District Court on appeal although their reasons differed.[2] The District Court granted leave to appeal to this Court.[3]

[5] The questions of law on which leave to appeal was granted were formulated by agreement between the parties and were as follows:

(a) Does mesothelioma, not caused by a work-related exposure to asbestos, amount to a "personal injury" under s 26 of the Act;

(b) Did the District Court Judge err by failing to apply s 25(1)(b) of the Act?

(c) Does, in the circumstances in which ACC accepts it is more likely than not that a claimant inhaled asbestos, s 20(2)(a) and s 25(1)(b) of the Act require the claimant to prove that the personal injury was "caused by" the inhalation of asbestos on "a specific occasion"?

[6] Ms Trevarthen's estate no longer pursues question (b).[4] For the reasons that follow, I have found that the answers to questions (a) and (c) are yes. In answering these questions I have concluded that Ms Trevarthen's mesothelioma is a personal injury by accident and as such Ms Trevarthen was entitled to cover under the Act.

The law

[7] A person has cover under the Act if he or she can establish:[5]

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2 Bernard Lock *Application for Review by Ms Deanna Trevarthen* (5 December 2016); *Calver v Accident Compensation Corporation* [2018] NZACC 60.

3 *Calver v Accident Compensation Corporation* DC Wellington ACR 206/17, 10 October 2018, Minute of Judge Christiansen.

4 The question had arisen because of an erroneous reference in the District Court judgment to s 20(1)(a) and it is now accepted the Judge considered s 25(1)(b), albeit briefly. In submissions on this appeal, Ms Trevarthen's estate has also sought to raise alternative grounds on which there was cover. ACC opposes this. It says it is prejudiced if these new grounds are considered at this late stage in the process because evidence directed to them has not been sought. (See [108] and [114]).

5 Accident Compensation Act 2001, s 20(1).

(a) a "personal injury" as defined by s 26(1);

(b) the personal injury was suffered in New Zealand on or after 1 April 2002 (or cover is available through the transitional provisions); and

(c) the personal injury is of a kind for which the Act provides cover.

[8] Section 26 defines a personal injury as follows:

> **26 Personal injury**
>
> (1) ***Personal injury*** means—
>
> (a) the death of a person; or
>
> (b) physical injuries suffered by a person, including, for example, a strain or a sprain; or
>
> (c) mental injury suffered by a person because of physical injuries suffered by the person; or
>
> (d) mental injury suffered by a person in the circumstances described in section 21; or
>
> (da) work-related mental injury that is suffered by a person in the circumstances described in section 21B; or
>
> (e) damage (other than wear and tear) to dentures or prostheses that replace a part of the human body.
>
> …
>
> (2) ***Personal injury*** does not include personal injury caused wholly or substantially by a gradual process, disease, or infection unless it is personal injury of a kind described in section 20(2)(e) to (h).
>
> …

[9] For present purposes, of relevance under s 26(1) is that a personal injury includes physical injuries suffered by a person.[6]

[10] Because of s 26(2), the kind of personal injury for which a person has cover depends on whether the injury was caused wholly or substantially by a gradual process, disease or infection. If it was not so caused, then the personal injury will have

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[6] Death is also relevant but for present purposes it is convenient to refer simply to physical injuries. If the physical injuries of mesothelioma are covered, then death would be covered also.

cover in any of the circumstances set out in s 20(2)(a) to (j). If it was not so caused, then then the personal injury will only have cover in any of the circumstances set out in s 20(2)(e) to (h).

[11] In other words, the kind of personal injury that is covered is restricted to a narrower group of circumstances when a personal injury is caused wholly or substantially by a gradual process, disease or infection. Of present relevance in this narrower group are:

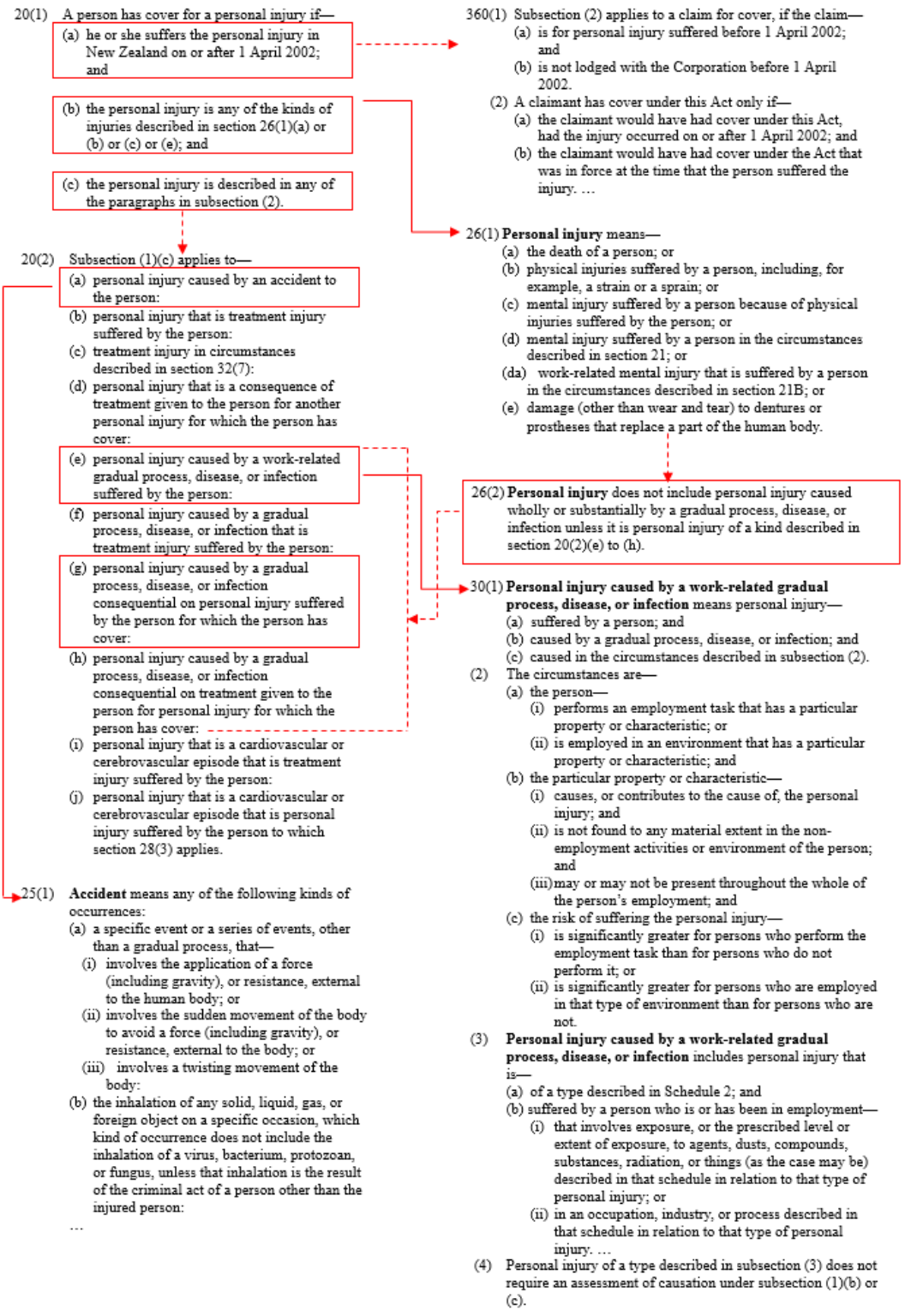
(a) Section 20(2)(e): "personal injury caused by work-related gradual process, disease or infection suffered by the person" (as defined by s 30(1)); and

(b) Section 20(2)(g): "personal injury caused by gradual process, disease, or infection consequential on personal injury suffered by the person for which the person has cover".

[12] If the personal injury was not caused wholly or substantially by a gradual process, disease or infection, then there will be cover if (as presently relevant) the personal injury was caused "by an accident to the person" (s 20(2)(a)) (with "accident" defined by s 25).

[13] This is diagrammatically represented as follows:[7]

[7] The document is based on a useful document presented by ACC's counsel. I have included a fuller version of all the relevant sections so that the full context can be seen on the one page.



The evidence

[14] In the middle of 2015 Ms Trevarthen began to feel unwell. She had a persistent cough, chest pain, shortness of breath, night sweats, a loss of appetite and weight loss over a few months. She thought she had flu and was initially diagnosed with

bronchitis. Following a chest x-ray, then a CT scan, a biopsy was undertaken on 27 October 2015. She was diagnosed with malignant mesothelioma on 28 October 2015. A known cause of mesothelioma is exposure to asbestos.

[15] She was seen by Dr Richard Sullivan, of Canopy Cancer Care, on 16 November 2015 and described by him as deteriorating rapidly. She was then seen by Anne Fraser, an oncologist with the Auckland District Health Board (DHB), on 20 November 2015 and described as very frail. Dr Sullivan and Ms Fraser both commented in their reports that Ms Trevarthen would not be eligible for ACC funding because she did not have work-related exposure to asbestos.[8]

[16] An application for ACC funding was nevertheless made by Ms Trevarthen on 4 December 2015. Ms Trevarthen said her application was on the basis of Dr Sullivan's advice that "everyone contracts mesothelioma because of asbestos". Ms Trevarthen advised that her father was an electrician and, on many occasions when she was between the ages of four and 10, she would play at his work sites. This would include breaking particle boards and pipes while playing at the sites. She would also hug him every day when he got home from work in his work clothes. Ms Trevarthen said Dr Sullivan had advised her that, given the timeframe for developing mesothelioma from when asbestos is inhaled, this scenario was "more than 'highly probable'".

[17] ACC referred the claim to John Monigatti, an occupational physician. He said mesothelioma was caused by asbestos in about 95 per cent of cases. Like Dr Sullivan and Ms Fraser, it was his view that Ms Trevarthen would not have cover because she had not been exposed to the disease in an employment context. The ACC team manager considering Ms Trevarthen's claim recorded that "mesothelioma is a gradual onset disease with a long latency period which is secondary to asbestos exposure".[9] The team manager considered it was not a personal injury caused by an accident via the inhalation on a specific occasion because of its gradual onset. It recommended the claim be declined because it was a gradual process that had not arisen from work-

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8 As discussed later, mesothelioma is expressly covered by the Act as a work-related disease.

9 The team manager does not say on what this view is based.

exposure. In accordance with this recommendation, ACC advised Ms Trevarthen on 11 January 2016 that her claim for cover was declined.

[18] Ms Trevarthen instructed lawyers who asked ACC to reconsider the claim for cover on the basis that the disease had arisen from the inhalation of a foreign object on a specific occasion. ACC again sought advice from Dr Monigatti. Dr Monigatti considered a claim on this basis was theoretically possible, giving the example of a child getting lead poisoning from eating lead paint scrapings on a particular day. His view was that Ms Trevarthen would have difficulty proving this without being able to "pin-point how, where and when it actually happened". He also referred to research from Professor Douglas Henderson, which said:

> As cumulative asbestos exposure increases, so does the likelihood of mesothelioma as a consequence. It follows that each pattern/episode of asbestos exposure within an acceptable latency interval contributes causally towards the development of mesothelioma.
>
> When there are multiple exposures with an appropriate latency interval, each one of those exposures makes a causal contribution towards mesothelioma induction, incremental on 'background' exposure and any preceding above-'background' exposures from identified (and any non-identified) point sources of exposure.
>
> When there are multiple asbestos exposures one cannot point to any one exposure as being responsible for mesothelioma induction entirely, with exculpation of the others.
>
> Furthermore, one cannot point to any one exposure and exculpate it and to blame all of the others.

[19] On this basis, "and given that cover for work-related mesothelioma is always awarded on the basis of cumulative rather than one-off exposure to asbestos" he considered causation by a specific event was not a sustainable argument in Ms Trevarthen's case. ACC accepted this advice and advised Ms Trevarthen on 20 April 2016 that her claim for cover was declined.

[20] On 21 April 2016 Ms Trevarthen applied for a Review. In support of her application she filed a signed brief of evidence referring to her exposure to asbestos through her father's work (as described above) and Dr Sullivan's view that it was highly probable this was the cause given the timing of this exposure and when she contracted mesothelioma.

[21] Dr Glen Reid, a Sydney-based medical scientist and leading researcher in therapy to inhibit the growth of malignant mesothelioma cells, was commissioned to provide expert advice.[10] The questions he was asked to address and his answers to them were as follows:

> 1. Can you please explain the effect of asbestos on the mesothelial cell in the lung,
>
> Asbestos has a range of detrimental effects on the mesothelial cells that comprise the pleural membranes of the lung. Following inhalation, fibres work their way through the lung and accumulate in the pleura. Their biopersistence is related to the needle-like structure of the fibres, which can prevent phagocytosis by macrophages and drainage through the stomata to the lymph vessels. Once accumulated in the pleural space, fibres can cause direct and indirect damage to mesothelial cells. Direct damage occurs when mesothelial cells attempt to phagocytose fibres, with experimental evidence showing that this can cause double-stranded DNA breaks in chromosomes, or disruption of the mitotic spindle leading to aneuploidy. Fibres can also induce necrotic cell death in mesothelial cells, leading to the release of the nuclear protein HMGB1, which is highly inflammatory. This leads to chronic inflammation, recruitment of macrophages and their release of TNF-alpha, a protein that promotes survival of damaged mesothelial cells. Additional routes of indirect damage to mesothelial cells are via the inflammation induced by asbestos fibres directly, which can generate reactive oxygen species (ROS) and free radicals. …
>
> 2. What are the minimum exposure levels required for mesothelioma to develop? Could it develop from a single exposure/event or does it require repeated exposures?
>
> While there is a relationship between higher asbestos exposure and shorter latency period, there is no minimum exposure level below which there is no risk of developing mesothelioma. In animal models, one or two injections of asbestos are sufficient to cause peritoneal mesothelioma. While difficult to quantify fibre numbers in patients, there is epidemiological evidence that low-level (non-occupational) exposure can result in mesothelioma, such as those encountered during do-it-yourself home renovations. With an asbestos ban in Australia and limit on use in New Zealand, few people are now (knowingly) exposed to asbestos in these countries, short-term exposure during home renovations is the only known asbestos contact for many patients. The exposures documented by this individual would be considered sufficient to cause mesothelioma.

[22] Dr Bill Glass, a Wellington occupational medicine specialist with particular expertise in asbestosis, also provided a report. He had obtained a list of places where Ms Trevarthen had lived and worked. This included working as a receptionist at DB Breweries in Newmarket when she was 23 to 24 years old. Dr Glass visited this

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[10] These qualifications are as described by Dr Monigatti to ACC.

place as a medical student in the late 1970s and knew it to have asbestos. He considered it was conceivable that Ms Trevarthen had passed through the factory during her time as a receptionist.[11] He also considered it was feasible she was exposed to asbestos as a sales representative from aged 24.

[23] Dr Glass said latency from first exposure to diagnosis of mesothelioma was usually between 45 and 55 years of age, with a range of 14 to 79 and a mean of 43 years (as per a New Zealand WorkSafe Asbestos Annual report) and exposure to asbestos resulting in mesothelioma usually occurred prior to age 30. He further commented:

> It is important to note that mesothelioma is a disease that is potentially acquired at low to high levels of exposure to airborne asbestos."
>
> The risk of mesothelioma however is considered by USEPA(2013) in their risk assessment, to be proportional to the magnitude and duration of inhalation exposure to asbestos." (Analysis of asbestos removal approaches for ACM in workplace. Final Report the Allen Consulting Group 2013)
>
> Unlike asbestosis, there is no dose-response relationship with mesothelioma, although the risk is very small at low exposure levels, there is no threshold level below which there is no risk." (Sen. D. Occupational Medicine 2015;65, 6-14) …

[24] Dr Glass referred to Professor Henderson's view that it was not possible to point to any one exposure as responsible for mesothelioma when there had been multiple exposures. Dr Glass then said:

> However given that there is no threshold, does one need to argue the necessity for more than one exposure as causative, other than from a "greater risk" viewpoint.
>
> Furthermore where there are multiple exposures as is likely in the case of Ms Trevarthen, "any one" can be seen as causative and "which one" is not material. Nor from a practical point of view can that "one event" be identified.
>
> **My opinion**
>
> On the basis of the above reasoning it is my view that Ms Trevarthen has a claim for her mesothelioma.

[25] ACC provided Dr Reid and Dr Glass' reports to Dr Monigatti for review and to respond only on the question of "whether it can be established, on a balance of

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[11] Ms Trevarthen was working as a receptionist in the 1990s (not the 1970s). This is presumably why neither party submits this was the likely cause of Ms Trevarthen's mesothelioma.

probabilities, that the mesothelioma was caused by a single exposure".[12] Dr Monigatti's reply commented that Dr Reid's description of the effect of asbestos on the mesothelial cells of the pleura reflected current medical understanding. He also accepted that low levels of asbestos can result in mesothelioma and Ms Trevarthen's history of exposure would be sufficient. He considered, however, that Dr Reid had not provided evidence that mesothelioma in a human "is likely to be caused by the inhalation of asbestos on a single occasion".[13] He said that Dr Glass's report did not provide this evidence either.

[26] ACC sought responses from Dr Reid on two questions. The first was whether it was possible to say whether Ms Trevarthen's mesothelioma was caused by a single exposure or repeated exposures. Dr Reid replied as follows:

> As greater than 94% of mesothelioma patients report a known exposure to asbestos (latest Australian Mesothelioma Registry data, 5th Annual Report), it is highly likely that this case was caused by asbestos exposure, either in the para-occupational setting (e.g. exposure to [her] father's work clothes) or occupational (exposure to asbestos present in a place of work). However, it is never possible to attribute mesothelioma to one particular exposure event when multiple exposures are reported. Some mesothelioma patients report single exposure events, whereas others report exposure on multiple occasions.

[27] The second question was whether, when there has been a short latency period as in Ms Trevarthen's case, it was more likely than not that the condition was the result of repeated exposures. Dr Reid replied:

> The only relationship that I am aware of is that of a tendency towards a shortening of the latency period with more frequent/heavier exposure. However, this is epidemiological data and can't be applied with certainty to a particular case. It is entirely possible that a person with a limited number of exposures to asbestos may develop mesothelioma after a shorter than average latency period. To quote a recent review: "There is latency between initial exposure and disease of 15-60 years, with a mean of 40 years" (Sen, D., Occup Med, (2015) 65 (1):6-14.). This range would cover para-occupational exposure as a child and occupational exposure as a young adult.

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12 In asking this of Dr Monigatti, ACC appears to have equated a "specific occasion" with a "single exposure". I discuss this later at [96] and [104].

13 This directly responds to the "single exposure" question that ACC asked of Dr Monigatti. What constitutes proof of s 25(1)(b) is a question ultimately for the Court.

The review

[28] The Reviewer held that mesothelioma, if caused by asbestos inhalation, met the statutory definition of "personal injury" (s 26(1)) and was not caused wholly or substantially by a gradual process, disease or infection (s 26(2)).[14] This conclusion followed *Stok v Accident Compensation Corporation* which had held that mesothelioma was caused by asbestos inhalation, and as such was not caused wholly or substantially by an idiopathic disease.[15]

[29] However, the Reviewer considered Ms Trevarthen had not shown she had contracted mesothelioma because she had inhaled asbestos. Rather, she had shown a risk that she was exposed to asbestos inhalation. This risk was insufficient evidence.[16] Additionally, even if Ms Trevarthen had contracted mesothelioma because she inhaled asbestos, this would not constitute a personal injury by accident. This was because the definition of "accident" was not met. That definition required there to be a specific occasion when the asbestos inhalation caused the mesothelioma. The Reviewer concluded:[17]

> Based on the evidence before me it is not possible to identify a specific occasion of asbestos inhalation as the cause of the mesothelioma, which means that the claim also fails to meet the statutory definition of an accident by inhalation.

[30] The Reviewer therefore upheld ACC's decision to decline cover to Ms Trevarthen.

The District Court

[31] On appeal to the District Court, the Judge noted the *Stok* decision was not binding and was based on earlier legislation which had a different scope. She considered the Reviewer was wrong to find that mesothelioma caused by asbestos inhalation was not within s 26(2). This meant it was necessary for Ms Trevarthen to

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14 *Application for Review by Ms Deanna Trevarthen*, above n 2.

15 *Stok v Accident Compensation Corporation* [1994] NZACAA 277, [1995] NZAR 396 per P J Cartwright.

16 ACC accepts on this appeal, as it did in the District Court, that Ms Trevarthen has shown on the balance of probabilities that she had contracted mesothelioma because she was exposed to asbestos.

17 *Application for Review by Ms Deanna Trevarthen*, above n 2, at 22.

come within one of s 20(2)(e) to (h). Of these, the Judge considered s 20(2)(e) was the only possibility but Ms Trevarthen's condition was not caused by a work related gradual process. In any event, to be an accident there needed to be the inhalation of a foreign object on a specific occasion. The Judge considered this was not established because, on the basis of Dr Glass' evidence, "there may have been multiple occasions" of inhalation.[18]

Cover pursuant to s 20(2)(a)?

The basis for cover

[32] The first basis on which it is said Ms Trevarthen was entitled to cover is:

(a) Mesothelioma involves significant physiological impacts on the human body (therefore qualifying as a personal injury under s 26(1));

(b) Mesothelioma is not caused wholly or substantially by disease but is instead caused by an external, non-disease related, agent, namely inhalation of asbestos fibres (therefore not being within s 26(2)); and

(c) The personal injury was caused by a personal injury by accident (s 20(1)(a)) either because it was "a specific event or series of events, other than a gradual process" (s 25(1)(a)) or because it was "the inhalation of an object on a specific occasion (s 25(1)(b)).

[33] This submission relies partly on *Stok v ACC*, on which the Reviewer had also relied. This was a decision of the Accident Appeal Authority (then in existence) on a claim for cover for mesothelioma arising under the Accident Compensation Act 1982 (an earlier version of the accident compensation legislation).[19] ACC submits that *Stok* was wrongly decided and, in any event, since 1992 the clear position is that disease is excluded from cover unless within the particular "carve outs" provided by s 26(2).

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18 *Calver v Accident Compensation Corporation*, above n 2, at [131].
19 *Stok v Accident Compensation Corporation*, above n 15.

[34] I start my consideration of Ms Trevarthen's claim for cover by reviewing *Stok* and the developments since then in order to determine if her mesothelioma is a personal injury and is not wholly or substantially caused by disease. I then consider whether Ms Trevarthen's exposure to asbestos as a young child qualifies as an accident.

Stok

[35] As noted, *Stok* was decided under the 1982 Act. It provided cover for "personal injury by accident". This phrase was defined as including, amongst other things, "the physical … consequences … of accident" and "incapacity resulting from an occupational disease" and as not including "damage to the body or mind caused exclusively by disease, infection, or the ageing process".[20]

[36] Pursuant to s 28(1), occupational disease cover was available for incapacity or death that "results from any disease, and the disease is or was due to the nature of any employment in which the person was employed … as if the disease were a personal injury by accident arising out of and in the course of his employment". Section 28(5) provided that nothing in s 28 affected "the rights of a person under … this Act in respect of disease if the disease is personal injury by accident within the meaning of this Act".

[37] It was accepted in *Stok* that the claimant's mesothelioma was caused by inhaling asbestos fibres as this was "almost invariably" the cause of mesothelioma.[21] It was not known precisely when the fibres, which went on later to cause the mesothelioma, had been inhaled. This was partly because the claimant had been exposed to asbestos fibres in two ways:[22]

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20 Accident Compensation Act 1982, s 2.
21 At 6.
22 At 4.

(a) In 1960 to 1965 she was exposed to asbestos through shaking out and washing her husband's overalls (he was exposed to asbestos through his employment at fertiliser works).[23]

(b) From 1980 she was exposed to asbestos in her home because the ceilings had been spray-coated with asbestos.

[38] The medical evidence was that "mesothelioma is probably dose related but not always".[24] The claimant's house was considered to provide a greater dose of exposure than from her husband's work overalls and it was possible to develop mesothelioma in this short time frame. However, the average latency period for the development of mesothelioma was 30 or so years and this fitted with the exposure from her husband's overalls.

[39] One of the issues for the Authority was whether cover was excluded by mesothelioma because it was a disease. The Authority said:[25]

> In normal parlance it is accepted that a cancerous condition is considered to be a disease. It is something which occurs generally without explanation and in very few cases can it be directly related to any external cause.
>
> In the case of mesothelioma, however, a specific and identifiable external cause exists. For the appellant's condition to be excluded by section 2(b)(ii) of the 1982 Act the damage to her body must be caused *exclusively* by disease, infection or the aging process.
>
> Mr Krebs submitted that the word "exclusively" requires that there be no other cause. That, in turn, submitted Mr Krebs, invites an investigation as to the chain of causation leading to the appellant's present condition.
>
> It seems to me, but for the appellant's inhalation of asbestos fibres, that she would not suffer from mesothelioma. Therefore I consider that the exclusion does not apply because her condition is not caused exclusively by the disease, but rather, the cause is exclusively the inhalation of asbestos fibres which, in turn, has produced mesothelioma.

[40] Mesothelioma (with its physical consequences) was therefore not outside the definition of "personal injury by accident" as being harm exclusively caused by a

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23 Examples of common law cases involving mesothelioma contracted in a similar way are *Maguire v Harland Wolf PLC* [2005] EWCA Civ 01 and *Caltex Refineries (Qld) Pty Ltd v Stavar* [2009] NSWCA 258.

24 *Stok v Accident Compensation Corporation*, above n 15, at 3.

25 At 8 (the Authority's emphasis).

disease. The next question was whether it was "personal injury by accident" even though it was not possible to identify the point at which the claimant inhaled the asbestos fibres that caused her mesothelioma. The Authority was satisfied that the particular external event need not be identified.

[41] This conclusion relied on *ACC v Mitchell*, a Court of Appeal decision concerning an infant who suffered an apnoeic attack (an involuntary cessation of breathing) which left the infant handicapped.[26] There was no identifiable cause for the attack and as such there was no evidence that it had been caused exclusively by disease or infection. The Court of Appeal relied on the fact that the Act provided cover for personal injury "by accident" rather than "by an accident". This wording could encompass all accidental injuries whether or not precipitated by an external triggering event.[27]

[42] Moreover, diseases caused by an external event were to be distinguished from idiopathic diseases. The Authority said:[28]

> Also what cannot be ignored is long-established case law, a judgment of the House of Lords in *Brintons, Limited v Turvey* (1905) AC 230 in which traumatic as opposed to idiopathic disease was held to be an injury by accident. *Brintons v Turvey* concerned a workman who was employed sorting wool in a factory when a bacillus (according to the medical evidence or theory) passed from the wool to the eye of the workman and infected him with anthrax of which he died.
>
> It was held by a bench comprising the Earl of Halsbury LC and Lords Mcnaghten and Lindley, Lord Robertson dissenting, that this was a case of "injury by accident" within the meaning the Workmen's Compensation Act 1897.
>
> At page 233 of *Brintons, Limited v Turvey* the Earl of Halsbury LC is reported as having said:
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> > "… I think, in popular phraseology … it [the Workmen's Compensation Act] excludes, and was intended to exclude, idiopathic disease; but when some affection of our physical frame is in any way induced by an accident, we must be on our guard that we are not misled by medical phrases to alter the proper application of the phrase 'accident causing injury', because the injury inflicted by accident sets up a condition of things which medical men describe as disease.

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26 *Accident Compensation Corporation v Mitchell* [1992] 2 NZLR 436 (CA).

27 This aspect of the reasoning of the Authority no longer applies because of changes to the legislation.

28 *Stok v Accident Compensation Corporation*, above n 15, at 11-12.

> Suppose in this case a tack or some poisoned substance had cut the skin and set up tetanus. Tetanus is a disease; but would anybody contend that there was not an accident causing damage?"

By direct analogy to the concluding comments of the Earl of Halsbury as cited above, possibly it could be argued on behalf of the appellant that 'mesothelioma is a disease; but would anybody contend that there was not an accident causing damage'? In drawing this analogy I accept that I have, as yet, to address the accident /continuous process dichotomy.

…

It seems to me [s 28(5)] indicates that from the inception of the scheme of the Act it was recognised that a disease not arising out of employment could be a personal injury by accident.

In section 2(1)(a)(i) it is recognised that "personal injury by accident" includes "the physical … consequences … of the accident:".

A disease is a physical consequence. An accident is an untoward event. Obviously what must be considered now is whether the untoward occurrence suffered by the appellant, inhalation of asbestos fibres which produced a disease condition, is an accident or a continuous process.

[43] The final issue was whether mesothelioma was by "accident" or a "continuous process". A continuous process was not expressly excluded from cover by the Act. The issue arose because an "accident" was ordinarily a specific event or events. The Authority referred to Lord Porter in *Roberts v Dorothea Slate Quarries Co Limited* who put it this way:[29]

> In truth, two types of case have not always been sufficiently differentiated. In the one type, there is found a single accident followed by a resultant injury, as in *Brintons Ltd -v- Turvey* [1905] AC 230, or a series of specific and ascertainable accidents followed by an injury which may be the consequence of any or all of them, as in *Burrell (Charles) & Sons Ltd -v- Selvage* (1921) 90 LJKB 1340. In either case it is immaterial that the time at which the accident occurred cannot be located. In the other type, there is a continuous process going on substantially from day to day, though not necessarily from minute to minute or even from hour to hour, which gradually and over a period of years produces incapacity. In the first of these types, the resulting incapacity is held to be injury by accident. In the second it is not.

[44] The Authority also referred to Gault J's view in *ACC v E* that:[30]

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[29] *Roberts v Dorothea Slate Quarries Co Limited* [1948] 2 All ER 201 at 205 cited with approval in *Accident Compensation Corporation v E* [1991] 2 NZLR 228 (HC) at 231 and in *Stok v Accident Compensation Corporation*, above n 15, at 13-16.

[30] *Accident Compensation Corporation v E* [1992] 2 NZLR 426 (CA) at 433 cited in *Stok v Accident Compensation Corporation*, above n 15, at 14.

> It will be a matter of fact and degree in any case as to whether an occurrence not confined to a short time can be said to constitute an accident (or series of accidents) rather than a process.

[45] The Authority went on to discuss *Pyrah v Doncaster Corporation*, an English case involving statutory worker's compensation.[31] The case involved a nurse who worked in a hospital for tuberculosis patients who contracted tuberculous. Over a period of 15 months she had been subjected to tuberculosis germs. This included particular instances where she was brought into close contact with tuberculosis patients. The question was whether her tuberculous was "an injury by accident" in which case she would be entitled to compensation under the statute against her employer, or whether it was a disease due to a process at work. The Court held that, although it might not be possible to fix the exact dates on which the applicant inhaled tuberculous germs, on each occasion on which that occurred there was an assault of bacilli and this constituted an accident.

[46] The Authority noted that, in the workers' compensation legislation context, the circumstances would not constitute an accident if the external factors which produced the disease were a continuous and necessary concomitant over a long period of the work in which the person was engaged. In this context, a continuous process (such as the inhalation of foreign particles) was an inescapable consequence of the workplace and could not be regarded as an accident.

[47] The Authority also found *Burrell (Charles) & Sons Ltd v Selvage* of assistance.[32] The case involved a person who developed poisoning and arthritis because her hands were periodically scratched while working in a copper plating department of a shell factory. She was entitled to compensation for the injury by "accident" even though it was caused by a number of accidents over time which all contributed to the injury.

[48] Having discussed these cases, the Authority concluded that the claimant had suffered a series of accidents rather than a continuous process. Every time she inhaled asbestos fibres, that was an assault of fibre and each assault was an accident which did

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31 *Pyrah v Doncaster Corporation* [1947] 1 All ER 833.

32 *Burrell (Charles) & Sons Ltd v Selvage* (1921) 126 LT 49, (1921) 14 BWCC 158 affirming *Selvage v Burrell (Charles) & Sons Ltd* [1921] 1 KB 355.

not occur over such a length of time as to deprive them of their character of "accident".[33]

Was Stok wrongly decided?

[49] In this case ACC submits *Stok* was wrongly decided because the damage to the claimant's body was caused exclusively by disease. It submits the fact that the disease was, in turn, caused by asbestos inhalation does not detract from the fact that her physical suffering was caused by disease. Put another way, ACC contends the claimant's physical suffering constituted the injury. That suffering was caused by a disease. The disease was caused by asbestos inhalation. The submission therefore separates the physical manifestations of the disease (in the form of pain and suffering which is regarded as the injury) from the disease itself (regarded as the cause of the injury).

[50] I consider *Stok* was correctly decided. Section 2 of the 1982 Act defined "personal injury" as including "the physical and mental consequences of any such injury or of the accident". It excluded damage to the body caused exclusively by disease. The claimant's disease was a physical consequence of the accident (the inhalation of the fibres) and the damage to her was not exclusively caused by disease because, without that inhalation having occurred, the disease would not have developed. In this way the 1982 Act distinguished between diseases that arose by accident (they were covered) and diseases that were idiopathic (they were not covered).[34]

[51] In addition, it provided cover for disease suffered by an employee due to the nature of their employment. Such diseases might not qualify as personal injury by accident, but by s 28(1) they were to be treated as though they were. As the Authority said, while s 28(1) set out what constituted an occupational disease, s 28(5) provided

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33 ACC applied for and was granted leave to appeal this decision: *Stok v Accident Compensation Corporation* [1994] NZACAA 354 (leave decision). It seems the appeal was not pursued although I do not know why that was.

34 Graeme Kennedy and Tony Deverson *The New Zealand Oxford Dictionary* (Oxford University Press, Melbourne, 2005) at 540 defines "idiopathy" as "any disease or condition of unknown cause or that arises spontaneously". Similarly, Lesley Brown (ed) *The New Shorter Oxford English Dictionary* (5th ed, Clarendon Press, Oxford, United Kingdom) Vol 1 at 1305 defines "idiopathic" as "of a disease: not consequent on or symptomatic of another disease; having no known cause".

this did not affect "the rights of a person under any provisions of this Act in respect of a disease if the disease is personal injury by accident within the meaning of the Act". Section 28 therefore recognised that diseases could constitute "personal injury by accident" and this reinforced the Authority's analysis that disease could qualify as an injury under s 2.

[52] The next question is whether the analysis in *Stok* holds following the legislative changes made to the Act.

Does the Stok analysis hold under the new legislation?

[53] ACC submits the changes were made because judicial interpretation of the legislation had expanded its cover. ACC submits the changes were intended to narrow the scope of cover from that provided under the 1982 Act (as interpreted by the courts) and that one of the ways it did this was by covering diseases, gradual processes and infections only in the more limited circumstances described in s 20(e)-(h).

[54] In support of this submission ACC has provided commentary and other material about the legislative changes. This material starts with the 1967 Woodhouse Report which led to the accident compensation legislation.[35] In oral submissions at the hearing, ACC's counsel concentrated on two passages in that Report.[36] These were:

> (a) The general basis for protection should be bodily injury by accident which is undesigned and unexpected so far as the person injured is concerned, but to the exclusion of incapacities arising from sickness or disease.
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> …
>
> (e) On the other hand incapacities should be excluded which resulted from a condition of disease or sickness; …

[55] As the Report went on to say, the dividing line between a physical injury that had an external cause and disease or sickness that did not was a mixed question of law

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35 The Honourable Justice Woodhouse *Compensation for Personal Injury in New Zealand: Report of the Royal Commission of Inquiry* (December 1967).

36 At [289(a) and (e)].

and medicine.[37] To assist with achieving certainty about where the boundary should be drawn, the Report recommended cover for injuries from unexpected or undersigned external causes with reference to classifications in the World Health Organisation's International Classification of Diseases.[38] These classifications included accidental poisonings, foreign bodies (for example dust) entering the eye or other orifice (including the lung), sunstroke from excessive heat and the "late effects" of any accident.[39] The *Stok* decision is consistent with this approach.

[56] ACC's submissions go on to refer to the review and legislative developments beginning in the 1980s and subsequently.[40] As discussed in *Todd on Torts*, during the 1980s the accident compensation scheme came under pressure from different directions.[41] In one direction there was dissatisfaction with the ambit of the scheme in covering personal injury by accident but not illness. In another direction was concern about the burgeoning expense. These concerns led to a review by the Law Commission which recommended extending the scheme to bring sickness and non-accidental incapacity under its umbrella. Consistent with this recommendation, the then Labour Government tabled a Bill which would have created a comprehensive scheme for all persons who suffered incapacity regardless of cause.

[57] This did not proceed when a new National Government was elected. It obtained financial analysis indicating there would soon be insufficient funds to meet new claims. It introduced changes in the form of the Accident Rehabilitation and Compensation Insurance Act 1992. *Todd on Torts* explains the changes made as follows:[42]

> … a primary objective of the new Accident Rehabilitation and Compensation Insurance Act 1992 was to meet the concerns expressed in *A Fairer Scheme* about costs and coverage. And one way by which this result was proposed to be achieved was by eliminating uncertainty about the boundaries of the scheme and by reining in the ability of judges to give an expansive

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37 At [289(a)-(g)].

38 World Health Organisation *International Classification of Diseases: Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death* (Vol 1, Geneva, 1957).

39 For example at 243, 278 and 286.

40 As discussed later ([136]) there were also a number of amendments made in the 1970s after the enactment of the Accident Compensation Act 1972. For present purposes, I note that the 1972 Act provided cover for earners and motor vehicle accident victims. In 1973, cover was extended to all persons for "personal injury by accident".

41 Stephen Todd (ed) *Todd on Torts* (8th ed, Thomson Reuters, Wellington, 2019) at [2.2.04].

42 At [2.2.05].

> interpretation to the provisions governing its ambit. The bases for cover were similar to those laid down in the earlier Acts but their scope was precisely, and in some respects far more restrictively, defined. So there was cover for personal injury caused by an accident, by employment-related disease or infection, by medical misadventure and by treatment for personal injury, and also for mental or nervous shock suffered by the victims of certain specified sexual offences. However, whereas formerly these categories all fell within the broad concept of "personal injury by accident" (which had only a non-inclusive definition), they were now treated as separate categories and made subject to a series of detailed definitions. Judicial discretion in determining their limits was largely removed. This arrangement was carried over into the Accident Insurance Act 1998 and again into the Accident Compensation Act 2001. …
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> …
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> Commentators heaped a good deal of opprobrium on the 1992 Act, both for its lack of any coherent policy and for its markedly reduced benefits. Yet some of the criticisms of the new Act arguably were overstated. Coverage was reduced but only at the margins. Certain cases of mental injury henceforth were excluded, but the core areas of coverage – physical injury by accident, medical misadventure and occupational disease – continued much as before. These categories also were similar in conception, albeit defined with much greater precision …

[58] ACC goes on to refer to the Hansard debates when the 1992 Act was introduced in support of its submission that diseases, outside of work-place diseases, were not to be covered. ACC drew attention to the following comments (from Larry Sutherland, a Member of Parliament, at the second reading of the Accident Rehabilitation and Compensation Insurance Bill 1992):[43]

> Because the Bill will not properly recognise the problems of some people, particularly those suffering from diseases, and will not give them the opportunity to have those diseases rightfully recognised and rightfully compensated for, there will be a further entrenchment of those groups of people in our society who have become obsessed and who feel that the system is against them and that nobody cares and nobody listens.

[59] ACC also drew attention to the following comments (from the same reading):[44]

> **Hon. Dr MICHAEL CULLEN:** I ask the Minister, who interjects unwisely at this point, what the difference is now between somebody who loses a leg from an accident and somebody who loses a leg from cancer. Does the Bill treat them equally? …
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> **…**

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43 (19 Mar 1992) 522 NZPD 7100.
44 (19 Mar 1992) 522 NZPD 7102.

> People could be foolish enough to try to mow a hedge using a Flymo – and people in New Zealand have been as stupid as that in recent years. They have picked up a Flymo type of lawnmower and tried to cut a hedge with it. They have suffered injury, which is totally their own fault, and under a no-faults scheme properly they may receive earnings-related compensation.
>
> **R. Hon. W.F. Birch:** They pay for it.
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> **Hon. Dr MICHAEL CULLEN:** They do under this Bill, too, whereas if people through no fault of their own suffer a crippling disease –

[60] And lastly, ACC drew attention to this comment (from Rt Hon W F Birch at the third reading):[45]

> Indeed, I think it is useful to write into the record the first general principle stated by Woodhouse in paragraph 289: "The general basis for protection should be bodily injury by accident, which is undersigned and unexpected so far as the person injured is concerned but to the exclusion of incapacities arising from sickness or disease." …

[61] In my view this history and these comments do not show that *Stok* was wrongly decided or that the subsequent legislation was intended to exclude cover for mesothelioma suffered by someone exposed to asbestos fibres outside the workplace. They do show that a decision was made not to provide comprehensive cover for all incapacity regardless of its cause. This meant sickness or disease per se was not to be covered just as it had not been covered at the outset or in the 1982 Act. Under the 1982 Act and its predecessor, cover was not normally available for, say, cancer. As the Authority in *Stok* explained, normally cancer occurs without explanation and in very few cases can it be directly related to any external cause. Mesothelioma is different because it has an external cause.

[62] Against this background, the words of the 2001 Act must be examined. This Act made the following changes or refinements to the wording (as presently relevant):

(a) "personal injury by accident" was replaced with a specific list of the circumstances in which personal injury is covered;

(b) "personal injury" is no longer defined in non-exhaustive terms;

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[45] (24 Mar 1992) 532 NZPD 7302.

(c) In defining "personal injury", "physical injuries suffered by a person" has replaced "the physical … consequences of any such injury or of the accident";

(d) a "personal injury caused wholly or substantially by a gradual process, disease, or infection" has replaced "damage to the body … caused exclusively by disease" and there is cover only if the gradual process, disease or infection is work-related, treatment injury (previously medical misadventure), or it is consequential on personal injury for which there is cover;

(e) "personal injury caused by a work-related gradual process, disease or infection" as defined in s 30 in the 2001 Act has replaced "occupational disease" as defined in s 28(1) of the 1982 Act;

(f) "personal injury caused by an accident" has replaced "personal injury by accident"; and

(g) "accident" is now defined although it does so broadly in terms of the accident/continuous process distinction in the common law as discussed in *Stok*.

[63] This leads to the question of whether these changes mean that s 26(2) applies to Ms Trevarthen's personal injury, in which case the *Stok* analysis would no longer apply. Relevant to this is whether the personal injury is the condition suffered by the person (here mesothelioma) or the physical manifestations of the condition (the pain and suffering) that is injury.

[64] This question arises because, if the kind of personal injury is simply described as mesothelioma (a disease), then this injury was not caused wholly or substantially by a disease. Rather it (the disease) was caused wholly or substantially by an external agent, namely the asbestos fibres which were inhaled. On the other hand, if the personal injury is described as the physical impacts on Ms Trevarthen from mesothelioma (the tumour, chest pain, physical weakness and weight loss etc) then it

might be said that those physical impacts were wholly or substantially caused by a disease (mesothelioma) and s 26(2) applies.[46]

[65] A case which illustrates the competing approaches to this question in a different context is *Allenby v H*.[47] This case concerned whether a woman who became pregnant following a failed sterilisation had suffered "personal injury" caused by medical misadventure.[48] All five Judges of the Supreme Court considered a pregnancy in such circumstances was a personal injury although they expressed their reasons differently.

[66] The majority judgment (Blanchard, McGrath and Wilson JJ) was given by Blanchard J. He said:[49]

> So, whenever the Act gives cover for some kind of personal injury, it is requiring that the claimant has suffered some form of physical injury unless the personal injury comes within the other paragraphs of s 26(1). As the illustration provided by s 26(1)(b) indicates, "physical injuries" are those suffered by the claimant which have some appreciable and not wholly transitory impact on the person but which are not necessarily long-lasting or ones that cause serious bodily injury.

[67] Blanchard J considered the legislation had provided an expansive definition of personal injury.[50] He considered, for example, that where medical misadventure involves misdiagnosis of a disease leading to no form of treatment being given, it was not a natural use of the language to speak of the progression of the disease (say the enlargement of a cancerous tumour and the spreading of the cancer to another part of the body) as a physical injury. Yet this was covered by s 20(2).[51] He considered pregnancy (involving the development of a foetus which causes discomfort and, at

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46 Although the immediate cause of the physical impacts is the disease, it might still be argued that a material cause of the physical impacts was still the inhalation of the fibres and therefore that the disease was not the substantial cause of them.

47 *Allenby v H* [2012] NZSC 33, [2012] 3 NZLR 425.

48 The case was decided before the amendments to the 2001 Act which replaced medical misadventure with the concept of "treatment injury".

49 *Allenby v H*, above n 47, at [56].

50 At [68].

51 At [66]. At this part of his judgment, Blanchard J did not say whether it would be covered under s 20(2)(b) or (f). He had earlier (at [54]) referred to the dissenting judgment of William Young P (as he then was) in *Accident Compensation Corporation v D* [2008] NZCA 576 who "saw little difference" between s 20(2)(b) or (f). He also referred to the Solicitor General's examples of an amputation of the wrong leg falling within s 20(2)(b); gangrene following amputation of the wrong leg falling within s 20(2)(f) and (g); and an adhesion caused by excessive and negligent radiation (a gradual process) (Blanchard J does not say which subsection this would fall under but it would seem to fall under s 20(2)(f)).

least ultimately, pain and suffering) following a medical error could not be distinguished from disease or infection following a medical error.

[68] The Judge supported his analysis with the situation of a pregnancy caused by a rape. The rape (an assault) would qualify as an accident. The impregnation of the victim was a physical consequence of the rape and should not be differentiated, for the purpose of coverage of the scheme, from any other physical consequence, such as the tearing of the vagina (a more transitory physical consequence than the pregnancy).[52]

[69] He said:

> [76] In addition, since, as we would hold, an impregnation resulting from rape is, under s 20(2)(a), a personal injury, it must follow that an impregnation resulting from medical misadventure in the form of a failed sterilisation is also a personal injury. The 2001 Act, as it stood at the time, keeps cover for medical misadventure (where it is necessary to show negligence) separate from cover for accident. But a physical consequence which constitutes a personal injury where accident is involved will equally be a personal injury where there is medical misadventure. The conclusion that there is cover under para (b) makes it unnecessary to consider the alternative argument that the first respondent has cover under para (f) for the impregnation because it was a personal injury caused by a gradual process that was personal injury caused by medical misadventure. It is worth repeating, however, that the use of the term "personal injury" in para (f), and indeed throughout subs (2), in connection with events that would naturally be described as illnesses rather than injuries, shows that, despite s 26(1)(b), the term is being given an extended meaning.

[70] Blanchard J therefore considered the personal injury was the pregnancy (it was a personal injury because of the physical impacts). He did not regard the pregnancy as being caused by a gradual process and therefore within s 26(2). Rather, it was caused by the failed sterilisation.[53] He viewed this as similar to a disease or infection that was caused by a negligent misdiagnosis.

[71] Tipping J agreed with this analysis. In relation to the physical impacts of pregnancy he added:

> [88] I am unable to accept the changes which occur to a woman's body as result of pregnancy do not come within the compass of the expression "physical injuries" in the context of the legislation in issue. Clearly the body changes are of a physical kind. The only issue is whether they represent an

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52 At [72].
53 At [80].

> injury or injuries for the purposes of the Act. I consider they do. In both cases (rape and failed sterilisation) the bodily changes which ensue qualify as personal injury. They are apt to cause a substantial degree of physical discomfort and, quite often, substantial pain and suffering. The changes produce bodily sensations which are of much greater consequence and duration than the examples given of a strain or a sprain.

[72] Elias CJ approached the matter differently. She considered the initial impregnation (which has physical impacts on the body) was a personal injury covered by s 20(2)(b). She considered the consequential physiological changes through pregnancy (also a personal injury) were caused by a gradual process under s 26(2) and covered by s 20(2)(f) and s 20(2)(g).[54] Where personal injuries were linked by "gradual process" or "disease" or "infection" to the original personal injury, the subsequent personal injury was covered.[55]

[73] As I see it, the difference between the majority reasoning and the reasoning of Elias CJ is how they view what is the personal injury and what is seen as the cause of that injury. The majority considered pregnancy to be an injury because it has physical impacts on the body which progress. The pregnancy was caused by medical misadventure (the failed sterilisation). Elias CJ considered the physical impacts of the pregnancy to be the personal injury. Because pregnancy is a gradual process, those physical impacts, after the initial impregnation, were caused wholly or substantially by a gradual process.

[74] The difference in view between the majority and minority arose because the personal injury had progressive physical impacts. If it is the physical manifestations of the injury that constitute the "personal injury", then what has caused the final stage of the injury (and whether that cause is a gradual process) might be something different from what caused the first physical manifestation of the injury. The majority approach took the injury as a whole (the pregnancy) and asked what caused it (the medical misadventure).

[75] The majority view is the one that binds this court. The personal injury is defined by the condition as a whole that a person has. The condition qualifies as a

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54 At [22]-[23].
55 At [24].

personal injury because it has physical impacts. Just as a sprain qualifies as a personal injury because it has physical impacts that causes pain and suffering, so too does pregnancy, and mesothelioma, because of their physical impacts on the body. As the Lord High Chancellor Earl of Halsbury put it, "when some affection of our physical frame is in any way induced by accident, we must be on our guard that we are not misled by medical phrases".[56] His example is someone sustaining a cut to their skin which sets up tetanus. As he explains, "tetanus is a disease; but would anybody contend that there was not an accident causing damage"?[57] Another example, as given to ACC by Dr Monigatti in April 2016, is lead poisoning in a child who ate paint scrapings on a specific occasion.[58]

[76] This does not mean all diseases are covered. They still need to come within s 20(2). Idiopathic diseases, that is those that develop in a person from an unknown cause, and that are not consequential on covered events, remain outside the scope of the Act. As the Authority said in *Stok*, for example, cancer is "something which occurs generally without explanation and in very few cases can it be directly related to any external cause".[59] Idiopathic diseases will generally be excluded because they are caused by a gradual (internal) process rather than a known external cause.

[77] In my view this approach is not inconsistent with the Act's scheme to provide cover for work-related gradual process, disease or infection. Cover for this can, in theory, arise under s 26(2)(e) through two routes: as personal injury under s 26(1) which is not personal injury under s 26(2); or as personal injury under s 26(1) which is also personal injury under s 26(2). Which of these routes does not matter in a work-related personal injury because the s 30(1) definition essentially replicates the s 26(2) requirement for the personal injury to be caused by a gradual process, disease or infection.[60] This allows work injuries to be covered where they might not have

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56 *Brintons, Limited v Turvey* (1905) AC 230 at 233.

57 Above.

58 See [18] above.

59 *Stok v Accident Compensation Corporation*, above n 15, at 8.

60 The same applies with treatment injury. It may be covered because: it is personal injury that is treatment injury (s 20(2)(b), if s 26(2) does not apply); it is personal injury caused by a gradual process, disease, or infection that is treatment injury (s 20(2)(f) and s 26(2) applies); or it is personal injury caused by a gradual process, disease or infection consequential on treatment given to the person for personal injury for which the person has cover (s 20(2)(h) and s 26(2) applies). As noted earlier, William Young P (dissenting) in *Accident Compensation Corporation v D*, above n 51, saw little difference between s 20(2)(b) and s 20(2)(f).

qualified as an accident at common law or under workers' compensation legislation.[61] Further, a number of occupational diseases are expressly within s 20(2)(e) by their inclusion in Schedule 2. Mesothelioma is one of those. Including some diseases and infections in Schedule 2 (and thereby providing clarity in such claims) does not necessarily show that Parliament intended that they could not be covered outside the work context on other grounds.

[78] Nor does this approach deprive s 26(2) of meaning. For example, degeneration of the back may be wholly or substantially caused by a gradual process (if there is no known external cause that triggered this, such as an initial accident). Heart disease may be wholly or substantially caused by a gradual (internal) process. Some gradual processes, diseases or infections may go on to cause other diseases. In these cases, the personal injury for which the person is seeking cover, will only have cover if it is of a kind described in s 20(2)(e) to (h).

[79] I conclude that mesothelioma is a personal injury under s 26(1) and that s 26(2) does not apply. The next question is whether it was "caused by an accident to the person" under s 20(2)(a).

Was mesothelioma caused by an accident under s 25(1)(b)?

[80] The claim of "accident" before ACC, the Reviewer, and the District Court was advanced under s 25(1)(b). This requires "the inhalation of any solid … or foreign object on a specific occasion …". This was rejected in all forums on the basis it had not been shown that the total asbestos fibres that gave rise to the disease were inhaled on one occasion. A "specific occasion" was equated with a single occasion.

[81] In reaching this view the Reviewer and the District Court relied on my decision in *Simm v ACC*.[62] ACC submits they were correct to do so. *Simm* concerned a claim for cover for lung cancer caused by passive smoking in the workplace first diagnosed and treated when the 1998 Act was in force. Passive smoking was expressly excluded from the term "work-related gradual process, disease or infection" in the 1998 Act.

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61 See [46] above.

62 *Simm v Accident Compensation Corporation* HC Wellington CIV 2005-485-965, 20 December 2006, Judgment of Mallon J.

There was no such exclusion in the 2001 Act. For Mr Simm to have cover under the 1998 Act it was argued that passive smoking was a personal injury caused by accident. The 1998 Act equivalents of s 25(1)(a) and (b) in the 2001 Act were relied on in the alternative.

[82] It was argued for Mr Simm that his lung cancer had been caused by his daily attendances in his employer's smoke-filled lunch room. Each trip to the lunch room was said to be a "series of events" under s 25(1)(a). However, s 25(1)(a) covered a "series of events, other than a gradual process …". I held there was no evidence that passive smoking caused the lung cancer other than by a gradual process. Further, the 1998 Act indicated that passive smoking was viewed as a gradual process through its express exclusion from cover for work-related gradual process injuries.[63] I also held that daily attendances in the lunch room over many years did not, on any ordinary view, involve inhalation "on a specific occasion" under s 25(1)(b).[64] I noted that s 25(1)(b), in contrast with s 25(1)(a), was confined to a specific occasion.[65]

[83] *Simm* involved repeated exposure over a long period of time and there was no evidence showing other than that the inhalation of smoke over that time gradually caused the lung cancer. But what is the case where it is possible that the injury arose from exposure on a single occasion or from exposure at different times collectively, but it is not possible to say which of those gave rise to the injury?

[84] It is argued on Ms Trevarthen's behalf that Parliament cannot have been intended to provide cover to someone for mesothelioma if they are able to point to evidence that they were exposed to asbestos once and once only, but to deny it in a case where it is not possible to say whether the mesothelioma was triggered by a particular inhalation on a single occasion or not. In other words, mesothelioma is not a typical gradual process disease. Although it requires a sufficient accumulation of fibres in the lungs (or dosage) before the disease can be triggered, it is not caused by the gradual build up over time of asbestos fibres in the lungs (compared with, for example, asbestosis, or the gradual build of lung damage from smoking, or the gradual

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63 At [32].
64 At [35].
65 At [36].

build up heart disease from eating too much fatty food, if this is how those diseases occur).

[85] In support of this submission reliance is placed on *Fairchild v Glenhaven Funeral Services Ltd.*[66] This House of Lords' decision considered claims for negligence brought by employees who had developed mesothelioma caused by exposure at work to asbestos dust. The employees had been exposed to asbestos fibre with more than one employer and it was not possible to say which exposure had caused the mesothelioma.

[86] The judgment of Lord Bingham discussed mesothelioma as follows:[67]

> From about the 1960s, it became widely known that exposure to asbestos dust and fibres could give rise not only to asbestosis and other pulmonary diseases, but also to the risk of developing a mesothelioma. This is a malignant tumour, usually of the pleura, sometimes of the peritoneum. … It is a condition which may be latent for many years, usually for 30-40 years or more; development of the condition may take as short a period as ten years, but it is thought that that is the period which elapses between the mutation of the first cell and the manifestation of symptoms of the condition. It is invariably fatal, and death usually occurs within one to two years of the condition being diagnosed. The mechanism by which a normal mesothelial cell is transformed into a mesothelioma cell is not known. It is believed by the best medical opinion to involve a multi-stage process, in which six or seven genetic changes occur in a normal cell to render it malignant. Asbestos acts in at least one of those stages and may (but this is uncertain) act in more than one. It is not known what level of exposure to asbestos dust and fibre can be tolerated without significant risk of developing a mesothelioma, but it is know that those living in urban environments (although without occupational exposure) inhale large numbers of asbestos fibres without developing a mesothelioma. It is accepted that the risk of developing a mesothelioma increases in proportion to the quantity of asbestos dust and fibres inhaled: the greater the quantity of dust and fibre inhaled, the greater the risk. *But the condition may be caused by a single fibre, or a few fibres, or many fibres: medical opinion holds none of these possibilities to be more probable than any other, and the condition once caused is not aggravated by further exposure.* So if C is employed successively by A and B and is exposed to asbestos dust and fibres during each employment and develops a mesothelioma, the very strong probability is that this will have been caused by inhalation of asbestos dust containing fibres. But C could have inhaled a single fibre giving rise to his condition during employment by A, in which case his exposure by B will have had no effect on his condition; or he could have inhaled a single fibre giving rise to his condition during his employment by B, in which case his exposure by A will have had no effect on his condition; or he could have inhaled fibres during his employment by A and B which together gave rise to his condition; *but medical*

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66 *Fairchild v Glenhaven Funeral Services Ltd* [2002] UKHL 22, [2003] 1 AC 32.

67 At [7] (emphasis added).

> *science cannot support the suggestion that any of these possibilities is to be regarded as more probable than any other. There is no way of identifying, even on a balance of probabilities, the source of the fibre or fibres which initiated the genetic process which culminated in the malignant tumour*. …

[87] Because the medical science was not able to say at which employer the employees had inhaled the asbestos fibres that led to mesothelioma, causation against any particular employer could not be established on the traditional "but for" test. The House of Lords held that a modified approach to causation was justified in such circumstances. An employee needed only to establish that each employer's negligence had increased the employee's risk of contracting the disease.

[88] Similarly in this case there is no way of identifying, even on a balance of probabilities, the source of the fibre or fibres which initiated the genetic process which led to the malignant tumour from the various times at which Ms Trevarthen was exposed to asbestos. Counsel for Ms Trevarthen's estate submits that a generous interpretation of "a specific occasion" should be taken in this case applying similar reasoning to *Fairchild*. That is, on each occasion that Ms Trevarthen was exposed to asbestos, this gave rise to the risk of developing mesothelioma and, because medical science cannot say whether she developed her mesothelioma from one of those exposures or from several of them, the exposure should be treated as arising from a single occasion for the purposes of s 25(1)(b).

[89] The possible application of *Fairchild* to the accident compensation legislation was raised in *ACC v Ambros*.[68] This case involved the death of a woman where there had been a negligent failure to diagnose, monitor and treat her appropriately. The question was whether it had been proven that this failure had caused her death or whether it would have occurred in any event because of the woman's underlying medical condition. The High Court had adopted a modified approach to the traditional approach to causation and the question was whether it was correct to do so.

[90] The Court of Appeal held that the High Court was not correct to adopt this modified approach. It reaffirmed *Atkinson v Accident Rehabilitation Compensation*

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[68] *Accident Compensation Corporation v Ambros* [2007] NZCA 304, [2008] 1 NZLR 340.

and Insurance Corporation, an earlier Court of Appeal decision.[69] This had held the burden was on the claimant to prove, on the balance of probabilities, whether medical misadventure caused an injury and it was not sufficient to prove only the possibility (or risk) that it had.

[91] In reaching this view the Court of Appeal discussed the ability of a Court to draw robust inference from the evidence and said:[70]

> [70] … we note that the generous and unniggardly approach advocated in *Harrild v Director of Proceedings* [2003] 3 NZLR 289 (CA) …was used by the High Court in this case to modify the causation test. This, in our opinion, is not an appropriate application of the principle, given the plain words of the 1998 Act and the rejection of the increased risk test in *Atkinson*. The generous and unniggardly approach referred to in *Harrild* may, however, support the drawing of "robust" inferences in individual cases. It must, however, always be borne in mind that there must be sufficient material pointing to proof of causation on the balance of probabilities for a court to draw even a robust inference of causation. Risk of causation does not suffice.

[92] It also discussed a range of approaches to causation in common law cases concerning medical negligence and occupational disease, and whether they were applicable in the ACC context. This included the following comments:[71]

> [34] The exact question *Fairchild* was dealing with would not, of course, arise under a no fault accident compensation regime. There is no requirement to assign responsibility to any particular person. Conceivably, however, there could be situations where the existence of cover may depend on the identity of the responsible agent or timing and *Fairchild* could have relevance in such situations. The principle in *Fairchild* appears, however, to be very limited. In *Barker v Corus* … Lord Hoffman made it clear (at [24]) that the *Fairchild* exception applies only where the impossibility of proving the defendant caused the damage arises out of the existence of another potential causative agent which operated in the same way.
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> [35] Any further consideration of whether *Fairchild* may be applicable in New Zealand to cases under the accident compensation regime must await for a case where it arises. We do note, however, that the *McGhee/Fairchild* exceptions have not been without their critics. …
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> [36] We also note that the view has been expressed that the *McGhee/Fairchild* line of cases should be limited to industrial diseases. … it may be inadvisable to extend [them] … into the field of medical malpractice.

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69 *Atkinson v Accident Rehabilitation Compensation and Insurance Corporation* [2002] 1 NZLR 374 (CA).

70 *Accident Compensation Corporation v Ambros*, above n 68.

71 Emphasis added.

[93] As the Court of Appeal discussed, claims of medical negligence can give rise to causation difficulties because of the uncertainty of whether a better outcome would have been achieved without the negligence. The amicus appearing on the matter proposed a modified test for causation.[72] The proposed test was for there to be a presumption of causation if certain circumstances were met, which was able to be displaced by evidence.[73]

[94] The Court of Appeal considered this test was not available under the legislation because it was inconsistent with *Atkinson*, explaining its decision as follows:[74]

> [79] [The amicus] suggested the modified causation test … to deal with the unfairness of requiring a claimant to prove causation in cases of rare diseases where scientific uncertainty is often at its greatest …
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> [80] While … we consider that a liberal view should be taken of when a tactical burden [the burden to present evidence available to a defendant to avoid an inference being drawn in its absence] may pass to the Corporation, we do not consider that the scheme of the legislation would allow a presumption of causation to arise in circumstances where the evidence would not (without the presumption) reach the required standard for proving causation. There is also nothing in the common law developments since *Atkinson* which would support the introduction of a presumption in cases of failures of treatment. Indeed … the approach has been to relax causation requirements rather than to create presumptions. Even the relaxation of causation requirements has been only in very limited circumstances.
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> …
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> [82] Although, under [the amicus'] formulation, it is only an evidential rather than the legal burden that passes to the Corporation, it is uncertain how much contrary evidence is needed to displace the presumption and, in cases of true uncertainty, it is likely that it would be difficult for the Corporation to displace it. [The proposed] test would thus pass the burden of uncertainty onto the Corporation rather than the claimant, a position incompatible with *Atkinson*, where a reverse onus was rejected and where a risk that the injury was caused was deemed insufficient to prove causation.

[95] In contrast with *Ambros*, the scientific uncertainty in this case is not about what caused Ms Trevarthen's mesothelioma. It has been proven, on the balance of probabilities, that Ms Trevarthen's mesothelioma was caused by asbestos inhalation

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72 The claimant was without legal representation.

73 The presumption was to apply when a personal injury was alleged to have arisen from a failure of medical diagnosis or treatment, and the injury that occurred was the very injury the diagnosis or treatment was intended to prevent, and it was part of the medical event for which the diagnosis or treatment was given.

74 *Accident Compensation Corporation v Ambros*, above n 68.

and ACC accepts this. ACC does not challenge that it is more likely than not that mesothelioma developed from the exposure to asbestos she reported – that is, when she hugged her father in his work overalls or played at a building site.[75]

[96] ACC accepts it is not necessary to prove the precise occasion when the accident (the relevant inhalation(s)) occurred.[76] Its position is that Ms Trevarthen's estate must prove that the relevant inhalation of asbestos occurred on a "specific occasion" which ACC's submission implicitly equates to single incident.[77] ACC submits the medical evidence shows it is more likely than not that the mesothelioma was caused by a number of exposures to, or the accumulation over time of, asbestos fibres.

[97] I do not accept this is the proper inference on the medical evidence. The risk of developing mesothelioma increases with multiple asbestos exposure, but this is not the same as saying that mesothelioma is more likely than not to develop from an accumulation of fibres over time rather than on a single occasion. Dr Glass' view was that multiple exposures give risk to a greater risk, but "any one" can be seen as causative and "which one" is not material. In contrast with asbestosis, he said there is no dose-response relationship and no threshold below which there is no risk. Dr Reid similarly said there is no minimum exposure level below which there is no risk of developing mesothelioma.

[98] While the latency period for mesothelioma is usually dose related, and there is less risk of developing mesothelioma from low levels of exposure, the medical evidence cannot identify the dosage level at which mesothelioma will develop and nor

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75 Another possibility is that her mesothelioma arose because she was exposed to asbestos fibres in one of her places of work as Dr Glass suggested. If this was case she would have cover for this as a work-related disease. ACC rejected her claim when lodged on this basis because she had claimed it arose from exposure to asbestos at her father's work, not her own work. This has not been pursued. If it had been, on the evidence, I would reject it on the balance of probabilities. At best all that can be said is that she may have been to places where there was asbestos. However the nature of her work made it unlikely she would be exposed to asbestos at work sites at all, let along at a dose that would give rise to an atypically short latency period.

76 There are a number of District Court decisions that have held that the specific date of the accident causing the injury need not be pinpointed: see *Anderson v Accident Compensation Corporation* [2016] NZACC 63 at [19]; *Murphy v Accident Compensation Corporation* [2013] NZACC 398 at [46]; and *Parsons v Accident Compensation Corporation* [2014] NZACC 39 at fn 6. See also *Lilo v Accident Compensation Corporation* [1996] NZAR 64 where the injury was caused either by an oral ingestion or an inhaled substance and which of those was not material because the injury had unquestionably arisen from a specific event.

77 ACC had also taken this view when instructing Dr Monigatti (see [25] above).

is it known what dose of fibres were inhaled by Ms Trevarthen at any one time. Dr Glass and Dr Reid's view was that it is not and cannot be known whether her mesothelioma developed from asbestos inhaled on a particular date or on several dates.

[99] This means there is uncertainty about whether Ms Trevarthen's mesothelioma developed from one exposure to asbestos or cumulative exposures. It is an uncertainty about timing that arises because there were several opportunities for the injury to have occurred, and it is not possible to know what dose singularly or cumulatively gave rise to the injury. It is comparable to the *Fairchild* situation but the uncertainty goes to whether an "accident" is proven rather than which defendant or defendant is responsible (as in *Fairchild*).

[100] While *Ambros* does not rule out the possibility of *Fairchild* having some relevance in the ACC context, it is firm that the burden to prove causation is on the claimant. Here the issue is whether the claimant can prove "inhalation on a specific occasion" when she cannot prove whether there was asbestos inhalation at one time that led to her mesothelioma or whether she only contracted mesothelioma because she inhaled asbestosis at several times. Ultimately this is a statutory interpretation question.

[101] It is of interpretive interest that s 25(1)(a) refers to "a specific event or a series of events, other than a gradual process" whereas s 25(1)(b) refers to a "specific occasion". The use of "event" and "occasion", however, seem only to reflect the nature of the accident being described: that is, it is a natural use of language to refer to an "event" of force and inhaling something at some, possibly unknown, time (a "specific occasion").

[102] The addition in s 25(1)(a) of "a series of events, other than a gradual process" reflects the common law that there can be a series of accidents (events of force) that cause an injury which, although occurring more than once, are not a gradual process.[78] An example has arisen in the context of cricket. In *Barrett v Accident Compensation Corporation* a semi-professional cricketer, a fast bowler, sought cover for surgery for

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[78] For example, the periodic scratching of a worker's hands that led to poisoning and arthritis: *Burrell (Charles) & Sons Ltd v Selvage*, above n 32.

a fracture.[79] The cricketer contended there had been a particular instance when he felt low back pain while bowling and had to leave the field. ACC declined cover saying his fracture was from repetitive microtraumas and this was a gradual process. The Court held, on the balance of probabilities, the injury was the direct result of the bowling incident referred to by the cricketer. There had either been a series of individual stresses and a significant event that completed the fracture, or the significant event had initiated the fracture. [80]

[103] In s 25(1)(b) the accidental event is breathing in something that is in the air. It is a similar kind of accident as that provided in s 25(1)(c) (orally ingesting something) and s 25(1)(c) (a burn or exposure to radiation or rays), each of which also requires that this occur on a "specific occasion" to constitute an accident. The purpose of s 25(1)(b) appears to be to distinguish injuries that arise only because there has been general exposure to solids, liquids, gases or foreign objects and so on (which will then only be covered if the exposure was work-related) to a specific occasion of exposure (which would align with the common-sense view of an accidental exposure).

[104] Mesothelioma develops because a person has inhaled asbestos fibres of a quantity that, for that particular person, is a sufficient dose to trigger (at a later date) the disease. In my view, in this kind of case, the "specific occasion" is the occasion that gives rise to the sufficient dose. That may be a single occasion (in which case there has been a "specific occasion" at this time). Or the sufficient dose may arise from several occasions (in which case the occasion on which the last bit of asbestos is inhaled that constitutes the necessary dosage is the "specific occasion"). As Dr Glass put it, where there are multiple exposures, any one can be seen as causative and which one is not material. There will, in the end, be an occasion that is causative.

[105] This interpretation is consistent with *Fairchild* in that it avoids unfairly declining cover when a person has been exposed to asbestos more than once and, because of the nature of the disease, cannot pin-point which exposure resulted in the disease. For example, on this approach there would be cover for a person who

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79 *Barrett v Accident Compensation Corporation* [2016] NZACC 236.

80 See also *Waghorn v Accident Compensation Corporation* [2013] NZACC 2 at [33]-[36] (another cricket example); compared with *Booth v Accident Compensation Corporation* [2012] NZACC 98 (concerning a degenerative knee).

contracts mesothelioma because, during home renovations, they were exposed to asbestos regardless of whether that exposure occurred on one day only (because asbestos was in one part of the house) or on several days (because asbestos was found in two different parts of the house on different days).

[106] This may be a generous interpretation of "on a specific occasion" but it is open on the words Parliament has used. Those words do not say that the foreign object must have been inhaled by a person only once. The words are less precise than that. A generous, unniggardly interpretation is available.[81] It does not inappropriately move the burden of proof to ACC. It recognises that mesothelioma can be caused by accidental inhalation of asbestos fibres which may have happened more than once. On a purposive approach "a specific occasion" is intended to distinguish between injuries that are caused by a triggering external, non-continuous event and those that are caused only because of repetitive or continuous inhalation over time. This fits with the other happenings which qualify as an accident under s 25.[82]

[107] I therefore conclude that an accident under s 25(1)(b) is established.

Accident under s 25(1)(a)?

[108] This conclusion makes it unnecessary to consider s 25(1)(a). This was not raised on Ms Trevarthen's behalf before the Reviewer or the District Court. It is not one of the questions of law on which leave was given. ACC submits it is prejudiced if this new basis for "accident" is considered. This is because it says that evidence would be needed as to whether the inhalation of fibres was a gradual process.

[109] I do not accept this claimed prejudice. The evidence is that there was more than one possibility for when Ms Trevarthen was exposed to asbestos fibres and any one of them could have been causative. There is evidence that there is no dose-response relationship with mesothelioma and no threshold level below which there is no risk. Whether breathing in asbestos fibres on one or more dates is an event or series

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81 *Harrild v Director of Proceedings* [2003] 3 NZLR 289 (CA) at [19], [37] and [130].

82 In addition to ss 25(1)(a), (ba) and 25(1)(c) mentioned above, ss 25(1)(d) (relating to the absorption of chemicals through the skin) and 25(1)(e) (exposure to the elements, extremes of temperature or environment) require the event to occur "within a defined period of time not exceeding 1 month".

events as opposed to a gradual process is a legal question. The Authority in *Stok* decided it was not a gradual process. Consistent with the view I have reached under s 25(1)(b), I agree that the inhalation of fibres that caused Ms Trevarthen's mesothelioma was a specific event or series of events rather than a gradual process.

[110] Potentially more problematic for Ms Trevarthen's claim that she suffered an accident of this kind, is whether the inhalation of fibres was "the application of force … external to the body". This requirement was not in the 1982 Act under which *Stok* was decided. For Ms Trevarthen it is said the application of force was the hugs that she received from her father. It is not, however, known whether Ms Trevarthen contracted mesothelioma from fibres inhaled when she hugged her father or from fibres in the air when she was playing at worksites. Moreover, there is nothing to suggest that any force, beyond that of breathing, is required to inhale the fibres. Section 25(1)(b) is the provision that concerns this kind of force. While I do not reach a final view on this, I consider it to be more a difficult argument for Ms Trevarthen.

Conclusion on cover under s 20(2)(a)

[111] I conclude that Ms Trevarthen's mesothelioma was a personal injury caused by an accident to her.

[112] The personal injury is mesothelioma. Like a sprain (or a pregnancy following a failed sterilisation), it is a personal injury because of its physical impacts on the body. Once a person has mesothelioma, those physical impacts are progressive, but the cause of the physical impacts as they progress (the fact that the person has mesothelioma) are not to be separated from the cause of the mesothelioma itself.

[113] Ms Trevarthen's mesothelioma was caused by an accident because it was caused by inhalation on a specific occasion. A specific occasion occurred at the time at which there was a sufficient dose of asbestos fibres inhaled to (later) trigger the disease. The specific occasion may have been from exposure at one time (in which case that one time is the "specific occasion"). If there was exposure at several times, then the specific occasion is the occasion on which the last amount of fibres that constitutes the necessary dosage to trigger the disease was inhaled.

Cover pursuant to s 20(2)(g)

A new argument

[114] The claim for cover under s 20(2)(g) is new. ACC says it is prejudiced by Ms Trevarthen's estate seeking to raise this basis for cover for the first time on this appeal. It says it has not had the opportunity of presenting evidence that would be relevant to this ground.

[115] My conclusion on cover under s 20(2)(a) means it is unnecessary to consider s 20(2)(g). However, as is illustrated by *Allenby*, there may not be much difference between them in some cases. It may be useful to determine if a different conclusion would be reached through s 20(2)(g) as a way of testing the analysis under s 20(2)(a). In doing so, I will keep in mind ACC's objection and take into account ACC's concern that I may not have all the relevant evidence.

The basis for cover

[116] Under this alternative route to cover, the argument is that:

(a) there are two personal injuries (s 26(1)):

(i) the first personal injury occurs when the fibre enters the lung; and

(ii) the second personal injury occurs when mesothelioma develops;

(b) Ms Trevarthen would have cover for the first personal injury (it meets the requirements of s 360).

(c) The second personal injury is caused by a disease (s 26(2)) and is covered under s 20(2)(g) because it is consequential on personal injury (the first personal injury) for which the person has cover.

Does the initial inhalation cause an injury

[117] The argument that the initial inhalation of asbestos fibres gives rise to a personal injury is consistent with the view that has been taken in common law cases. The issue has arisen in those cases in the context of workers' compensation claims or claims for negligence against employers when it has been necessary to determine when personal injuries were first suffered.

[118] The first of these is a decision of the House of Lords in *Rothwell v Chemical & Insulating Co Ltd.*[83] The case involved employees suing their employer for negligently exposing them to asbestos dust. The evidence was that the employees had developed pleural plaques (fibrous thickening of the pleural membrane) around their lungs. These plaques were caused by exposure to asbestos and indicated that the employees had inhaled asbestos fibres. As noted in the decision, asbestos fibres could cause life-threatening or fatal diseases such as asbestosis or mesothelioma. But the pleural plaques themselves caused no symptoms (they caused neither impairment of lung function or disablement). While they did increase their susceptibility to the harmful diseases that can arise from inhaling asbestosis fibres, the risk of developing a disease from the asbestos fibres did not amount to damage for the purposes of establishing a cause of action in tort.

[119] In reaching this conclusion, Lord Hoffman explained:

> [7] Some causes of action arise without proof of damage… But a claim in tort based on negligence is incomplete without proof of damage. Damage in this sense is an abstract concept of being worse off, physically or economically, so that compensation is an appropriate remedy. It does not mean simply a physical change, which is consistent with making one better, as in the case of a successful operation, or with being neutral, having no perceptible effect upon one's health or capability.
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> [8] How much worse off can one be? An action for compensation should not be set in motion on account of trivial injury. … [Under] the Limitation Act … the primary rule is that time runs from the date on which the cause of action accrues. In an action for negligence that means the date upon which the claimant suffered damage which cannot be characterised as trivial. …

[120] The next case is a decision of the High Court of Australia in *Alcan Gove Pty Ltd v Zabic*.[84] The case concerned a worker who had inhaled asbestos fibres in the

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83 *Rothwell v Chemical & Insulating Co Ltd* [2007] UKHL 39; [2008] 1 AC 281.
84 *Alcan Gove Pty Ltd v Zabic* [2015] HCA 33, (2015) 257 CLR 1.

course of his employment between 1974 and 1975. He first experienced symptoms of mesothelioma in 2013 and 2014. He commenced proceedings against his employer seeking damages for personal injury. Whether he could bring this claim depended on whether the cause of action arose before 1 January 1987. Otherwise the claim was barred by the Workers Rehabilitation and Compensation Act (NT) and he would instead receive the more limited compensation provided under that Act.

[121] The evidence at trial was summarised by the High Court as follows:[85]

> The expert evidence given at trial was that asbestos fibres are hydrated silicates of aluminium and magnesium which are known to generate oxygen free radicals capable of setting off adverse genetic changes in susceptible cells. When asbestos fibres are inhaled they work their way to the periphery of the lung, eventually through the visceral pleura and ultimately onto the parietal pleura. Mesothelial cells form part of the parietal pleura. They contain "oncogenes" which may be so influenced by methylation and acetylation caused by free radicals as in some cases to lead to the development of abnormal "switches" in the genetic regulation of cell reproduction. Initial molecular changes occur in the mesothelial cells of the pleura soon after inhalation of asbestos fibres. To begin with, those changes are asymptomatic, and otherwise undetectable, and do not in all cases lead to mesothelioma. In cases like the respondent's, however, where they do lead to mesothelioma, the changes typically lie dormant for years, often for decades, until an unknown "trigger" sets off the development of abnormal genetic switches resulting in malignancy and the "domino effect" that culminates in the malignant mesothelial tumour which constitutes mesothelioma.

[122] The High Court considered it could be inferred that the asbestos fibres inhaled between 1974 and 1977 then or shortly afterwards resulted in initial molecular changes to mesothelial cells; these mesothelial changes ultimately resulted in the malignant mesothelial tumour; the initial molecular changes were initially asymptomatic and undetectable and were likely to have lain dormant until between one to five years before the first manifestation of symptoms; and an unknown trigger set off the development of the abnormal genetic switches that resulted in malignancy.[86]

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85 At [5].

86 The Court discussed the evidence as to the trigger that had caused the cells to become malignant. If the trigger was external (for example, the consequence of smoking) then the earliest point at which the mesothelial cell changes were bound to lead to mesothelioma would have been when the person started smoking. Where the trigger was endogenous (meaning a state of affairs inside the cells) logically it could be inferred that, once the initial mesothelial cell changes occurred, they were bound to lead inevitably to mesothelioma. The Court considered the evidence supported the position that the trigger was endogenous.

[123] The relevant provision in the Workers Rehabilitation and Compensation Act referred to a cause of action for "an injury to or death of a person" arising before 1 January 1987. It defined "injury" as including a disease, and "disease" as including a physical "ailment, disorder, defect or morbid condition, whether of sudden or gradual development".

[124] A cause of action arose when there were facts existing that gave rise to the right to sue. As actual damage or injury was an essential element of a cause of action in negligence for personal injury, it was necessary to determine if the initial molecular changes to mesothelial cells was actual damage or injury. The Court found that it was, reasoning as follows:

> 45 The question then is whether, as a matter of law, there is any reason why the initial changes in the mesothelial cells which it could be inferred were bound from the time of their onset to lead inevitably and inexorably to the mesothelioma from which the respondent now suffers should not be seen as compensable damage sufficient for the respondent's cause of action in negligence to have accrued at that point.
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> 46 It assists to answer that question to consider what the position would have been if, at the time the initial mesothelial cell changes occurred, there had been evidence available to establish that they had occurred and that, because of the respondent's predisposition to mesothelioma, they were bound inevitably and inexorably to lead to mesothelioma.
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> 47 In those circumstances, the respondent would have had a cause of action in negligence for damages for personal injury caused by the inhalation of asbestos fibres, which was bound to lead to mesothelioma. The malignant tumour would not have begun at that point and therefore there would remain a chance that the respondent would die from other causes before the tumour began. But, even so, the fact that the respondent would otherwise be bound to die from mesothelioma would be sufficient to found a cause of action in negligence for damages for loss of expectation of life; and clearly, if the malignant tumour began before the matter came to trial, the respondent would be entitled to add to his claim for damages the fact that the tumour had begun.
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> 48 Parity of reasoning dictates the same result here. Given that with the benefit of hindsight it can be seen that initial mesothelial cell changes occurred shortly after the respondent's inhalation of asbestos fibres, and that they were bound to and did lead inevitably and inexorably to the malignant mesothelioma from which he now suffers, the respondent's cause of action in negligence accrued when those initial mesothelial cell changes occurred and, as the Court of Appeal held, damages for the mesothelial tumour from which he now suffers are recoverable in that cause of action.

[125] Determining that the changes in the cells from the asbestos fibres would inevitably lead to mesothelioma, enabled the Court to distinguish the case from a

decision of the New South Wales Court of Appeal in *Orica Ltd v CGU Insurance Ltd*.[87] There the Court had held that a person who had inhaled asbestos fibres had not suffered compensable damage and a cause of action did not accrue unless and until mesothelioma develops. As one of the Judges put it, inhalation of asbestos fibres which leads to pleural thickening of the lung at the time of trial, but which had caused no physical discomfort or disability, with only the potential for more serious developments, did not amount to physiological changes that amounted to actionable injury. The injury had not given rise to any harm in these circumstances. The Court in *Alcan* noted that the approach taken in *Orica* was similar to that taken by the House of Lords in *Rothwell.*[88]

[126] *Rothwell* was discussed in *Dryden v Johnson Matthey Plc*, a decision of the United Kingdom Supreme Court.[89] The case concerned workers who were negligently exposed to platinum salts which led them to develop platinum salt sensitisation. This sensitisation meant they would develop an allergic reaction (involving physical symptoms such as running eyes or nose, skin irritation, and bronchial problems) if they were further exposed to platinum salts. The sensitisation occurred because the immune system reacted to the molecules not normally found in the body by producing antibodies. These reacted with the molecules and provoked particular cells to release histamine which caused the allergy symptoms.

[127] Workers who had developed this sensitisation were no longer permitted to work for their employer where they might be further exposed to platinum salts. They sued their employer in negligence and for a breach of a statutory duty for their financial loss arising from this. One of the questions for the Supreme Court was whether platinum salt sensitisation was an actionable personal injury. If it was not, the claim would be one for economic loss, which would not necessarily be actionable.

[128] The Supreme Court held the platinum salt sensitisation was actionable personal injury. It noted the cases tended to use personal injury interchangeably with physical

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87 *Orica Ltd v CGV Insurance Ltd* (2003) 59 NSWLR 14.
88 At [15].
89 *Dryden v Johnson Matthey Plc* [2018] UKSC 18, [2019] AC 403, [2018] 2 WLR 1109, [2018] ICR 715, [2018] 3 All ER 755.

injuries (where there was no psychiatric injury to complicate matters).[90] The cases have considered personal injury to include: pain, suffering and loss of amenity; a physical change which makes a person appreciably worse off in their health or capability; an injury sustained to a person's physical capacity for enjoying life; and an "impairment". Further, a personal injury can be hidden and symptomless.[91]

[129] The Supreme Court rejected the argument that the workers had only a risk of developing an actionable injury (that is, the risk of developing an allergy). In doing so, the Supreme Court distinguished *Rothwell*. The pleural plaques in that case were nothing more than a maker of exposure to asbestos dust. They were symptomless in themselves and did not lead to or contribute to any condition which would produce symptoms even if the sufferer was exposed to further asbestos dust.

[130] In contrast with *Rothwell*, the Supreme Court considered the workers' bodies were now in a state that they needed to avoid further exposure to platinum salts.[92] This was no different from a person who may have developed a sensitivity to something in everyday life such as sunlight (which the employer accepted would amount to a deficit that would be characterised as a personal injury).[93] The workers had suffered a personal injury here because their bodily capacity for work had been impaired and as a result they were significantly worse off.[94]

[131] To summarise:

(a) Personal injury in common law negligence cases, which is often used interchangeably with physical injuries, includes the physical impacts and bodily impairment of disease;

(b) Physical injuries sufficient to give rise to a cause of action in negligence must give rise to non-trivial harm;

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90 At [12].
91 At [27].
92 At [43].
93 At [38].
94 At [40].

(c) Physical injuries can qualify as non-trivial harm even if they are asymptomatic.

(d) They will do so where they have later caused personal injury (a disease which has adverse physical impacts or impairment) and it can be said that the earlier, asymptomatic physical injuries were the cause.

(e) Mesothelioma involves physical injuries which would constitute damage for a common law action in negligence.

(f) The initial changes to the body from inhalation of asbestos fibre constitutes physical injuries constituting damage for a common law action in negligence if it can be said, with the benefit of hindsight, that the mesothelioma that later developed inexorably and inevitably came from those changes.

[132] For Ms Trevarthen it is contended that the initial cell changes caused by the inhalation of asbestos which went on to cause mesothelioma were personal injury. Reliance is placed on evidence from Dr Reid that, once asbestos fibres accumulate in the pleural space, they can cause "direct and indirect damage to the mesothelioma cells" and his explanation of the nature of that damage.

[133] Although Dr Reid did not expressly say so, I understand from his explanation that the inhalation of the fibres causes the damage he describes (or at least some of it) if mesothelioma later develops. Evidence directly addressing this would be helpful, as would any evidence about the time when this direct and indirect damage occurs (potentially confirming the evidence in *Alcan*). If this damage goes on to cause mesothelioma, then arguably it may constitute bodily impairment (giving rise to a loss of expectation of life) and therefore constitute a physical injury and a personal injury under s 26(1).

When was the personal injury sustained?

[134] If the initial indirect and direct damage to the cells from inhaling fibres is a personal injury, the next question is whether it was suffered on or after 1 April 2002.

The medical evidence does not directly address when this damage would have occurred. Assuming, as seems to be the implication of the medical evidence (and as per *Alcan*), that it was soon after inhaling the fibres, then this was between 1975 and 1981 (when Ms Trevarthen was between four and 10 years old).

[135] Proceeding on that basis, Ms Trevarthen's claim for cover would need to come within s 360 of the Act. This means that she would have cover only if:

(a) She would have had cover under the 2001 Act had the injury occurred on or after 1 April 2002; and

(b) She would have had cover under the Act that was in force at the time that the person suffered the injury.

[136] For the reasons I have discussed under the first basis on which cover is claimed, I have found that inhaling the fibres was an "accident" under the 2001 Act. The Act in force at the time she suffered the injury was the 1972 Act. By 1974 the Accident Compensation Act had been amended to cover "personal injury by accident" and this was defined in the same way as the 1982 Act considered in *Stok*. Given my view on *Stok*, I consider Ms Trevarthen would have had cover under the Act in force at the time of exposure. The initial injury to Ms Trevarthen when the fibres entered her body would constitute an accident (rather than a continuous process) and would constitute "physical … consequences … of the accident" and would not have been "exclusively caused by disease".

Second injury consequential on the first injury

[137] If there is initial damage from the inhalation of fibres that constitutes personal injury, and that injury would have been covered by the legislation at the time the injury occurred, the second personal injury (the development of mesothelioma) would be consequential on the first injury as required by s 20(2)(g).

Conclusion on cover under s 20(2)(g)

[138] Ms Trevarthen's estate seeks to rely on this alternative basis of cover only if s 26(2) applies. In my view it does not apply. If it does apply, it leads to the, arguably, artificial division of the mesothelioma for which cover is needed from the initial personal injury at the time of the asbestos exposure for which no cover would be needed at the time it was sustained (it being symptomless at this initial stage). I do not reach a final view on whether there would be cover under s 20(2)(g). It is not the way it was argued in the District Court, or earlier, and it was not the subject of leave to appeal. However, the analysis as far as it goes, suggests there may not be any difference in outcome whether s 26(2) applies or not. Under either basis for cover, the critical issue is whether there has been an "accident" as defined in s 25. In my view, there has been.

Result

[139] The answers to the questions of law on which leave was granted have been given earlier.[95] The appeal is allowed. The District Court's decision is set aside.

[140] Ms Trevarthen was entitled to cover under the Accident Compensation Act 2001 for mesothelioma because this was a personal injury caused by an accident to her. If there is any issue concerning costs, brief memoranda may be submitted by the parties within two weeks of the date of this judgment.

Mallon J

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95 At [6] above.