The Two Explosive Proof-of-Causation Doctrines Central to Asbestos Claims

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INTRODUCTION

For decades the volume of asbestos claims has been a unique and mesmerizing phenomenon. This historic wave of civil claims would never have been possible had U.S. common law courts not adopted two radical dispensations from orthodox rules for the proof of causation, tantamount to causal fictions, that enabled asbestos plaintiffs to establish against each defendant factual causation to the plaintiffs' entire physical condition for which the defendant would, therefore, be jointly and severally liable. Yet these proof-of-causation doctrines have gone virtually unremarked by courts and the academy. We should not, therefore, be too surprised that, even though the *Third Restatement (Torts): Products Liability* ("*Products Liability Restatement*") elsewhere acknowledged a doctrinal approach that courts had developed especially for the asbestos context,[1] it was silent on the special causal proof rules on which asbestos cases proceed. Indeed, the *Products Liability Restatement* asserts that "[w]hether a product defect caused harm to persons or property is determined by the prevailing rules and principles governing causation in tort:"[2] the Reporters had been led to believe that "traditional notions of causation retain their vitality in products liability."[3] What are these radical proof-of-causation doctrines? Why were they adopted? Why have they yet to face rigorous academic analysis? Why was the *Products Liability Restatement* silent about them? What might we learn from this apparently profound failure of the restatement process?

This Article is divided into six Parts. Part I describes how, in asbestosis cases, U.S. courts absolve plaintiffs from the requirement of proving the portion of the total injury for which each culpable exposer was responsible, and thereby, in effect, proceed on the fiction that asbestosis is an indivisible injury attracting joint and several liability. Part II investigates the origin of this *indivisibility-of-injury* doctrine in

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[1] *See infra* note 84.

[2] RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 15 (1998).

[3] James A. Henderson, Jr. & Aaron D. Twerski, Essay, *Intuition and Technology in Product Design Litigation: An Essay on Proximate Causation*, 88 GEO. L.J. 659, 660 (2000).

Borel v. *Fibreboard Paper Products Corp*,[4] while Part III argues that this special proof-of-causation doctrine could apply to any cumulative condition that the court is prepared to hold is not "reasonably capable of being divided" on the available evidence.

Part IV describes a second, far more radical doctrine concerning proof of causation that U.S. courts developed in claims for asbestos-related cancer whereby a plaintiff is allowed to establish factual causation against a defendant merely by showing that the defendant's tort exposed the plaintiff to a significant amount of asbestos and therefore to a significant risk of contracting an asbestos-related cancer. In effect, this allows the plaintiff to proceed on the basis that each significant exposure to the risks of asbestos was causally involved in the triggering of the cancer. Functionally, this doctrine is tantamount to the fiction that asbestos-related cancer is contracted by a threshold mechanism, which in turn explains why this doctrine is accompanied by a rule of joint and several liability. Part V argues that this *exposure-to-risk* doctrine, which allows proof of causation of a condition by merely proving exposure to the risk of that condition, could apply whenever a plaintiff sues for an indivisible condition (such as a cancer), the mechanism of which is unknown, and the defendant's tort made a substantial contribution to the *risk* of that condition being contracted. Such a rule has a truly explosive potential in the field of toxic torts beyond asbestos. Part VI investigates why these two extraordinary proof-of-causation doctrines have been neglected by the parties to asbestos claims, the academy, and the American Law Institute itself.

I. THE "INDIVISIBILITY-OF-INJURY" DOCTRINE IN ASBESTOSIS CASES

Under orthodox common law rules concerning causation, a tortfeasor is liable for an indivisible injury that would not have happened absent that party's breach. This is so even if there is another unrelated tortfeasor but for whom the injury would not have happened. For example, suppose a father, in breach of his duty of care, sends his eight-year-old son to a store to buy rat poison and the storekeeper, in breach of his duty of care, sells it to the boy. When the foreseeable happens and the boy, playing with the poison, ingests some and dies, the father is liable for the (entire) death and the shopkeeper is liable for the (entire) death: each is jointly and severally liable at common law.

In contrast, if the victim suffers "divisible" injuries, under orthodox common law rules concerning causation a tortfeasor is liable only for that portion of the disablement which would not have happened absent that party's breach. For example, suppose a mother, in breach of her duty of care, breaks a finger on her daughter's left hand. Later in a

[4] 493 F.2d 1076 (5th Cir. 1973).

completely unrelated incident a motorist, in breach of his duty, breaks the thumb on the girl's right hand. The mother is only liable for the disability that would have flowed from the broken finger alone ("several liability"): she would not be liable for the injury to the thumb or the increased disablement the thumb injury caused.

Asbestosis is a cumulative and therefore, at least in theory, "divisible" disease: the more asbestos dust that is inhaled, the worse the disablement of the victim. Where a plaintiff has undergone a sequence of asbestos exposures and sues the party responsible for the first exposure, orthodox common law rules would only support the plaintiff recovering for the degree of disablement that would have resulted from that exposure alone: the plaintiff simply cannot prove that this defendant was a factual cause of the aggravation of his condition due to later exposures, just as the daughter cannot show her mother was a factual cause of the increased disablement due to her broken thumb.

But, since the first successful products liability claim in 1973 in the case *Borel* v. *Fibreboard Paper Products Corp*.,[5] U.S. courts have absolved asbestosis plaintiffs from the requirement of proving the portion of the total injury for which each culpable exposer was responsible and have thereby, in effect, proceeded on the fiction that asbestosis is an indivisible injury (just like the poisoning death of the boy). Any defendant responsible for a significant early exposure is held jointly and severally liable for the total disablement of the plaintiff, as it is known at the time of trial. Similarly, a defendant responsible only for a late period of exposure is held liable for the total disablement: the plaintiff does not have to establish the degree to which the tort of this defendant enhanced his disability. A good illustration of the *Borel* approach as applied to asbestosis is *Norfolk & Western Ry. Co.* v. *Ayers*,[6] in which one asbestosis plaintiff had been exposed by the defendant for only three months and had worked with asbestos elsewhere as a pipe fitter for thirty-three years, yet the defendant was held liable for his total condition.

The *Products Liability Restatement* makes no mention of the *indivisibility-of-injury* doctrine, which assists plaintiffs to establish factual causation in relation to the cumulative disease of asbestosis. This neglect is particularly striking given that explicit black-letter treatment is given to other proof-of-causation doctrines in section 16, which, in part, reads:

> § 16. Increased Harm Due To Product Defect
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> (a) When a product is defective at the time of commercial sale or other distribution and the defect is a substantial factor in increasing the plaintiff's

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[5] *Id.*

[6] 538 U.S. 135, 143 (2003).

> harm beyond that which would have resulted from other causes, the product seller is subject to liability for the increased harm.
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> (b) If proof supports a determination of the harm that would have resulted from other causes in the absence of the product defect, the product seller's liability is limited to the increased harm attributable solely to the product defect.
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> (c) If proof does not support a determination under Subsection (b) of the harm that would have resulted in the absence of the product defect, the product seller is liable for all of the plaintiff's harm attributable to the defect and other causes. . . .[7]

The *Products Liability Restatement* gives the justification for subsection (c) as being that "[t]he defendant, a wrongdoer who in fact has caused harm to the plaintiff, should not escape liability because the nature of the harm makes such a determination impossible,"[8] and makes comparison to the related, and even more radical (because it shifts the burden of proof), rule in *Restatement (Second) of Torts*:

> § 433B Burden Of Proof
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> . . . .
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> (2) Where the tortious conduct of two or more actors has combined to bring about harm to the plaintiff, and one or more of the actors seeks to limit his liability on the ground that the harm is capable of apportionment among them, the burden of proof as to the apportionment is upon each such actor. . . .[9]

The rationale for section 433B(2) is given in comment d, namely that:

> [T]he injustice of allowing a proved wrongdoer who has in fact caused harm to the plaintiff to escape liability merely because the harm which he has inflicted has combined with similar harm inflicted by other wrongdoers, and the nature of the harm itself has made it necessary that evidence be produced before it can be apportioned. In such a case the defendant may justly be required to assume the burden of producing that evidence, or if he is not able to do so, of bearing the full responsibility.[10]

Importantly, in the context of how asbestosis cases have come to be treated, comment e sounds a warning about drawing the boundary line around the exceptional rule in section 433B(2):

> The cases thus far decided in which the rule stated in Subsection (2) has been applied all have involved a small number of tortfeasors, such as two or three. The possibility arises that there may be so large a number of actors, each of whom contributes a relatively small and insignificant part to the total harm, that the application of the rule may cause disproportionate hardship to defendants. Thus if a hundred factories each contribute a small, but still uncertain, amount of pollution to a stream, to hold each of them liable for the entire damage

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[7] RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 16 (1998).
[8] *Id.* § 16 cmt. d.
[9] RESTATEMENT (SECOND) OF TORTS § 433B(2) (1965).
[10] *Id.* § 433B cmt. d.

> because he cannot show the amount of his contribution *may perhaps be unjust*. Such cases have not arisen, possibly because in such cases some evidence limiting the liability always has been in fact available.[11]

By the time the *Products Liability Restatement* was adopted in 1998, there had been twenty-five years of experience of asbestos cases. The resolution of virtually all asbestosis cases, tens of thousands of cases by the time the *Products Liability Restatement* was drafted, paralleled the unorthodox rule in section 16(c), yet there is no mention of asbestos anywhere in this section, its accompanying comments, or Reporters' Note. The *Products Liability Restatement*'s silence on the point masks important questions concerning the operation of the U.S. tort system as it confronted its greatest threat, the asbestos disaster, such as why defendants in asbestosis cases had not tried to counter the devastating *indivisibility-of-injury* doctrine by bringing "proof [that] support[ed] a determination of the harm that would have resulted from other causes in the absence of the product defect" and thereby ensuring that the case was dealt with under the orthodox "several" liability rule of section 16(b).[12] In vehicle crashworthiness cases, defendants routinely did bring expert testimony offering a "rational explanation derived from a causal analysis"[13] to support the orthodox rule of "several liability:" indeed, these cases illustrated the orthodox rule of several liability set out in section 16(b) of the *Products Liability Restatement*.

Had this question been squarely addressed in the Restatement process, an important feature of U.S. law confronting toxic torts in the workplace would have been clearly exposed. It is well known among lawyers that for the vast majority of U.S. employees workers' compensation is their sole common law remedy against their employer for personal injuries suffered from the conditions of work. Lawyers specializing in products liability are equally conscious of the fact that this denial of tort remedies against employers fuelled the explosion of products claims after the adoption of section 402A of the *Restatement (Second) of Torts* as employees sought tort damages for their personal injuries by pursuing those who had supplied to their employers products that had been instrumental in causing their injuries. Thus, if an employee was injured by an unguarded cutting machine on which he had been unreasonably required to work by his employer, the employee would resort to suing those forming the chain of manufacture and supply of the machine, even where the machine had come with a guard that the employer had removed: the claim against these product suppliers would allege that such a machine was defective unless it had a guard that could not be removed.

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[11] *Id.* § 433B cmt. e (emphasis added).

[12] RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 16(b) (1998).

[13] *Id.* § 16 cmt. c.

Even within such a simple scenario, it is clear that a distortion of safety incentives results from the interaction between the sole remedy rule and the tort system: this is because a firm contender for being the cheapest cost avoider must be the employer who required the employee to work on an unguarded machine, yet the sole remedy rule prevents tort law from targeting this party with whatever deterrent effect its liability can generate. Even more profound are the distortions that are inevitably generated when the personal injury suffered by the employee is not by traumatic accident, such as having his arm severed by an unguarded blade, but by the exposure to toxic substances whose deleterious effect is latent. Here the typical number of implicated instrumentalities is significant: unlike our earlier plaintiff who knows the single instrumentality that was a cause of his traumatic injury, such as the unguarded machine, the victim of a toxic tort is likely to have been exposed to many versions of the agent implicated in his personal injury. Thus, even if an asbestosis victim had only one employer throughout his working life, it is likely that the asbestos to which he was exposed came from a variety of different manufacturers with each such chain of supply being composed of a number of mere suppliers between the manufacturer and the workplace.

In other major common law systems that do not impose a sole remedy rule on employees, this multiplicity of sources of the toxic agent does not greatly complicate the legal position of the asbestosis victim. This is because in relation to one period of exposure it is virtually always the case that such a victim sues only one defendant, his employer,[14] no matter with how many sources of asbestos the employer required the employee to work. Tracing the sources of the different asbestos agents is not required for the employee to succeed against his employer and the sequential nature of employment provides a viable, if crude, benchmark, which is needed to apply the several liability that orthodoxy requires should attach to a cumulative disease such as asbestosis.

In an English case, for example, a Mr. Holtby worked from 1942 to 1981 as a marine fitter and in this work he was exposed to asbestos dust. For approximately half this period he was employed by Brigham & Cowan (Hull) Ltd.; for the remainder he was employed by other employers doing similar work in similar conditions; in some cases for quite long periods, such as five years, in other cases for periods measured in months. Holtby sued Brigham & Cowan (Hull) Ltd. for his asbestosis, arguing that this employer was liable in respect of the whole resulting disability, subject only to such rights as that defendant had against other tortfeasors. The argument was roundly rejected by the Court of Appeal

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[14] Occasionally, the employee sues the occupier of premises on which he was required to work. *See, e.g.*, Fairchild v. Glenhaven Funeral Servs., Ltd., (2002) 1 A.C. 32 (H.L.) (appeal taken from England and Wales Court of Appeal (Civil Division) (U.K.)) (claim of Mr. Fairchild's widow against Waddingtons plc).

for England and Wales where, in the lead judgment, Lord Justice Stuart-Smith said:

> [T]he onus of proving causation is on the claimant; it does not shift to the defendant. He will be entitled to succeed if he can prove that the defendant's tortious conduct made a material contribution to his disability. But strictly speaking the defendant is liable only to the extent of that contribution. . . . I do not think that these cases should be determined on onus of proof. The question should be whether at the end of the day, and on consideration of all the evidence, the claimant has proved that the defendant is responsible for the whole or a quantifiable part of his disability. The question of quantification may be difficult and the court only has to do the best it can using its common sense . . . . Cases of this sort, where the disease manifests itself many years after the exposure, present great problems, because much of the detail is inevitably lost . . . [but] the court must do the best it can to achieve justice, not only to the claimant but also to the defendant, and among defendants.[15]

In contrast, in U.S. sole-remedy jurisdictions for every period of asbestos exposure the special products tort stated in section 402A of the *Restatement (Second) of Torts* provides the asbestosis victim with, in place of the employer, a chain of defendants stretching back from each asbestos agent to which the victim was exposed during that period. The dramatic confluence of the sole remedy rule and the "chain" liability of the special products tort linked to the specific asbestos agent represented a perfect storm confronting modern U.S. tort doctrine. Its first impact was felt in *Borel.*

II. *BOREL V. FIBREBOARD PAPER PRODUCTS CORPORATION*

Until *Borel* in 1973, asbestos-related injuries were overwhelmingly seen as an issue confined to the employees of asbestos miners and manufacturers. Since such employees were barred from suing their employers by the sole remedy rule, successful asbestos claims had been confined to the unglamorous realm of workers' compensation.[16] In contrast, Clarence Borel was not employed by an asbestos manufacturer or miner: he worked for a company that installed insulation. He was exposed to asbestos from 1936 until January 1969, when he was diagnosed with asbestosis. In October 1969, Borel filed suit against eleven asbestos manufacturers with whose products he had been required to work. In February 1970, Borel underwent surgery whereupon it was discovered that he "had a form of lung cancer known as mesothelioma, which had been caused by asbestosis."[17] Borel died before the case

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[15] Holtby v. Brigham & Cowan (Hull) Ltd., (2000) 3 All E.R. 421, 428 (A.C.) (U.K.).

[16] *See* Deborah R. Hensler & Mark A. Peterson, *Understanding Mass Personal Injury Litigation: A Socio-Legal Analysis*, 59 BROOK. L. REV. 961, 1003 (1993).

[17] Borel v. Fibreboard Paper Prods. Corp., 493 F.2d 1076, 1081-82, 1086 (5th Cir. 1973). Mesothelioma is not a form of lung cancer: it affects tissue outside the lung. MOSBY'S MEDICAL & NURSING DICTIONARY 706 (Walter D. Glanze ed., 2d ed. 1986). It is also important to note that mesothelioma is not caused by asbestosis. *See infra* note 40 and accompanying text.

reached trial. At trial the jury found, inter alia, that all defendants were liable under the special products tort that is stated in section 402A of the *Restatement (Second) of Torts*, a finding the defendants appealed to the Fifth Circuit. In September 1973, the verdict in Borel's favor was upheld by the Fifth Circuit, which, following the plaintiff,[18] treated the claim as one for asbestosis.

The Fifth Circuit freely acknowledged that asbestosis was a cumulative disease and that, therefore, each inhalation was a factual cause of some part of the total injury:

> It is undisputed . . . that Borel contracted asbestosis from inhaling asbestos dust and that he was exposed to the products of all the defendants on many occasions. It was also established that the effect of exposure to asbestos dust is cumulative, that is, each exposure may result in an additional and separate injury. We think, therefore, that on the basis of strong circumstantial evidence the jury could find that each defendant was the cause in fact of some injury to Borel.[19]

Moreover, the court also acknowledged the orthodox rule that "[i]n general, a defendant is liable only for that portion of the harm which he in fact caused."[20] But the court noted that:

> A problem arises, however, where, as here, several causes combine to produce an injury that is not reasonably capable of being divided. In the instant case, the trial court resolved this issue by holding the defendants jointly and severally liable for the entire harm. Asserting error, the defendants argue that if the injury cannot be reasonably apportioned, the plaintiff must bear the entire loss unless it can be shown that the tortfeasors acted in concert or with unity of design.[21]

In rejecting the defendant's appeal to the orthodox rule, the court described the sea change wrought by the Supreme Court of Texas in *Landers v. East Texas Salt Water Disposal Co*.[22] In that case, the plaintiff owned a small lake that he had stocked with fish at considerable expense. Around April 1, 1949, the nearby pipe line of a salt water disposal company broke and a large quantity of salt water flowed over plaintiff's land and into his lake. Around the same time another nearby but unrelated pipe line owned by an oil company broke, and large quantities of oil and salt water escaped, finding their way into the plaintiff's lake. All the fish died from the resultant pollution, but orthodoxy required the plaintiff to prove "with reasonable certainty what portion of the total damage was attributable to each defendant."[23] This he was unable to do.

In *Landers* it was distasteful to the Supreme Court of Texas that orthodoxy:

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[18] *Borel*, 493 F.2d at 1081, 1086.
[19] *Id.* at 1094.
[20] *Id.*
[21] *Id.*
[22] 248 S.W.2d 731, 731-32 (Tex. 1952).
[23] *Borel*, 493 F.2d at 1095.

> denies to a plaintiff the right to proceed to judgment and satisfaction against the wrongdoers separately because in such a suit he cannot discharge the burden of proving with sufficient certainty, under pertinent rules of damages, the portion of the injury attributable to each defendant. . . . [The Court rejected] the philosophy . . . that it is better that the injured party lose all of his damages than that any of several wrongdoers should pay more of the damages than he individually and separately caused. If such has been the law, from the standpoint of justice it should not have been; if it is the law now, it will not be hereafter. . . . Where the tortious acts of two or more wrongdoers join to produce an indivisible injury, that is, an injury which from its nature cannot be apportioned with reasonable certainty to the individual wrongdoers, all of the wrongdoers will be held jointly and severally liable for the entire damages . . . .[24]

The Supreme Court of Texas noted that "the burden of proving the share contributed to the injury by each of the wrongdoers" could be, as it was on the *Landers* facts, just as onerous as in cases of simultaneous negligent collision, where there was neither concert of action nor unity of design and where courts have long sanctioned the imposition of joint and several liability.[25] The *Landers* rule was set out in *Restatement (Second) of Torts* section 433B(2)[26] while the Fifth Circuit in *Borel*, following the views of Prosser and Wigmore, reformulated it as:

> Where several defendants are shown to have each caused some harm, the burden of proof (or burden of going forward) shifts to each defendant to show what portion of the harm he caused. If the defendants are unable to show any reasonable basis for division, they are jointly and severally liable for the total damages.[27]

Of course, once we focus on the approach in *Landers* and *Borel*, we are led to ask whether all victims of cumulative toxic torts, even outside the areas of water pollution and asbestos, might claim the advantage of this *indivisibility-of-injury* doctrine when attempting to establish factual causation.

III. CAN ALL VICTIMS OF CUMULATIVE TOXIC TORTS ACCESS THE "INDIVISIBILITY-OF-INJURY" DOCTRINE?

It does not appear that the *Borel* defendants made any attempt to bring evidence to quantify their separate contributions to the total disability of Mr. Borel. The reasons for this defense omission are unclear: perhaps the defense lacked coordination; perhaps there was over-confidence among defendants that they would prevail on other aspects of the appeal; or perhaps the defendants believed that the *Landers* rule would not be extended to the context of workplace toxic

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[24] *Landers*, 248 S.W.2d at 734.
[25] *Id.* at 735.
[26] *See supra* note 9 and accompanying text.
[27] *Borel*, 493 F.2d at 1095.

torts. Of course, once that extension was made, the defense omission proved fatal to their argument against joint and several liability.

An important consequence of the defense omission is that we do not know what quantification evidence could have been brought on the facts and by what criteria courts might have assessed whether it was sufficiently sound to support the orthodox rule of several liability for asbestosis defendants. What would the Fifth Circuit in *Borel* have required of the defendants to show that the asbestosis was "reasonably capable of being divided?"[28] We do not know. Similarly, we do not know what the Supreme Court of Texas in *Landers* would have required of defendants to prove "with sufficient certainty . . . the portion of the injury attributable to each defendant"[29] and thereby entitle the polluters to the orthodox rule of several liability. What is initially surprising is that later asbestosis defendants do not seem to have pursued these issues in an attempt to avoid the joint and several liability that had been imposed in *Borel*.

Certainly, once the *Borel* court had shown it was willing to use *Landers* to impose joint and several liability on an asbestosis defendant, future asbestosis plaintiffs had a further incentive to sue as many defendants as possible so as to undermine any defense argument that the asbestosis was "reasonably capable of being divided"[30] among the responsible parties. Of course, the practice of asbestosis plaintiffs naming very large numbers of defendants raised the issue of whether extension of the exceptional rule in section 433B(2) to cases where there are a large number of defendants "may perhaps be unjust," as foreshadowed by comment e to section 433B,[31] but no asbestosis defendant seems to have tried to resist the rule on this or any other grounds.[32]

Notice also that whereas the typical lack of fungibility of asbestos sources prevents most asbestos plaintiffs from securing the limited benefits of the market share doctrine,[33] here that lack of

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[28] *Id.* at 1094.

[29] *Landers*, 248 S.W.2d at 734.

[30] *Borel*, 493 F.2d at 1094.

[31] *See* RESTATEMENT (SECOND) OF TORTS § 433B cmt. e (1965); *supra* text accompanying note 11.

[32] This is in contrast to the use of the fairness-to-defendants argument in pollution cases such as *In re Methyl Tertiary Butyl Ether ("MTBE") Products Liability Litigation*, 447 F. Supp. 2d 289 (S.D.N.Y. 2006), and *In re Bell Petroleum Services, Inc.*, 3 F.3d 889 (5th Cir. 1993).

[33] Under the market share doctrine the claimant need not establish that the defendant's agent was the one that injured her. *See, e.g.*, Sindell v. Abbott Labs., 607 P.2d 924, 937 (Cal. 1980). But in the interests of an equitable trade-off, liability under the market-share doctrine is proportionate. *See* Brown v. Superior Court, 751 P.2d 470, 485-87 (Cal. 1988). It is noteworthy that the California Supreme Court, which created the doctrine, has characterized it as one that assists a plaintiff to leap an evidentiary gap in proving causation to a defendant. *See* Jolly v. Eli Lilly & Co., 751 P.2d 923, 930 (Cal. 1988) ("*Sindell* merely bridged the causal gap between DES manufacturers as a group and plaintiff's injury."). Contrast what must be a different characterization in New York, where a defendant cannot exculpate itself under this doctrine even if it can prove its product could not have been involved in the plaintiff's injury. *See* Hymowitz v. Eli Lilly, Co., 539 N.E.2d 1069,

fungibility works strongly in the plaintiff's favor because it increases the force of the plaintiff's argument that quantification of separate contributions is not feasible as a practical matter and that, therefore, the defendant should be jointly and severally liable for the asbestosis on the basis given in *Borel*.

In short, since 1973 U.S. courts have applied what I will call "the *Borel* approach," namely allowing asbestos plaintiffs to prove factual causation to any asbestos-related disease merely by showing a significant exposure to asbestos from the defendant's tort. What this means for the asbestosis plaintiff is that he can establish that a defendant was a factual cause of (and jointly and severally liable for) his entire condition merely by showing that the defendant's tort exposed the plaintiff to a significant amount of asbestos. This is tantamount to providing the asbestosis plaintiff with the benefit of an *indivisibility-of-injury* fiction: that, though we know asbestosis is in fact a cumulative disease, it will be treated in law as indivisible.

Next: In the context of other cumulative conditions, how generally available is this *indivisibility-of-injury* doctrine? There is no indication, or conceivable reason of principle why, this proof-of-causation doctrine is limited to asbestosis, to workplace injuries, or to injuries caused through the instrumentality of a product. So, is it the case that U.S. tort law recognizes the following radical proof doctrine for cumulative toxic torts?

The indivisibility-of-injury *doctrine for proof of factual causation in cumulative toxic torts:* That whenever a plaintiff sues a defendant for a cumulative condition and the court is satisfied that it is not "reasonably capable of being divided" on the available evidence, a rule of joint and several liability, tantamount to a fiction of the injury being indivisible, will be imposed on the defendant?

Or are there further limits to the rule? First, suppose, for example, that a plaintiff suffers from accumulated hearing loss.[34]

1078 (N.Y. 1989). For asbestos-related cases refusing application of market share liability because of non-fungibility, see Starling v. Seaboard Coast Line Ry. Co., 533 F. Supp. 183, 191 (S.D. Ga. 1982); Vigiolto v. Johns-Manville Corp., 643 F. Supp. 1454, 1463 (W.D. Pa. 1986), *aff'd*, 826 F.2d 1058 (3d Cir. 1987); Stevens v. Owens-Corning Fiberglas Corp., 57 Cal. Rptr. 2d 525, 540 (1996); Mullen v. Armstrong World Indus., Inc., 246 Cal. Rptr. 32, 37 (1988); Celotex Corp. v. Copeland, 471 So. 2d 533, 537-38 (Fla. 1985); *see also* DAVID G. OWEN ET AL., 2 MADDEN & OWEN ON PRODUCTS LIABILITY § 24:7, at 662 & n.6 (3d ed. 2000). The benefits of the market share doctrine are limited in the sense that a defendant is not jointly and severally liable for the plaintiff's entire condition.

[34] For an illustration of how the orthodox rule of several liability is applied to this cumulative condition, see Thompson v. Smiths Shiprepairers (North Shields) Ltd., [1984] 1 Q.B. 405 (U.K.). In *Thompson*, plaintiffs had been engaged in the ship repair industry, where they had been exposed to excessive noise over extended periods of their employment, which resulted in deafness. All excessive noise had contributed to their disabilities, but the defendant employers were not found guilty of negligence until 1963. By that time, considerable damage had been done, though it was not recognizable. *Id.* at 405-06. Mustill, J., stated:

> The defendants as well as the plaintiffs are entitled to a just result. If we know—and we do know, for by the end of the case it was no longer seriously in dispute—that a

Suppose further that it is established that some of that loss, a small but not reasonably quantifiable part, was due to the tort of the defendant while other contributions to the loss came from innocent sources such as an accidental exposure to a lightning strike. Can the plaintiff invoke the *indivisibility-of-injury* doctrine to render the defendant liable for the plaintiff's entire hearing loss? Or does the *indivisibility-of-injury* doctrine rule only come into effect when all contributions to the cumulative condition were tortious?[35]

Secondly, in *Borel* the Court did not explicitly require that the plaintiff join those responsible for all sources of asbestos to which Mr. Borel was exposed,[36] and later courts certainly did not regard this as a pre-requisite before asbestosis plaintiffs could claim the benefit of the *indivisibility-of-injury* doctrine and its powerful corollary of joint and several liability.[37] But if this is the case, it generates a peculiar anomaly that can be illustrated with an example of lead poisoning (which is a cumulative condition: the more lead ingested, the worse the disablement). Let us assume for the sake of simplicity that when it is discovered that a child is suffering from lead poisoning it can be established that all possible sources of the lead ingested by the child were tortious, though because of their number and complexity it is not possible to prove "with sufficient certainty . . . the portion of the"[38] child's total condition attributable to each lead source.

> substantial part of the impairment took place before the defendants were in breach, why in fairness should they be made to pay for it? The fact that precise quantification is impossible should not alter the position. . . .
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> Thus, whatever the position might be if the court were to find itself unable to make any findings at all on the issue of causation and was accordingly being faced with a choice between awarding for the defendants in full, or for the plaintiffs in full, or on some wholly arbitrary basis such as an award of 50 per cent., I see no reason why the present impossibility of making a precise apportionment of impairment and disability in terms of time, should in justice lead to the result that the defendants are adjudged liable to pay in full, when it is known that only part of the damage was their fault. What justice does demand, to my mind, is that the court should make the best estimate which it can, in the light of the evidence, making the fullest allowances in favour of the plaintiffs for the uncertainties known to be involved in any apportionment. In the end, notwithstanding all the care lavished on it by the scientists and by counsel I believe that this has to be regarded as a jury question, and I propose to treat it as such.

Id. at 443-44. Note that in Britain, exercises in quantification in relation to cumulative conditions "have now become commonplace, following the decision of Mustill J in *Thompson v Smiths Shiprepairers Ltd* [1984] QB 405, whether as between successive employers or as between tortious and non-tortious exposure by the same employer." Barker v. Corus UK Ltd., [2006] 2 A.C. 572, ¶ 123 (H.L.) (U.K.) (Baroness Hale of Richmond, concurring).

[35] *Compare* RESTATEMENT (SECOND) OF TORTS § 433B(2) (1965), *with id.* § 433B cmt. d (suggesting that this rule is limited to cases where all contributions were tortious).

[36] Contrast the related but distinct relaxation-of-causal-proof rule in *Summers* v. *Tice*, 199 P.2d 1, 4-5 (Cal. 1948) (en banc), restated in RESTATEMENT (SECOND) OF TORTS § 433B(3) (1965), discussed *infra* note 42 and accompanying text.

[37] *See, e..g.*, Lipke v. Celotex Corp., 505 N.E.2d 1213, 1221 (Ill. App. Ct. 1987).

[38] *See supra* note 24 and accompanying text.

What prevents such a child from using the *indivisibility-of-injury* doctrine to impose joint and several liability on the party responsible for just one such exposure, say the manufacturer of the lead-based paint that lined the rental property where the child spent a year when he was growing up, and which he ingested from accessible painted surfaces, paint chips, and paint flakes and dust?[39] And if the *indivisibility-of-injury* doctrine *is* available to our lead-poisoned child, why has this exceptionally powerful and valuable proof-of-causation doctrine not been exploited by plaintiffs' lawyers and analyzed in detail in the law reviews?

As striking as this *indivisibility-of-injury* doctrine is, a profoundly more radical doctrine was deployed to assist victims of asbestos-related cancers. We now turn to this judicial creation and its explosive potential for toxic tort liability.

IV. THE "EXPOSURE TO RISK" DOCTRINE IN MESOTHELIOMA AND OTHER ASBESTOS-CAUSED CANCERS CASES

Mesothelioma (a cancer of the of the mesothelial cells that line the internal chest wall and surround the organs of the chest cavity) and lung cancer (bronchogenic carcinoma) are cancers caused by asbestos, but they are not thought to be a complication of asbestosis.[40] Though a person with asbestosis may develop one of these asbestos-related cancers, his asbestosis and his asbestos-related cancer are merely epiphenomena of the inhalation of asbestos: both are caused by the inhalation but the former phenomenon (asbestosis) does not cause the latter (asbestos-related cancer). Moreover, asbestos-related cancer is not a cumulative disease in which each inhalation of asbestos generates a certain amount of disability: while it is true that the more a person is exposed to asbestos the more likely it is that an asbestos-related cancer will be contracted, once contracted the severity of the disablement is

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[39] Compare the imposition of a form of market share liability in *Thomas ex rel. Gramling v. Mallett*, 701 N.W.2d 523, 527 (Wis. 2005). Note that attempts by plaintiffs in lead poisoning cases to invoke the burden-shifting rule of alternative liability under RESTATEMENT (SECOND) OF TORTS § 433B(3) (1965) failed in several cases. *See, e.g.*, Philadelphia v. Lead Indus. Ass'n, Inc., 994 F. 2d 112, 125 (3d Cir. 1993); Swartzbauer v. Lead Indus. Ass'n, Inc., 794 F. Supp. 142, 147 (E.D. Pa. 1992); Jackson v. Glidden Co., No. 87779, 2007 WL 184662, at *4 (Ohio App. Jan. 25, 2007); Skipworth *ex rel.* Williams v. Lead Indus. Ass'n, Inc., 690 A.2d 169, 172 (Pa. 1997). *But see* Canada *ex rel.* Landy v. McCarthy, 567 N.W.2d 496, 499, 503 (Minn. 1997). In a case involving successive lead-paint poisonings suffered by the minor plaintiff at separate rental properties, the trial court determined that plaintiff's injuries *were* divisible, a ruling not challenged on appeal, and went on to instruct the jury to apportion among multiple tortfeasors damages between pre-July 1992 lead poisoning and damages occurring after that time. *Id.* at 508.

[40] *See* Employers' Liability Policy "Trigger" Litigation, [2008] EWHC 2692, ¶ 25 (QB) (U.K.) (Burton, J.) ("Notwithstanding that for some time . . . mesothelioma was, it seems, thought to be a development, or aspect, of asbestosis even by those dealing with insurance claims in relation to it, it is a quite separate disease."). This judgment contains a sophisticated account of the current state of knowledge concerning mesothelioma aetiology.

independent of the amount of asbestos to which the victim had been exposed. An asbestos-related cancer is an "indivisible" condition.

The crucial point to note about asbestos-related cancer is that we do not know the basic mechanism by which the cancer is triggered. On the one hand, the mechanism could be that the cancer is triggered by a single fiber. If we knew this to be the mechanism, courts might allow asbestos-related cancer plaintiffs to jump the evidentiary gap they face in proving that it was the fiber of an individual defendant that triggered the cancer by crafting an extension[41] of the well-known alternative liability rule in *Summers* v. *Tice*,[42] restated in the *Restatement (Second) of Torts* section 433B(3) as:

> Where the conduct of two or more actors is tortious, and it is proved that harm has been caused to the plaintiff by only one of them, but there is uncertainty as to which one has caused it, the burden is upon each such actor to prove that he has not caused the harm.[43]

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[41] It would need to be an extension, because it would need to be free of two features of the *Summers v. Tice* case, discussed *infra* note 42, which have been taken to be pre-requisites of the alternative liability rule. These pre-requisites require that (1) all tortfeasors are named as defendants and (2) that their tortious conduct had been at the same time. Importantly, comment h to section 433B reads:

> The cases thus far decided in which the rule stated in Subsection (3) has been applied all have been cases in which all of the actors involved have been joined as defendants. All of these cases have involved conduct simultaneous in time, or substantially so, and all of them have involved conduct of substantially the same character, creating substantially the same risk of harm, on the part of each actor. It is possible that cases may arise in which some modification of the rule stated may be necessary because of complications arising from the fact that one of the actors involved is not or cannot be joined as a defendant, or because of the effect of lapse of time, or because of substantial differences in the character of the conduct of the actors or the risks which they have created. Since such cases have not arisen, and the situations which might arise are difficult to forecast, no attempt is made to deal with such problems in this Section. The rule stated in Subsection (3) is not intended to preclude possible modification if such situations call for it.

RESTATEMENT (SECOND) OF TORTS § 433B cmt. h (1965).

Mesothelioma plaintiffs have been refused the assistance of the alternative liability rule in section 433B(3) in many cases. *See, e.g.*, Marshall v. Celotex Corp., 651 F. Supp. 389, 392 (E.D. Mich. 1987) (plaintiff's failure to name as defendants all those who possibly could have caused the injury precluded the application of alternative liability); Vigiolto v. Johns-Manville Corp., 643 F. Supp. 1454, 1457 (W.D. Pa. 1986) (alternative liability would not lie because it was not certain that all parties who possibly could have caused the injury were joined as defendants), *aff'd* 826 F.2d 1058 (3d Cir. 1987); Rutherford v. Owens-Illinois, Inc., 941 P.2d 1203, 1216-21 (Cal. 1997); Black v. Abex Corp., 603 N.W.2d 182, 192 (N.D. 1999) (alternative liability theory was not applicable where all possible defendants were not named); Goldman v. Johns-Manville Sales Corp., 514 N.E.2d 691, 696-99 (Ohio 1987); Gaulding v. Celotex Corp., 772 S.W.2d 66, 69 (Tex. 1989) (rejecting an alternative liability theory where plaintiff did not join all possible defendants).

[42] The radical proof-shifting rule in *Summers v. Tice*, 199 P.2d 1, 4-5 (Cal. 1948) (en banc), is accompanied by joint and several liability. Strictly, application of the *Summers* rule is confined to cases where the injury could *only* have been caused by one party. It could therefore only apply where there had only been one asbestos source and it is not known who supplied that source, as in the mesothelioma case of *Gaulding* v. *Celotex Corp*., 772 S.W.2d 66 (Tex. 1989).

[43] RESTATEMENT (SECOND) OF TORTS § 433B(3) (1965). The *Summers* rule is also restated in RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL HARM (BASIC PRINCIPLES) § 28 (b) (Proposed Final Draft No. 1, 2005).

But we *do not* know that the mechanism that triggers asbestos-related cancer is the single-fiber, let alone, if it is, whether the most likely fiber was one during early exposure or one during a later exposure.

On the other hand, the mechanism might be one in which the cancer is only triggered when a threshold burden of many fibers accumulates in the lungs. If we knew this to be the mechanism, courts could confidently assume every exposure up until this triggering moment was causally involved in the cancer occurring and could confidently apply joint and several liability. But this approach is also not available in asbestos-related cancer cases under orthodox rules because it cannot be established that the mechanism of such a cancer is triggered by a threshold burden of fibers triggering the disease.

The most that can be said about the mechanism of an asbestos-related cancer is that, while it can be shown that each exposure to asbestos materially increased the *risk* of the disease, scientifically it cannot be shown that any specific one of a series of exposures materially contributed to the plaintiff's asbestos-related cancer. This is in stark contrast to the cumulative disease of asbestosis. So, whereas in the context of asbestosis it is accurate for the Proposed Final Draft of the Third Restatement to state that "all of the asbestos products to which the plaintiff was exposed *contributed* to the harm,"[44] this statement is simply wrong when applied to the context of asbestos-related cancers.

Under orthodox rules requiring the plaintiff to prove the defendant was the factual cause of his asbestos-related cancer, this lack of scientific understanding should prove fatal to virtually all asbestos-related cancer claims. So, for example, if an asbestos-related cancer victim had been exposed in sequence to asbestos from defendant A, then to asbestos from defendant B, and then to asbestos from defendant C, he will be unable to prove factual cause against any of the defendants under orthodox rules of proving causation.

But, as we have seen, since 1973 U.S. courts have applied "the *Borel* approach," namely allowing asbestos plaintiffs to prove factual causation to any asbestos-related disease merely by showing a significant exposure to asbestos from the defendant's tort. What this means for the victim of an asbestos-related cancer is that he can establish that a defendant was a factual cause of (and jointly and severally liable for) his cancer merely by showing that the defendant's tort exposed the plaintiff to a significant amount of asbestos and therefore to a significant risk of contracting an asbestos-related cancer. In effect, the case proceeds on the basis that each and every significant exposure to the risks of asbestos was causally involved in the triggering of the cancer, a basis that is tantamount to the fiction that asbestos-related cancer is contracted by a

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[44] RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL HARM (BASIC PRINCIPLES) § 28 cmt. *l* (Proposed Final Draft No. 1, 2005) (emphasis added). Unfortunately the Proposed Final Draft does not limit this statement to the asbestosis context.

threshold mechanism. As with the *indivisibility-of-injury* doctrine for the cumulative disease of asbestosis, the *Products Liability Restatement* makes no mention of this *exposure-to-risk* doctrine by which plaintiffs can establish factual causation in relation to indivisible asbestos-related cancers.

V. CAN VICTIMS OF TOXIC TORTS SUFFERING INDIVISIBLE INJURIES ACCESS THE "EXPOSURE TO RISK" DOCTRINE?

In *Borel*, the Fifth Circuit virtually ignored the mesothelioma aspect of Mr. Borel's condition. As noted earlier, the case was treated as a claim for his asbestosis and the Court simply assumed, wrongly, that the mesothelioma had been caused by the asbestosis.[45] It is understandable why neither the defendants nor the plaintiff gave the mesothelioma any independent attention: since the asbestosis from which Mr. Borel was suffering was very advanced by the time the mesothelioma was discovered,[46] the latter did not affect the value of the claim in any significant way.

Later when plaintiffs made "pure" mesothelioma and asbestos-related lung cancer claims (that is claims that did not also claim accompanying asbestosis), courts imposed no more than the minimal requirements that the *Borel* court had laid down for the proof of asbestosis: thus, once the plaintiff could show that the tort of the defendant had resulted in him being exposed to significant quantities of asbestos, that defendant could be held jointly and severally liable for *any* asbestos-related condition, including asbestos-related cancer. As we have seen, in the context of asbestos cancers this *Borel* approach was tantamount to assuming that asbestos-related cancer is contracted by a threshold mechanism and that, therefore, every exposure to asbestos is taken to have been causally involved in that disease occurring.

In some early asbestos-related cancer cases the medical testimony supported that assumption. For example, in *Eagle-Picher Industries, Inc. et al. v. Balbos*,[47] the Court of Appeals of Maryland noted that:

> [A] medical expert for the plaintiffs testified that "all of [the] exposures to asbestos were a significant contributing causal factor to the mesothelioma," because the causation is "cumulative." The defendants' medical expert also

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[45] *See supra* note 17.

[46] Mesothelioma can take forty years or more to manifest itself. Thus, by that time many, if not all, of the employees who worked in asbestos industries in the early part of the twentieth century, and were at risk of mesothelioma, would have contracted asbestosis and died of that or other diseases before any mesothelioma developed or was revealed. *See, e.g.*, Employers' Liability Policy "Trigger" Litigation, [2008] EWHC 2692, ¶ 25 (QB) (U.K.).

[47] 604 A.2d 445 (Md. 1992).

> believed that a person must reach an undefined "threshold" of asbestos exposure before exposure will cause mesothelioma.[48]

But soon astute judges began to acknowledge the lack of medical understanding of the aetiology of asbestos-related cancers and therefore the real challenge that asbestos-related cancer claims presented to orthodox legal analysis. For example, in *Lineaweaver v. Plant Insulation Co*.,[49] Associate Justice Newsom noted in concurrence that:

> [T]he majority assumes that plaintiffs may be able to prove that asbestos disease is "cumulative in nature." The evidence regarding asbestosis in the present case indeed supports this assumption; the disease was described as resulting from a progressive scarring of the lungs. But cases involving mesothelioma—the fatal cancer which is the other principal asbestos-related disease—will involve quite different testimony. I do not think we can easily assume that this disease reflects the cumulative impact of exposure to asbestos fibers over time, though the odds of contracting it may go up with increased exposure. In any event, the courts should not invoke scientific assumptions of this kind in justifying a rule of general application.[50]

A very important case in which the court acknowledged the scientific uncertainty regarding the mechanism by which inhalation of asbestos leads to asbestos-related cancer was *Rutherford v. Owens-Illinois, Inc.*,[51] where the victim had died of lung cancer (not mesothelioma cancer). In *Rutherford*, the Californian Supreme Court exposed the way in which the application of the *Borel* approach (namely, allowing plaintiffs to proceed on the basis that every exposure to asbestos was causally involved in the contraction of their asbestos disease) to indivisible asbestos-related cancer cases rested on the fiction that asbestos-related cancer is contracted by a threshold mechanism. The Court observed that:

> [I]f each episode of scarring contributes cumulatively to the formation of a tumor or the conditions allowing such formation, each significant exposure by the plaintiff to asbestos fibers would be deemed a cause of the plaintiff's cancer.[52]

In other words, if we knew that the mechanism was that the cancer is only triggered when a threshold burden of many fibers accumulates in the lungs, every exposure that deposited one of these fibers[53] would uncontroversially be a factual cause of the triggering. Each fiber would

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[48] *Id.* at 459 (alteration in original).

[49] 37 Cal. Rptr. 2d 902 (Ct. App. 1995).

[50] *Id.* at 910 (Newsom, J., concurring).

[51] 941 P.2d 1203, 1207 (Cal. 1997).

[52] *Id.* at 1218.

[53] In the case of "negligible" exposures, it could not be concluded that even one fiber would have been ingested. As a result, factual cause could not be established. Hence, plaintiffs must establish against each defendant at least a *non-negligible* exposure.

be an actual contributing cause, and joint and several liability would follow.

The Court also observed that if we knew that the cancer is triggered by a single fiber, the case would be "analogous"[54] to the facts of *Summers v. Tice* in that the mechanism of the injury would have been known; there would have been no actual "contributing or concurrent causation" because only one exposer would in fact have furnished the relevant single fiber; and yet the plaintiff would be "without the evidentiary means whatsoever to prove from which [exposure] the injurious single pellet" had originated.[55] But the Court refused to allow asbestos-related cancer plaintiffs to access the burden-shifting rule of alternative liability from *Summers* on the grounds that, inter alia,[56] the mechanism of the asbestos-related cancer was not known to be that of a single fiber. As we shall see, the Court also justified its view that the doctrine of alternative liability was unavailable by boldly asserting that the asbestos-related cancer plaintiffs *did* have the means of proving factual cause against a defendant.

The Court and the parties all appreciated that the most that could be said about the aetiology of asbestos-related cancers was that exposure to asbestos increased the *risk* of the cancer occurring: indeed, the parties argued their case in terms of exposure to risk:

> Medical testimony was also presented to establish that the plaintiffs' asbestos-related disease was "dose-related"—i.e., that the *risk* of developing asbestos-related cancer increased as the total occupational dose of inhaled asbestos fibers increased. Dr. Allan Smith . . . testified that asbestos-related lung cancers are dose-related diseases, and that all occupational exposures through the latency period can contribute to the *risk* of contracting the diseases. Owens-Illinois's own medical expert . . . testified that asbestos-related cancers are dose responsive, and that if a worker had occupational exposure to many different asbestos-containing products, each such exposure would contribute to the degree of *risk* of contracting asbestos-related lung cancer . . . .[57]

So, in a bold sleight of hand the Court merely asserted that "asbestos plaintiffs can meet their burden of proving legal causation under traditional tort principles, without the need for an 'alternative liability' burden-shifting instruction."[58] The court reasoned that:

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[54] *Rutherford*, 941 P.2d at 1218.

[55] *Id.* at 1215, 1218.

[56] *Id.* at 1217 (noting other reasons such as the fact that not all tortfeasors were named as defendants and "that different toxicities and brands of asbestos products and their differing effects on different asbestos-related diseases make it inappropriate to apply a *Summers* alternative liability/burden-shifting rule to asbestos cases"); *see also supra* note 42.

[57] *Rutherford*, 941 P.2d at 1209 (emphasis added).

[58] *Id.* at 1213; *see also* Tragarz v. Keene Corp., 980 F.2d 411, 421 (7th Cir. 1992) ("[T]he frequency, regularity, and proximity test becomes even less rigid for purposes of proving substantial factor when dealing with cases in which exposure to asbestos causes mesothelioma. . . . [Because] mesothelioma can result from minor exposures to asbestos products . . . there is ample medical testimony and other evidence indicating that even a minimal exposure to asbestos *can* induce or *contribute to* the development of mesothelioma. . . . The record . . . contains ample

> [I]n asbestos-related cancer cases, a particular asbestos-containing product is deemed to be a substantial factor in bringing about the injury if its contribution to the plaintiff or decedent's *risk* or *probability* of developing cancer was substantial.[59]

While it is true that the exposure to asbestos due to one tortfeasor contributes to the total cancer risk faced by a plaintiff, to treat this contribution to total *risk* as equivalent in law to a contribution to the indivisible *cancer* the plaintiff contracts is hardly allowing plaintiffs to prove factual cause against that defendant simply "under traditional tort principles."[60] Nevertheless, despite the Court's lack of candor, its approach confirms that the application of the *Borel* approach to asbestos-related cancer cases rests on a radical fiction and illustrates how it is that plaintiffs with such claims are allowed to establish factual cause when the mechanism of their disease is not established.

If it is appropriate, as the California Supreme Court tells us it is, to treat every non-negligible exposure to risk as a factual cause, this must mean that we are proceeding on the idea (a fiction) that every asbestos fiber was involved in the cancer mechanism: and this would only be the case in an indivisible disease such as cancer if that were a threshold mechanism. In other words, the *risk contribution* explanation of why an asbestos-related cancer plaintiff is permitted to establish factual cause against an individual exposer confirms our characterization that this permission rests on the fiction of a threshold mechanism for asbestos cancer.

How do we know that the California Supreme Court intended its *risk contribution* explanation to relate merely to the issue of proof of factual cause rather than to recognize, in an even more radical[61] move, that risk creation is itself actionable?[62] It is because the Court made no attempt to deny the plaintiff's claim that the defendant was jointly and severally liable for the entire cancer (absent legislative abrogation). It approved the jury verdict that Owens-Illinois was liable for 100% of the plaintiff's economic losses even though the jury had concluded that the Owens-Illinois contribution to the total risk was only 1.2%.[63]

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evidence that low exposures of asbestos induce and *contribute* to the development of mesothelioma . . . ." (emphasis added)).

[59] *Rutherford*, 941 P.2d at 1219. The plaintiffs still had the burden of proof that the individual defendant was responsible for a *non-negligible* amount of exposure. Indeed, this was the central issue of dispute in the case. *See id.* at 1220; *see generally* Joseph Sanders et al., *The Insubstantiality of the "Substantial Factor" Test for Causation*, 73 MO. L. REV. 399 (2008) (discussing proof of causation and the substantial factor test).

[60] *Rutherford*, 941 P.2d at 1213.

[61] Apart from market share liability (which, as we have seen, has been regarded as inapplicable to asbestos cases), there is no orthodox principle to justify a defendant being liable to a plaintiff only for a proportion of the latter's indivisible injury.

[62] *Compare* Mark A. Geistfeld, *The Doctrinal Unity of Alternative Liability and Market-Share Liability*, 155 U. PA. L. REV. 447, 496-97 (2006), *with* Sanders et al., *supra* note 59, at 426-27.

[63] *Rutherford*, 941 P.2d at 1225. Proposition 51, adopted in 1986, provides that in a tort action governed by principles of comparative fault, a defendant shall not be jointly liable for the

Of course, it is to be regretted that the California Supreme Court did not squarely admit the radical nature of the *exposure-to-risk* doctrine (i.e., contribution to risk is deemed contribution to indivisible cancer) and the fiction of a threshold mechanism on which it rests. One consequence is that it evaded the explosive issue of whether this special doctrine, which applies to proof of factual causation in asbestos cancer cases, *should* be accompanied by joint and several liability. Similarly, had the *Rutherford* court been more candid about this radical doctrine, it would have triggered a long-overdue debate about what the limits of that doctrine are.

So, at least now we might ask: how general is, or should be, this special proof of causation doctrine resting on *exposure-to-risk*? There is no indication, or conceivable reason of principle why, the rule is limited: to asbestos-related cancer cases; to workplace injuries; or to injuries caused through the instrumentality of a product. On the basis that "[p]laintiffs cannot be expected to prove the scientifically unknown details of carcinogenesis,"[64] is it the case that U.S. tort law recognizes the following radical doctrine for indivisible conditions?

The exposure-to-risk *doctrine for proof of factual causation for indivisible conditions*: That whenever a plaintiff sues a defendant for an indivisible condition (such as a cancer) the mechanism of which is unknown and the defendant's tort made a substantial contribution to the *risk* of that condition being contracted, that tort is deemed to have contributed to the contraction of that condition. (In other words the plaintiff is allowed to rely on a fiction that the condition is contracted by a threshold mechanism for which joint and several liability attaches.)

Or, are there further limits to the rule? For example, does the *exposure-to-risk* doctrine only become available to plaintiffs who can show that all contributions to the risk were tortious? Is it only available when the risk of the condition can be generated by one type of agent alone? Such issues arose in recent mesothelioma litigation in Britain. Here, the House of Lords adopted a special rule of proof for factual cause using a *contribution to risk is deemed contribution to injury* approach comparable to that in *Rutherford*. Interestingly, however, while allowing the doctrine in cases where some sources of risk were innocent, the Lords affixed several liability to the doctrine.[65] The Lords also limited it to single-agent conditions, thereby preventing its use by smokers (such as Mr. Rutherford), who are exposed to asbestos and contract lung cancer

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plaintiff's non-economic damages, but shall only be severally liable for such damages "in direct proportion to that defendant's percentage of fault." CAL. CIV. CODE § 1431.2(a) (West 2009). The *Rutherford* plaintiffs elected not to challenge the applicability of Proposition 51 to their wrongful death claim, hence liability for non-economic losses was treated as several. *Rutherford*, 941 P.2d at 1210 n.4.

[64] *Rutherford*, 941 P.2d at 1219.

[65] *See generally* Barker v. Corus UK Ltd., [2006] 2 A.C. 572 (H.L.) (U.K.). By squarely acknowledging the radical new rule and eschewing any fiction, the Lords were able to face the normative question about whether it should be twinned with a several liability co-rule. *Id.*

because of the diverse agents in play (asbestos and tobacco both being sources of the risk of lung cancer).[66]

VI. WHY WERE THESE TWO PROOF-OF-CAUSATION DOCTRINES NEGLECTED?

The *Products Liability Restatement* made no reference to the two proof-of-causation doctrines central to asbestos cases: the *indivisibility-of-injury* doctrine (from asbestosis cases) for proof of factual causation in cumulative toxic torts and the *exposure-to-risk* doctrine (from asbestos-caused cancers cases) for proof of factual causation in claims for indivisible conditions. Why this neglect? Here are some suggested explanations for the neglect of: the parties to asbestos claims themselves; the academy; and the American Law Institute.

A. Parties to Asbestos Claims

In the early 1980s, entrepreneurial plaintiffs' lawyers succeeded in consolidating masses of cases in sympathetic venues and securing a phased litigation process in which an adverse verdict in the first general liability phase would have had a drastic multiplier effect for defendants: as one prominent plaintiffs' lawyer noted with considerable understatement, these pressures on defendants "created an atmosphere to settle the cases."[67] In other words, early on in modern asbestos litigation, plaintiffs' lawyers seem to have convinced many defendants that it was "better business" to settle asbestos claims than to dispute matters such as the proof-of-causation doctrines used by courts to assist plaintiffs. These early front line defendants were major asbestos manufacturers, a relatively small group whose culpability was being easily established.[68]

Moreover, it was the case that early claims were overwhelmingly concerned with the cumulative disease of asbestosis, to which every significant exposure from a defendant's product would have actually contributed some degree of the total injury. The only issue was that the theoretical possibility of apportionment of the cumulative disease offered by section 433B(2) was in practice defeated by the confluence of the sole

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[66] *Id.* ¶ 24 (Lord Hoffmann) ("I do not think that the exception applies when the claimant suffers lung cancer which may have been caused by exposure to asbestos or some other carcinogenic matter but may also have been caused by smoking and it cannot be proved which is more likely to have been the causative agent."). Of course, the single agent requirement raises the question of whether mesothelioma is itself a "single agent" condition. *See* Michele Carbone et al., *The Pathogenesis of Mesothelioma*, 29 SEMINARS IN ONCOLOGY 2, 3-4 (2002) (speculating that approximately twenty percent of mesothelioma cases may not be caused by asbestos fibers).

[67] Peter J. Boyer, *The Bribe: How the Mississippi Lawyer Who Brought Down Big Tobacco Overstepped*, THE NEW YORKER, May 19, 2008, at 45, 47 (citing Danny Cupit); *see also* STEPHEN J. CARROLL ET AL., ASBESTOS LITIGATION 23 (2005).

[68] In contrast, "defendants of today . . . are likely to be far less culpable than the major asbestos manufacturers who have all been through bankruptcy." Sanders et al., *supra* note 59, at 428 (2008).

remedy rule (diverting claims away from employers) and the multiple tortfeasors created by the liability rule in section 402A. Given the American costs rule (under which defendants pay their own costs even if they prevail), these defendants would have viewed settling with asbestosis plaintiffs as the most efficient strategy to deal with the avalanche of claims being filed by seriously sick plaintiffs.

The *Borel* approach that allowed plaintiffs to recover for any asbestos-related "disease" from all defendants to whose asbestos products the plaintiff was exposed was accepted by defendants in so many thousands of *asbestosis* cases that it had become well entrenched as a matter of substantive doctrine by the mid to late 1980s when significant numbers of claims started to be made for asbestos-related *cancers* (in relation to which a plaintiff could not establish, under orthodox rules, any actual contribution from a defendant, unlike the asbestosis plaintiff).[69] Defendants in these cancer claims simply did not dispute the *Borel* approach,[70] an acquiescence often supported by sanguine acceptance of crude (and incorrect) scientific testimony that such cancers were "cumulative" diseases.[71] That the latter misinformation was admitted as testimony at a time when elsewhere in the tort system controversy raged about how to ensure the quality of expert evidence,[72] confirms that by this stage asbestos litigation was regarded as *sui generis*: such an "elephantine mass of asbestos cases . . . [that it] defies customary judicial administration . . . ."[73]

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[69] While the total number of claims for mesothelioma filed before 1980 was 238, there were 2411 filed in 1989 alone. Indeed, mesothelioma filings continued to surge, doubling during the period from 1994 to 2002. CARROLL ET AL., supra note 67, at 71, 74.

[70] *See, e.g.*, Eagle-Picher Indus. Inc. v. Balbos, 604 A.2d 445, 459 (Md. 1992) ("Eagle does not dispute . . . that the principle of proximate causation by which the evidence concerning causation in fact is to be determined is the substantial-factor rule, and not the "but-for" rule. . . . In products liability involving asbestos, where the plaintiff has sufficiently demonstrated both lung disease resulting from exposure to asbestos and that the exposure was to the asbestos products of many different, but identified, suppliers, no supplier enjoys a causation defense solely on the ground that the plaintiff would probably have suffered the same disease from inhaling fibers originating from the products of other suppliers."). Moreover, even when a defendant merely queried whether joint and several liability was an appropriate corollary of the *exposure-to-risk* doctrine in mesothelioma cases, the court concluded that this was now an argument "better addressed to the Legislature than to the courts." Mavroudis v. Pittsburgh-Corning Corp., 935 P.2d 684, 689 (Wash. Ct. App. 1997).

[71] For example, in *Eagle-Picher Industries*, the Court of Appeals of Maryland noted that:

> [A] medical expert for the plaintiffs testified that "all of [the] exposures to asbestos were a significant contributing causal factor to the mesothelioma," because the causation is "cumulative." The defendants' medical expert also believed that a person must reach an undefined "threshold" of asbestos exposure before exposure will cause mesothelioma.

Eagle-Picher Indus., 604 A.2d at 459. *But cf.* Reserve Mining Co. v. Environmental Protection Agency, 514 F.2d 492, 508 n.25 (8th Cir. 1975), *order modified by* Reserve Mining Co. v. Lord, 529 F.2d 181 (8th Cir. 1976). In a significantly more sophisticated judgment concerning air and water pollution, the United States Court of Appeals for the Eighth Circuit noted that "[i]t is significant that the witnesses generally agreed that no known safe level of exposure exists for mesothelioma." *Id.*; *see also supra* note 40.

[72] *See*, *e.g.*, Daubert v. Merrell Dow Pharm., 509 U.S. 579, 585 (1993).

[73] Ortiz v. Fibreboard Corp., 527 U.S. 815, 821 (1999).

In short, by the time asbestos-related cancers came before the courts, the mammoth volume of asbestos claims had produced a great deal of common interest between plaintiffs' lawyers, defendants, and trial courts: a unique interest in managing and processing claims as cheaply as possible. Taking fine doctrinal points about how factual causation could be established and divided does not easily fit within this agenda.

Also and finally, in the context of other well-settled, broad-brush, plaintiff-friendly proof-of-causation rules such as that in *Summers v. Tice*, the market share approach, and the heeding presumption in the area of products liability, the two proof-of-causation doctrines in asbestos cases may not even seem all that remarkable to U.S. practitioners.

B. The Academy

One possible explanation why the attention of academics was not attracted to the special causation rules in asbestos cases in the early years of asbestos litigation was because, until *Borel*, asbestos claims were located in the field of workers' compensation. This is a field that most academics regard as deeply unfashionable and unheroic.

It is tempting to speculate that a reason for continuing academic neglect[74] may be that the two proof-of-causation doctrines in asbestos cases were created by courts themselves rather than being prompted by some academic initiative as had been the case, for example, with the market-share doctrine,[75] whose real-world impact, it should be emphasized, is trivial in comparison to that of these two asbestos rules. Certainly it is true that even today academics are far more entranced by the intricacies of market share and other academic creations than they are

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[74] For example, the two proof-of-causation doctrines in asbestos cases were not noted in W. PAGE KEETON ET AL., PROSSER AND KEETON ON TORTS (W. Page Keeton ed., 5th ed. 1984) and to date exceptionally few American legal scholars have shown any interest at all in the radical treatment of factual causation in asbestosis and asbestos-related cancers. For exceptions where some interest was shown in these matters, see Mark A. Behrens & William L. Anderson, *The "Any Exposure" Theory: an unsound basis for asbestos causation and expert testimony*, 37 Sw. U. L. Rev. 479 (2008); Mark A. Geistfeld, *supra* note 62, at 496-97 (2006); Donald G. Gifford, *The Challenge to the Individual Causation Requirement in Mass Product Torts*, 62 WASH. & LEE L. REV. 873, 908-09 (2005); Donald G. Gifford, *The Death of Causation: Mass Products Torts' Incomplete Incorporation of Social Welfare Principles*, 41 WAKE FOREST L. REV. 943, 947 990-91 (2006); Sanders et al., *supra* note 59, at 409-10.

In fact, the two proof-of-causation doctrines are simply part of a remarkable catalogue of doctrinal innovations emerging from asbestos litigation, a catalogue which has been elegantly showcased for the first time by Anita Bernstein, *Asbestos Achievements*, 37 S.W. LAW REV. 709 (2008).

[75] In *Sindell v. Abbott Laboratories*, "the wellspring of the majority's new theory" of market share liability was a law review piece. 607 P.2d 924, 943 (Cal. 1980) (citing Naomi Sheiner, Comment, *DES and a Proposed Theory of Enterprise Liability*, 46 FORDHAM L. REV. 963, 1007 (1978)).

inspired by the formidable theoretical and forensic potential of these two proof-of-causation doctrines that govern tens of thousands of tort claims.

Of course, the academic neglect of the asbestos proof-of-causation doctrines is also consistent with the general "flight from doctrine"[76] to theory that characterized the closing decades of the twentieth century in U.S. legal academia.[77] The reasons for this are complex. However, to the extent this trend was fuelled by the national academic market and the desire of scholars for their work to transcend the doctrinal fragmentation across the multiplicity of tort-law jurisdictions in the United States, it does not directly explain our phenomenon of neglect because the asbestos causation rules have "swept the nation" even more comprehensively than section 402A of the *Restatement (Second) of Torts*,[78] to which intense academic attention has been paid.

Nevertheless, the increased academic interest in theory has at a broad level deflected attention away from doctrinal analysis, leading prominent judges to dismiss modern law reviews as irrelevant to the actual cases and doctrinal dilemmas that confront them.[79] In general, the multiplicity of jurisdictions and vastly increased access to the information generated in them does not help. Even in the era of Internet blogs this situation continues to inhibit academics selecting from the stream of case law a "canon" of core cases that raise fundamental doctrinal questions and around which a national debate could revolve.[80] Given this complex doctrinal landscape, perhaps it was simply by accident that scholars failed to recognize the phenomenon of the asbestos proof-of-causation rules and expound their profound implications in major law review articles.

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[76] Comment to the author by Geoffrey Hazard, Thomas E. Miller Distinguished Professor of Law at the University of California, Hastings School of Law, at the Council Meeting of the American Law Institute in N.Y., N.Y. (Oct. 2006). *See generally* Jane Stapleton, *Benefits of Comparative Tort Reasoning: Lost in Translation*, 1 J. TORT L. art. 6, at 3 (2007).

[77] Of course, outstanding doctrinal work still emerges. Two extraordinary achievements, invaluable throughout the common law world for their brilliant account and analysis of American tort law doctrine, are DAN B. DOBBS, THE LAW OF TORTS (2000) and DAVID G. OWEN, PRODUCTS LIABILITY LAW (2d ed. 2008).

[78] Stephen D. Sugarman, Review, *A Restatement of Torts*, 44 STAN. L. REV. 1163, 1163 (1992).

[79] Supported by six of his colleagues, the Chief Judge of the United States Court of Appeals for the Second Circuit recently admitted, "I haven't opened up a law review in years. . . . No one speaks of them. No one relies on them." Adam Liptak, *When Rendering Decisions, Judges are Finding Law Reviews Irrelevant*, N.Y. TIMES, Mar. 19, 2007, at A1 (quoting Chief Judge Dennis G. Jacobs) (internal quotation marks omitted); *see also* Judge Alex Kozinski, *Who Gives a Hoot About Legal Scholarship?*, 37 HOUS. L. REV. 295, 295 (2000).

[80] This "core canon" phenomenon thrives in unified common law systems such as England, Canada, and Australia., *See* Stapleton, *supra* note 76, at 2-3.

C. The Institute

More worrisome is the fact that the *Products Liability Restatement* was silent about both the asbestosis *indivisibility-of-injury* doctrine (even though it was the most flamboyant application of the principle restated in section 16(c) of that *Restatement*) and the *exposure-to-risk* doctrine in asbestos-caused cancers cases (even though it is one of the most intellectually radical developments in U.S. tort law in the past 50 years).

It is true that at the time the *Products Liability Restatement* was being drafted there were no cases that dwelt on the propriety of these special proof-of-causation doctrines: the *Products Liability Restatement* was adopted in May 1997, many months before *Rutherford* was handed down.[81] Nevertheless, the reality was that at the time the Restatement was being drafted these doctrines were well-entrenched, critical to masses of claims clogging the courts, and virtually uniformly adopted across the states. Why the silence from the Institute?

One possibility is that the ALI membership did not have the necessary experience with asbestos litigation. To say that all ALI members are elite judges, practitioners, or academics does not establish the breadth of their experience: one wonders how many members today are closely acquainted with workers' compensation practice. On the other hand, it seems realistic to assume that at the time the *Products Liability Restatement* was being drafted a number of members would have known about the special proof-of-causation doctrines that had facilitated and continued to facilitate the resolution of asbestos claims, claims which threatened to overwhelm the tort system. So let us assume, for the sake of argument, that these doctrines *did* come to light during the restatement process but that a decision was made not to include them. On what grounds might such a decision have been made?

Might the two doctrines have been omitted because they are in practice mostly confined to the special field of asbestos? This seems a poor reason for exclusion. The *Products Liability Restatement* restates the rule of market share liability,[82] yet that doctrine has scarcely been applied outside the product-specific area of DES litigation. Indeed, the *Products Liability Restatement* explicitly discusses the hostility of courts to applying market share to asbestos cases,[83] while at the same time

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[81] *See also* Mavroudis v. Pittsburgh-Corning Corp., 935 P.2d 684, 687 (Wash. Ct. App. 1997) (a mesothelioma case) ("Although we are aware that substantial factor causation instructions are commonly given in asbestos-injury cases tried in Washington, no published Washington case cited by the parties or found by this court through independent research directly addresses the propriety of substantial factor instructions in asbestos-injury cases.").

[82] *See* RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 15 cmt. c (1998); *see also* RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL HARM § 28 cmt. o (Proposed Final Draft No. 1, 2005) (restating the market share doctrine).

[83] RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 15 Reporters' Note, cmt. c (1998); *see also* note 33 and accompanying text.

remaining silent on courts' adoption in asbestos cases of proof-of-causation doctrines that are far more radical than market share because they support joint and several liability. In any case, elsewhere the *Products Liability Restatement* does include a special approach that courts take to asbestos, namely the indulgent treatment of pure economic loss claims for abatement.[84]

Moreover, how do we know these special proof-of-causation doctrines are only acceptable for use in asbestos cases? Since the explosive potential of these doctrines has been left unanalyzed by courts or scholars it remains an open question whether they could be applied more generally, in the way, for example, that the rule of "alternative liability" in *Summers v. Tice* has become widely available outside shooting cases. Why could not the plaintiff with lead poisoning use the *indivisibility-of-injury* doctrine to establish that, in law, a defendant was a factual cause of the plaintiff's total condition (and was jointly and severally liable for it) even though it is clear that this defendant was, in fact, a very minor contributor to the plaintiff's cumulative condition? Similarly, when a plaintiff suffers from an indivisible condition the mechanism of which is unknown, can he rely on the *exposure-to-risk* doctrine to establish that, in law, a defendant was a factual cause of that condition (and was jointly and severally liable for it) even though, in fact, the most that can be shown is that this defendant had made a contribution to the risk of that condition being contracted?

Perhaps the *Products Liability Restatement* was silent about the asbestos proof-of-causation doctrines for a more prosaic reason: that while Prosser personally promoted the adoption of the rule in section 402A (on a very thin bed of case law),[85] there happened to be no eloquent "sponsor" of these two proof-of-causation doctrines within the ALI to argue for their inclusion (despite their immense importance in tens of thousands of claims). If so, this casts a cautionary light on the restatement processes of the ALI generally.

CONCLUSION

It is important to emphasize that the *Borel* approach, in allowing asbestos plaintiffs to prove factual causation to any asbestos-related disease merely by showing a significant exposure to asbestos from the defendant's tort, represents *two* distinct doctrines.

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[84] *See* RESTATEMENT (THIRD) OF TORTS: PRODS. LIAB. § 21 cmt. e (1998) ("In the case of asbestos contamination in buildings, most courts have taken the position that the contamination constitutes harm to the building as other property."); *id.* (explaining that pure economic loss claims related to the costs of asbestos abatement are generally treated as tort claims and have been accepted without the extreme judicial caution generally shown to pure economic loss claims in tort).

[85] Michael P. Dooley, *Two Models of Corporate Governance*, 47 BUS. LAW. 461, 462 (1992).

When applied to an *asbestosis claim*, the approach can be seen as an application of the general approach underlying section 433B(2) where we know the defendant has actually contributed some harm to the plaintiff. In effect, the *Borel* approach applied in asbestosis claims is tantamount to the adoption of an *indivisibility-of-injury* fiction for cumulative disease. It invites us to think about other non-asbestos toxic tort contexts where, though the plaintiff clearly suffers from a cumulative condition such as lead poisoning, she might be granted access to this *indivisibility-of-injury* doctrine and thereby subject a defendant to joint and several liability for her entire condition even though it is clear that the defendant was not responsible for the full severity of her condition.

We should acknowledge that this *indivisibility-of-injury* doctrine for cumulative diseases might be seen as merely a moderate extension of the generally sympathetic doctrinal attitude towards plaintiffs on the issue of factual cause. As Judge Posner has noted, "[t]he general tendency of courts in tort cases, once negligence is established, is to resolve doubts about causation, within reason, in the plaintiff's favor."[86]

In contrast, when the *Borel* approach is applied to *an asbestos-related cancer claim*, it subjects all those who tortiously exposed the plaintiff to asbestos, and therefore to a significant risk of contracting an asbestos-related cancer, to joint and several liability for the plaintiff's entire injury. This is so even though it is virtually certain that, whatever the mechanism of contraction of the cancer, not every exposure to asbestos played a part in it. This *exposure-to-risk* doctrine, which is tantamount to the adoption of the fiction of a threshold mechanism for indivisible injuries, is far more radical and explosive in its potential than the impact of applying the *Borel* approach in the context of cumulative diseases such as asbestosis.

Though the importance of the distinction between these two proof-of-causation doctrines is very great, the current draft of the *Restatement (Third) of Torts: Liability for Physical and Emotional Harm*, does not clearly distinguish them.[87] In a Note, the Reporters merely report that:

> [C]ourts have assumed, without much discussion, that the model for disease causation, even for progressive disease like asbestosis, is the one contained in this Comment [*i.e.*, the threshold mechanism]. Since the first asbestos case in

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[86] Kwasny v. United States, 823 F.2d 194, 196 (7th Cir. 1987).

[87] The Draft also does not adequately explain why it discusses most asbestos causal issues under section 27 (a section that explains that a non-necessary factor may yet be a factual cause as in, say the merged fires case) rather than under section 28 (burden of proof). RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL HARM §§ 27-28 (Proposed Final Draft No. 1, 2005). This is presumably because the Reporters have chosen to characterize the courts' approach to asbestos cases as setting up fictions of what actually happened (and therefore belonging in section 27, which concerns how things had actually happened) rather than as special rules dispensing the plaintiff from the orthodox burden of proof (the issue dealt with in section 28). *See id.*

> which a plaintiff was successful, courts have allowed plaintiffs to recover from all defendants to whose asbestos products the plaintiff was exposed.[88]

This suggests that, whatever were the flaws in the process leading to the *Products Liability Restatement*, the restatement process is still failing to record doctrines of central relevance to much of tort practice and to the future development of the law.

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[88] *Id.* § 27 Reporters' Note cmt. g; *see also id.* ("[B]ecause of the absence of scientific knowledge about the marginal increments of harm, courts have treated even dose-dependent diseases [such as asbestosis] the same as other diseases, whose severity is assumed not to be dose dependent." This is despite the fact that it is known "that asbestosis is a dose-dependent disease.").