THE "ANY EXPOSURE" THEORY: AN UNSOUND BASIS FOR ASBESTOS CAUSATION AND EXPERT TESTIMONY

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Over the years asbestos litigation has morphed into a tort world all of its own.[1] Courts developed entire sets of rules in an attempt to manage efficiently their substantial asbestos dockets,[2] in the process dispensing with

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1. *See* Griffin B. Bell, *Asbestos Litigation and Judicial Leadership: The Courts' Duty to Help Solve the Asbestos Litigation Crisis*, BRIEFLY, June 2002, at 1, 4; Mark A. Behrens, *Some Proposals for Courts Interested in Helping Sick Claimants and Solving Serious Problems in Asbestos Litigation*, 54 BAYLOR L. REV. 331, 336-42 (2002); Paul F. Rothstein, *What Courts Can Do in the Face of the Never-Ending Asbestos Crisis*, 71 MISS. L.J. 1, 4-9 (2001).

2. *See In re* Combustion Eng'g, Inc., 391 F.3d 190, 200 (3d Cir. 2004) ("For decades, the state and federal judicial systems have struggled with an avalanche of asbestos lawsuits."). The United States Supreme Court has described the litigation as a "crisis." Amchem Prods., Inc. v. Windsor, 521 U.S. 591, 597 (1997). Through 2002, approximately 730,000 claims had been filed. STEPHEN J. CARROLL ET AL., ASBESTOS LITIGATION xxiv (RAND Inst. for Civil Justice 2005), *available at* http://www.rand.org/pubs/monographs/2005/RAND_MG162.pdf. "In August 2005, the Congressional Budget Office estimated that there were about 322,000 asbestos bodily injury cases pending in state and federal courts." AM. ACAD. OF ACTUARIES' MASS TORTS SUBCOMM., OVERVIEW OF ASBESTOS CLAIMS ISSUES AND TRENDS 5 (2007), *available at* http://www.actuary.org/pdf/casualty/asbestos_aug07.pdf.

many standard venue, discovery, and trial consolidation requirements.[3] The changes almost universally favored plaintiffs and instead of affecting a reduction in congested dockets, the litigation became so malleable and lucrative that plaintiff attorneys have spent the last decade searching for the "next asbestos." Practitioners in this field have come to know these asbestos rules well, whereas newcomers are often astounded to discover that their tort law frame of reference means little in the alternative universe of asbestos litigation.

One of the most substantial departures from black letter tort law is the *any exposure* theory of causation, sometimes referred to as the *any fiber* theory.[4] In a nutshell, the *any exposure* theory contends that because asbestos disease is a cumulative, dose-response process, each and every exposure to asbestos during a person's lifetime, no matter how small or trivial, substantially contributes to the ultimate disease (e.g., asbestosis, lung cancer, or mesothelioma).[5] There is an important caveat, however, in that most proponents of this theory agree that *background* exposures to asbestos, even though they may contribute millions of fibers to an individual's lungs over a lifetime, do *not* contribute to the development of disease.[6] Only occupational or para-occupational (e.g., home remodeling or "shade tree" automotive brake repair) exposures count.[7] The theory allows plaintiffs' counsel to sue thousands of defendants every year whose "contribution" to disease is trivial and far below the type of doses actually known to cause disease, while at the same time excluding from causation another source of millions of fibers (i.e., background exposures).

In the last three years, more than a dozen courts in multiple jurisdictions have excluded or criticized *any exposure* causation testimony, either as unscientific under a *Daubert*[8]/*Frye*[9] analysis or as insufficient to support causation.[10] This pattern of decisions includes:

- the Texas Supreme Court in a mechanic/asbestosis case,

3. *See* Victor E. Schwartz & Rochelle M. Tedesco, *The Law of Unintended Consequences in Asbestos Litigation: How Efforts to Streamline the Litigation Have Fueled More Claims*, 71 MISS. L.J. 531, 542-47 (2001); Victor E. Schwartz & Leah Lorber, *A Letter to the Nation's Trial Judges: How the Focus on Efficiency Is Hurting You and Innocent Victims in Asbestos Liability Cases*, 24 AM. J. TRIAL ADVOC. 247, 256-58 (2000).

4. *See, e.g.*, *infra* notes 26, 30-31.

5. *See, e.g.*, *infra* note 50.

6. *See* Bartel v. John Crane, Inc., 316 F. Supp. 2d 603, 607-08 (N.D. Ohio 2004), *aff'd sub nom.* Lindstrom v. A-C Prod. Liab. Trust, 424 F.3d 488 (6th Cir. 2005).

7. *See, e.g.*, Borg-Warner Corp. v. Flores, 232 S.W.3d 765, 773 (Tex. 2007), *reh'g denied* (Oct. 12, 2007).

8. *See* Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 (1993).

9. *See* Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

10. *See, e.g.*, *infra* notes 11-19.

rejecting the testimony of Dr. Barry Castleman and another expert that mere proof of exposure is sufficient for causation;[11]

- a Texas appellate court in a mesothelioma case, rejecting the testimony of Dr. Samuel Hammar that any dry wall exposures above 0.1 fibers/cc year would be a substantial contributing factor;[12]
- the Texas Multi-District Litigation ("MDL") court, rejecting the testimony of Dr. Eugene Mark in a friction product case and other experts in an electrician/dry wall exposure case;[13]
- the Pennsylvania Supreme Court in a mesothelioma case against an auto parts company, rejecting the position espoused in affidavits by Drs. Richard Lemen, James Girard, and Arthur Frank;[14]
- an Ohio federal district court and the Sixth Circuit Court of Appeals in a gasket and packings case, rejecting the testimony of Drs. Arthur Frank and Yasunosuki Suzuki;[15]
- three Pennsylvania state trial courts, rejecting the *any exposure* testimony of Drs. John Maddox, Eugene Mark, William Longo, Jonathan Gelfand, and Arthur Frank in friction product cases and criticizing the theory's application in a pleural disease case;[16]
- a federal bankruptcy court in litigation involving asbestos in vermiculite insulation, rejecting Dr. Henry Anderson's *any exposure* approach;[17]
- a Mississippi appellate court, rejecting a medical monitoring class for persons allegedly exposed in a school building;[18] and
- two Washington State trial court decisions by different judges, rejecting the opinions of Drs. Samuel Hammar and Carl

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11. *See Flores*, 232 S.W.3d at 774.

12. *See* Georgia-Pac. Corp. v. Stephens, 239 S.W.3d 304, 320-21 (Tex. App. 2007), *reh'g overruled* (Oct. 13, 2007), *review denied* (Feb. 22, 2008).

13. *See* Letter Ruling, *In re* Asbestos Litig., Cause No. 2004-03964 (Tex. Dist. Ct. Jan. 20, 2004); Letter Ruling, *In re* Asbestos, Cause No. 2004-3,964 (Tex. Dist. Ct. July 18, 2007).

14. *See* Gregg v. V-J. Auto Parts, Inc., 943 A.2d 216, 218, 223, 226-27 (Pa. 2007).

15. *See Bartel*, 316 F. Supp. 2d at 611.

16. *See In re* Toxic Substance Cases, No. A.D. 03-319, 2006 WL 2404008 at *7-8 (Pa. Ct. Com. Pl. Aug. 17, 2006); Basile v. Am. Honda Motor Co., No 11484 CD 2005 (Pa. Ct. Com. Pl. Feb. 22, 2007); *In re* Asbestos Litig., Certain Asbestos Friction Cases Involving Chrysler LLC, No. 0001 Control #084682 (Pa. Ct. Com. Pl. Sept. 24, 2008); Summers order v. Certainteed Corp., 886 A.2d 240, 244 (Pa. Super. Ct. 2005), *appeal granted*, 897 A.2d 460 (Pa. 2006).

17. *See In re* W.R. Grace & Co., 355 B.R. 462, 474, 478 (Bankr. D. Del. 2006), *leave to appeal denied*, No. 07-MC-0005 RLB, 01-1139, 2007 WL 1074094 (D. Del. Mar. 26, 2007).

18. *See* Brooks v. Stone Architecture, P.A., 934 So. 2d 350 (Miss. Ct. App. 2006).

Brodkin in heavy equipment mechanic cases.[19]

These are not insignificant courts—they include two state supreme courts, one federal appellate court, a federal bankruptcy court, and state appellate and trial courts in several jurisdictions.[20] In addition, the breadth of alleged exposures and diseases covered by these cases demonstrates that the *any exposure* theory is failing across the spectrum of asbestos cases, regardless of disease and type of exposure. Perhaps most remarkably, the experts whose testimony is being excluded are veterans in the litigation who have supported plaintiff cases for many years with little or no interference from the judiciary.[21] The rejection of these experts' causation testimony, while a significant departure from past practice, reflects the sound application of standard causation rules to asbestos testimony[22]—something that should have happened years ago and is finally gaining traction. These rulings also likely reflect a growing skepticism of many asbestos claims in the wake of findings of massive fraud in federal court silica litigation.[23]

This Article discusses the underpinnings of the *any exposure* causation theory and why recent courts that have examined the theory more carefully

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19. *See* Anderson v. Asbestos Corp., No. 05-2-04551-5SEA, slip op. at 144-45 (Wash. King County Super. Ct. Oct. 31, 2006) (transcript of bench ruling) (Erlick, J.); Free v. Ametek, No. 07-2-04091-9-SEA (Wash. King County Super. Ct. Feb. 29, 2008) (Barnett, J.) (ruling on motion *in limine*).

20. *See supra* notes 11-19 and accompanying text.

21. *See infra* notes 50-53.

22. *See, e.g.*, *Flores*, 232 S.W.3d at 770 (discussing the "substantial factor" test in causation); David E. Bernstein, *Getting to Causation in Toxic Tort Cases*, 74 BROOK. L. REV. 51, 59 (2008) (stating that "[t]he recent, increasingly strict exposure cases . . . reflect a welcome realization by state courts that holding defendants liable for causing asbestos-related disease when their products were responsible for only *de minimis* exposure to asbestos, and other parties were responsible for far greater exposure, is not just, equitable, or consistent with the substantial factor requirements of the *Restatement (Second)* and *Lohrmann* [*v. Pittsburgh Corning Corp.*, 782 F.2d 1156 (4th Cir. 1986)]."); *cf.* Lee S. Siegel, Note, *As the Asbestos Crumbles: A Look at New Evidentiary Issues in Asbestos-Related Property Damage Litigations*, 20 HOFSTRA L. REV. 1139, 1146 (1992) ("There is no merit to the one fiber theory, and the myth is slowly being dispelled.").

23. *See In re* Silica Prods. Liab. Litig., 398 F. Supp. 2d 563, 635 (S.D. Tex. 2005); Lester Brickman, *Disparities Between Asbestosis and Silicosis Claims Generated by Litigation Screenings and Clinical Studies*, 29 CARDOZO L. REV. 513 (2007); Lester Brickman, *On the Applicability of the Silica MDL Proceeding to Asbestos Litigation*, 12 CONN. INS. L.J. 289 (2006); *see also* Editorial, *Screening for Corruption*, WALL ST. J., Dec. 2, 2005, at A10, *abstract available at* 2005 WLNR 19447615; Editorial, *Silicosis, Inc.*, WALL ST. J., Oct. 27, 2005, at A20, *abstract available at* 2005 WLNR 17413061; Editorial, *The Silicosis Sheriff*, WALL ST. J., July 14, 2005, at A10, *abstract available at* 2005 WLNR 11084626; David Hechler, *Silica Plaintiffs Suffer Setbacks: Broad Effects Seen in Fraud Allegations*, NAT'L L.J., Feb. 28, 2005, at 1; Roger Parloff, *Diagnosis for Dollars: A Court Battle Over Silicosis Shines a Harsh Light on Mass Medical Screeners–The Same People Whose Diagnoses Have Cost Asbestos Defendants Billions*, FORTUNE, June 13, 2005, at 96, *available at* 2005 WLNR 8694138; Jonathan D. Glater, *Companies Get Weapon in Injury Suits Many Silica-Damage Plaintiffs Also Filed Claims Over Asbestos*, N.Y. TIMES, Feb. 2, 2005, at C1, *available at* 2005 WLNR 1415209.

have decided to reject it. These decisions reflect a proper assessment of the *dose requirement* of toxicology.[24] On the other hand, courts that continue to allow *any exposure* testimony to proceed unchallenged run the risk of encouraging a flood of speculative or trivial claims at a time when the litigation environment for asbestos claims appears to be regaining some semblance of control.[25] Such an outcome would reflect poor science and even poorer public policy.

I. THE TOXICOLOGICAL REQUIREMENT OF DOSE AND ITS APPLICATION IN THE TOXIC TORT CONTEXT

The *any exposure* theory can only be understood against the backdrop of widely accepted tort and medical causation principles because the theory departs so dramatically from those principles. Ordinarily, under long-standing rules of tort law, courts should require asbestos plaintiffs to demonstrate that each defendant's product was either a "but-for" cause or a "substantial factor" in the cause of plaintiff's disease.[26] In the typical tort case, such a showing would require not only proof of exposure to the defendant's product, but also exposure to *enough of a dose* of the defendant's product to actually cause disease.[27] The concept of a necessary dose goes back to the sixteenth century, when the "father of toxicology," physician and philosopher Paracelsus, first articulated the principle that the dose makes the poison: "All substances are poisonous—there is none which is not; the dose differentiates a poison from a remedy."[28] Examples are

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24. *See* David E. Bernstein, *Keeping Junk Science Out of Asbestos Litigation*, 31 PEPP. L. REV. 11, 28 (2003) ("There is clearly some relationship between asbestos and diseases. The effects of exposure to asbestos on a particular individual, however, depend on the level of exposure and what type of asbestos one was exposed to and for how long.").

25. *See* Mark A. Behrens & Phil Goldberg, *The Asbestos Litigation Crisis: The Tide Appears to Be Turning*, 12 CONN. INS. L.J. 477 (2006); James A. Henderson, Jr., *Asbestos Litigation Madness: Have the States Turned a Corner?*, MEALEY'S TORT REFORM UPDATE, vol. 3:6, Jan. 18, 2006, at 23; Patti Waldmeir, *The Americas: Asbestos Litigation Declines in Face of US Legal Reforms*, FIN. TIMES, July 24, 2006, at 2, *available at* 2006 WLNR 12719566; Martha Neil, *Backing Away from the Abyss: Courts May Be Starting to Get a Grip on Asbestos Litigation*, A.B.A. J., Sept. 2006, at 26.

26. *See* RESTATEMENT (SECOND) OF TORTS §§ 431, 433 (1965).

> The word "substantial" is used to denote the fact that the defendant's conduct has such an effect in producing the harm as to lead reasonable men to regard it as a cause . . . rather than in the so-called "philosophical sense," which includes every one of the great number of events without which any happening would not have occurred.

Id. at § 431cmt. a.

27. *See infra* notes 29-31 and accompanying text.

28. David L. Eaton, *Scientific Judgment and Toxic Torts—A Primer in Toxicology for Judges and Lawyers*, 12 J.L. & POL'Y 5, 11 (2003) (emphasis omitted) (internal quotation marks omitted)

commonplace—alcohol, aspirin, sunlight, even basic substances we eat in food and vitamins like zinc are not harmful at low levels, but can cause harm at higher doses.[29]

This dose concept is widely recognized in both science and courts as the foundation of causation and the basis for many medical tort decisions.[30] Courts around the country, including at least five federal circuit courts, have recognized the necessity of proving an actual toxic dose in medical tort cases.[31] As one leading researcher recently wrote: "Dose is the single most

(quoting CASARETT AND DOULL'S TOXICOLOGY: THE BASIC SCIENCE OF POISONS, Chs. 1, 4 (Curtis D. Klaassen ed., McGraw Hill 6th ed. 2001)).

29. A fundamental tenet of toxicology is that "the dose makes the poison." Bernard D. Goldstein & Mary Sue Henifin, *Reference Guide on Toxicology*, *in* FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 401, 403 (West Group 2d ed. 2000) (1994) (internal quotation marks omitted). Thus, courts routinely require plaintiffs to demonstrate not just some exposure, but "evidence from which the trier of fact could conclude that the plaintiff was exposed to levels of toxins sufficient to cause the harm complained of." Nelson v. Tenn. Gas Pipeline Co., No. 95-1112, 1998 WL 1297690, slip op. at *6 (W.D. Tenn. Aug. 31, 1998), *aff'd*, 243 F.3d 244 (6th Cir.), *cert. denied*, 534 U.S. 822 (2001) (citing Wintz v. Northrop Corp., 110 F.3d 508, 513 (7th Cir. 1997) (internal citation omitted)); *see also* Wright v. Willamette Indus., Inc., 91 F.3d 1105, 1107 (8th Cir. 1996). This is as true for asbestos as for any other potentially toxic substance. *See Bartel*, 316 F. Supp. 2d at 611 (rejecting "one-fiber" asbestos theory as not supported by medical literature); *In re Toxic Substance Cases*, 2006 WL 2404008 at *7-8 (criticizing plaintiffs' experts for failing to assess the dose for mechanic exposure).

30. *See, e.g.*, McClain v. Metabolife Int'l, Inc., 401 F.3d 1233, 1241 (11th Cir. 2005) ("In toxic tort cases, '[s]cientific *knowledge of the harmful level of exposure* to a chemical, plus knowledge that [the] plaintiff was exposed to *such quantities*[,] are minimal facts necessary to sustain the plaintiff's burden . . . .'") (emphasis added) (quoting Allen v. Pa. Eng'g Corp., 102 F.3d 194, 199 (5th Cir. 1996)).

31. *See, e.g.*, *id.* (explaining that plaintiffs must establish the level at which substance is harmful and that their exposures were of that level); *Nelson*, 1998 WL 1297690 at *6 (excluding opinion of expert who did not assess dose because "[a]n appropriate methodology requires evidence from which the trier of fact could conclude that the plaintiff was exposed to levels of toxin sufficient to cause the harm complained of."); Mitchell v. Gencorp, Inc., 165 F.3d 778, 781 (10th Cir. 1999) ("[A] plaintiff must demonstrate 'the levels of exposure that are hazardous to human beings generally as well as the plaintiff's actual level of exposure to the defendant's toxic substance before he or she may recover.'") (quoting *Wright*, 91 F.3d at 1106); Moore v. Ashland Chem., Inc., 151 F.3d 269, 278 (5th Cir. 1998) ("Because he had no accurate information on the level of Moore's exposure to the fumes, Dr. Jenkins necessarily had no support for the theory that the level of chemicals to which Moore was exposed caused RADS."), *cert. denied*, 526 U.S. 1064 (1999); *Allen*, 102 F.3d at 199 ("Scientific knowledge of the harmful level of exposure to a chemical, plus knowledge that the plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiffs' burden in a toxic tort case."); Cano v. Everest Minerals Corp., 362 F. Supp. 2d 814, 825 (W.D. Tex. 2005) (quoting Merrell Dow Pharms., Inc. v. Havner, 953 S.W.2d 706, 720 (Tex. 1997)) ("[A] claimant must not only introduce sufficient epidemiological evidence, he must also show that he is similar to those in the studies."); Nat'l Bank of Commerce v. Dow Chem. Co., 965 F. Supp. 1490, 1524 (E.D. Ark. 1996) (explaining plaintiff must provide evidence of level of exposure and show that the dose was likely to produce harm of the type experienced by plaintiff); Louderback v. Orkin Exterminating Co., Inc., 26 F. Supp. 2d 1298, 1305 (D. Kan. 1998) ("[T]o recover in a toxic tort case, the plaintiff must prove the levels of exposure that are hazardous to human beings generally as well as the plaintiff's actual level of

important factor to consider in evaluating whether an alleged exposure caused a specific adverse effect."[32]

Parker v. Mobil Oil Corp.,[33] a recent non-asbestos case involving benzene, illustrates the point and the reasoned approach of many courts. In *Parker*, a gas station attendant alleged that he developed acute myeloid leukemia ("AML") from low level benzene exposures in gasoline.[34] Epidemiology studies have demonstrated that high exposures to pure benzene, typically in factory settings, can cause AML, but studies have not demonstrated the occurrence of disease from low-exposure gas station work where the exposures involved only a small amount (usually two to five percent) of benzene in gasoline.[35] Plaintiff's experts, Drs. Phil Landrigan and Bernard Goldstein, extrapolated down from the high-dose, factory benzene exposure studies and cited to government regulations and mathematical modeling studies to opine that low level exposures would likewise cause the disease.[36] They did so, however, without any assessment of the actual dose from gas station work; they could not present any evidence that the plaintiff's dose approached those shown to cause disease in the epidemiology studies of high-dose workers.[37] Instead, they expressed their opinions in subjective terms, referring to the plaintiff's exposures as "substantial" or "significant" with no grounding in actual dose calculations or comparisons.[38]

The New York Court of Appeals rejected this methodology as unreliable under New York's general requirements for reliability and proper foundation to support an evidentiary submission.[39] The decision focused on the flawed approach to dose and unsupported assumptions that low doses produce the same effects as high doses:

> The experts, although undoubtedly highly qualified in their respective fields, failed to demonstrate that exposure to benzene as a component of gasoline caused Parker's AML. Dr. Goldstein's general, subjective and

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exposure to the toxic substance.") (quoting *Wright*, 91 F.3d at 1106); Mancuso v. Consol. Edison Co., 967 F. Supp. 1437, 1453 (S.D.N.Y. 1997) (explaining that expert's testimony that plaintiffs' ailments were caused by exposure to PCBs was inadmissible because, *inter alia*, expert "did not make sufficient determinations of environmental PCB levels, nor of the extent of the plaintiffs' exposure thereto.").

32. Eaton, *supra* note 28, at 11.

33. 857 N.E.2d 1114 (N.Y. 2006), *reargument denied*, 861 N.E.2d 104 (N.Y. 2007).

34. *Id.* at 1116.

35. *Id.* at 1117.

36. *Id.* at 1122.

37. *Id.*

38. *Id.* at 1121-22.

39. *Id.* at 1120-22.