Volume 4 | Issue 1 Article 1

1993

In Re Paoli Railroad Yard PCB Litigation: The Jury's Role in Resolving the Battle of the Experts

Joseph C. Kohn

VILLANOVA ENVIRONMENTAL LAW JOURNAL

VOLUME IV 1993 NUMBER 1

IN RE PAOLI RAILROAD YARD PCB LITIGATION: THE JURY'S ROLE IN RESOLVING THE BATTLE OF THE EXPERTS

JOSEPH C. KOHN†

TABLE OF CONTENTS

I. INTRODUCTION

IN our increasingly technological world, scientific expertise will play an important role in complex civil litigation. While scien-

† Joseph C. Kohn, B.A. University of Pennsylvania, J.D. Villanova University School of Law, is a partner in the Philadelphia law firm of Kohn, Nast, & Graf, P.C. Mr. Kohn is co-counsel for the plaintiffs in *In re Paoli Railroad Yard PCB Litigation*.

tific expertise may be necessary to resolve a dispute, an important issue arises concerning who will ultimately decide these complex questions - judge, jury or the experts themselves. If the jury is to be the factfinder, then the court must not prevent the jury from evaluating the particular expertise and conclusions of the scientific experts. If the scientist substitutes his judgment for that of the factfinder in resolving the dispute, then we allow technical expertise to usurp our fundamental right to participate in the judicial process. While the roles of the judge and the scientist are critical to the orderly resolution of complex litigation, the decisionmaking must ultimately be left to the jurors who have effectively exercised this delegated power for centuries.[1] Accordingly, in its recent decision in *In re Paoli Railroad Yard PCB Litigation*,[2] the United States Court of Appeals for the Third Circuit affirmed this basic right in holding that neither a judge nor a scientist may substitute his particular expertise for the factfinding of a lay jury.[3]

The *Paoli* PCB situation is an example of a tragedy that is recurring all too frequently throughout this country; the gradual poisoning of workers and neighborhoods with environmental contaminants.[4] The case was brought by thirty-eight individuals

1. *See generally* LLOYD E. MOORE, THE JURY, TOOL OF KINGS, PALLADIUM OF LIBERTY 95-110 (2d ed. 1988). Trial by jury was a fundamental concept of justice among the early colonial settlers. *Id.* at 95-99. The American jury system currently in existence is generally recognized as tracing its roots to the Magna Carta, "the original guarantee of the jury trial." *Id.* at 99-100. The first Englishmen settling in North America implemented the system in establishing colonies, later incorporating the right in the U.S. Constitution. *Id.* at 95, 103-04. The Declaration of Independence cited deprivation of a consistent right to trial by jury as a significant factor leading to the separation of the colonies from England. *Id.* at 100. For further discussion of the historical importance of the right to trial by jury, see *infra* notes 82-91 and accompanying text. *See also* Mark A. Costantino & Daniel L. Master, Jr., *The Seventh Amendment Right to Jury Trial in Complex Civil Litigation: Historical Perspectives and a View From the Bench*, 12 AM. INTELL. PROP. L. ASS'N Q. J. 279 (1984) (discussing importance of citizen participation in complex litigation from perspective of bench).

2. 916 F.2d 829 (3d Cir. 1990), *cert. denied*, 111 S. Ct. 1584 (1991).

3. *Id.* The Third Circuit concluded, *inter alia*, that the district court had improperly excluded important scientific evidence which should have been given to a jury for proper consideration. *Id.* For a detailed discussion of the appellate court's reasoning concerning the admissibility of expert evidence, see *infra* notes 48-77 and accompanying text.

4. *See, e.g.*, Merry v. Westinghouse, 684 F. Supp. 847 (M.D. Pa. 1988) (plaintiffs' wells contaminated by toxic substances). *See also* Burns v. Jacquays Mining Corp., 752 P.2d 28 (Ariz. Ct. App. 1987), *cert. denied*, 781 P.2d 1373 (Ariz. 1988) (injury sustained by plaintiffs residing adjacent to asbestos-producing mill). *See generally* Gregory L. Ash, Comment, *Toxic Torts and Latent Diseases: The Case for an Increased Risk Cause of Action*, 38 KAN. L. REV. 1087, 1089-1108 (discussing need for tort reform in area of toxic exposure cases involving delayed manifestation of illness).

who lived, both literally and figuratively, on the wrong side of the tracks.[5] They lived downgrade from a railcar repair facility where electric transformer fluids containing PCB contaminants had leaked, spilled and been discharged over a number of years.[6] The *Paoli* plaintiffs were generally of a working class socioeconomic background. Their neighborhood was originally settled and populated by the workers who operated the railcar facilities servicing the more affluent surrounding region. Ironically, their economic livelihood depended on their promixity to the source of contamination.

The socioeconomic profile of the *Paoli* plaintiffs further underscores a troubling inequity which can arise in "toxic tort" litigation. To compound the lengthy and frustrating delay in moving forward with the litigation,[7] these plaintiffs - unlike the major corporate defendants they oppose - have no access to the leading scientists in the country. They do not fund scientific research as does the defense in this case. As a result, obtaining the necessary expertise to meet the required burden of proof in complex litigation can become a daunting and often prohibitively expensive hurdle for an individual plaintiff with minimal resources.[8]

Notwithstanding these troubling policy concerns, the Third Circuit took a major stride toward reaffirming basic principles of

5. In addition to the 38 plaintiffs in the federal court litigation, approximately 220 individuals who lived or worked near the Paoli Railroad Yard have instituted actions in the state court.

6. *See Paoli*, 916 F.2d at 835. The Third Circuit noted that toxic substances found at the site resulted from "decades of PCB use in the Paoli railcar transformers." *Id.* The PCBs were present in high concentrations "at the railyard and in the ambient air and soil." *Id.*

7. *See* In re Paoli R.R. Yard PCB Litig., 706 F. Supp. 358, 363-64 (E.D. Pa. 1988). The opinion provides a capsulized summary of a portion of the summary judgment motions and accompanying responses filed by both parties. While plaintiffs' exposure to PCB contaminants can be traced back to the 1930's, as of this writing, final disposition of the case is probably years away.

8. *See, e.g.*, William G. Becker, *The Use of Experts in Pretrial Discovery*, *in* USING EXPERTS IN CIVIL CASES 7-13 (Melvin D. Kraft ed., 2d ed. 1982). Locating a competent and effective expert witness involves an assessment of both the expert's professional qualifications as well as his or her ability to clearly articulate the relevant knowledge to a jury. In addition, some consideration must be given to how the opposing party may use any information elicited from the expert during pretrial discovery. *Id.* at 10, 12; *see also* Richard H. Abramson, *Presenting Technologically Complex Cases to Lay Judges and Juries*, 14 HASTINGS COMM. & ENT. L.J. 259, 267 (1992). While an expert may have impressive credentials and be well regarded in a particular field, it is essential to meet with the expert before retaining his or her services. The author recommends, during the initial meeting, asking the expert to explain one or more complex aspects of the technology at issue. If the explanation is confusing or unclear, it is likely the jury will find it equally confusing, and another expert should be considered. *Id.*

the American justice system in its decision to uphold the juror as the proper trier of fact. This article will trace the procedural history of the *Paoli* litigation, commencing with a summary of plaintiffs' expert testimony, the ensuing defense response, as well as the district court's holding. The article will then examine the Third Circuit's resolution of both the evidentiary issues and conflicts in methodology in reversing the district court decision. Next, the article will focus on the role of the jury in complex civil litigation from an historical perspective through its modern function as a panel deciding sophisticated factual disputes. Finally, it will underscore the ongoing ability of the lay juror to serve as the ultimate trier of fact and thereby preserve the fundamental wisdom of our legal system.

II. *PAOLI* LITIGATION - U.S. DISTRICT COURT HOLDING

A. Plaintiffs' Expert Witness Testimony

As a threshold matter, the *Paoli* record is replete with evidence of polychlorinated biphenyl (PCB) contamination at the Paoli railyard over a forty year period.[9] The defendants in the case were involved either in the ownership and operation of a regional railroad maintenance facility, or the manufacturers of PCBs and the transformer fluids used in the railcar transformers.[10] In 1986, the Environmental Protection Agency (EPA) sued to enforce appropriate cleanup response measures, and designated the railyard a Superfund site.[11]

9. *See* In re Paoli R.R. Yard PCB Litig., 706 F. Supp. 358, 361 (E.D. Pa. 1988). The district court noted that "the long-term presence and leakage of PCBs at the site caused various levels of PCB contamination at the yard and in the surrounding neighborhoods." *Id.*

10. *Id.* Among those owning and/or operating the railyard were the Pennsylvania Railroad and its successor, the Penn Central Transportation Company. Amtrak has owned the site since 1976, while Conrail, and the Southeastern Pennsylvania Transportation Authority (SEPTA) have operated the facility as part of a commuter rail service. SEPTA presently does not use PCB fluid in its railcar transformers. *Id.* The manufacturer defendants are Monsanto Co. and General Electric Corp. *Id.*

11. *Id.* at 361. *See also* The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) § 105, 42 U.S.C. § 9605 (1982). The Paoli railyard site was placed on the National Priorites List (NPL) established pursuant to § 9605(c) to rank the sites presenting the most severe threat to human health and the environment. Among the factors to be considered when adding a hazardous site to the NPL are the following:

> (A) The extent to which [the] hazard ranking system score for the facility is affected by the presence of any special study waste at, or any release from, such facility.
>
> (B) Available information as to the quantity, toxicity, and concentration of hazardous substances that are constituents of any special study

To survive defendants' motion for summary judgment, our burden, as co-counsel for the plaintiffs, was to demonstrate a causal connection between the PCB contamination at the railyard, and the injuries suffered by the *Paoli* residents.[12] Prior to the summary judgment motions, the district court had entered what has been referred to as a "case management order" requiring the plaintiffs to come forward with prima facie evidence of a justiciable claim.[13] In response to that order plaintiffs set forth in both affidavits and interrogatory answers the opinions of a number of experts. One such expert, Deborah Barsotti, Ph.D., had participated in some of the groundbreaking research on the effect of PCBs on animals and was qualified to interpret human clinical tests.[14] Dr. Barsotti received her doctorate in Pathology and was employed by the Agency for Toxic Substance and Disease Registry (ATSDR), affiliated with what we commonly call the Center for Disease Control.[15] Her work on PCBs has been cited in the Con-

---

> waste at, or released from such facility, the extent of or potential for release of such hazardous constituents, the exposure or potential exposure to human population and the environment, and the degree of hazard to human health or the environment posed by the release of such hazardous constiuents at such facility.

CERCLA § 105(g)(2), 42 U.S.C. § 9605(g)(2).

12. *Paoli*, 706 F. Supp. at 375. The district court set forth four elements to be established in order to meet the requisite burden of proof: 1) that defendants released PCBs into the environment; 2) that plaintiffs somehow ingested these PCBs into their bodies; 3) that plaintiffs have an injury; and 4) that PCBs are the cause of that injury. *Id.*

For a discussion of the Third Circuit's resolution of the causation issue, see *infra* notes 53-77 and accompanying text.

13. *Paoli*, 706 F. Supp. at 362. The district court stated that the purported purpose of the case management order was to allow the plaintiffs "to discover all that they said they needed to know" to establish causation. *Id.* In addition, the order was issued to allow the defense to discover necessary information to seek summary judgment. *Id.* Each party was originally allowed only 90 days to complete discovery but brief extensions were finally granted. *Id.*

14. *Paoli*, 916 F.2d at 839. Dr. Barsotti received her doctorate from the University of Wisconsin Medical School, and has published several articles on the toxicity of PCBs. *Id.*

15. *Id. See also* CERCLA § 104(i), 42 U.S.C. § 9604(i). ATSDR reports directly to the U.S. Surgeon General and was established to provide the following:

> (A) in cooperation with the States, [to] establish and maintain a national registry of serious diseases and illnesses and a national registry of persons exposed to toxic substances;
> (B) [to] establish and maintain [an] inventory of literature, research, and studies on the health effects of toxic substances;
> (C) in cooperation with the States, and other agencies of the Federal Government, [to] establish and maintain a complete listing of areas closed to the public or otherwise restricted in use because of toxic substance contamination;
> (D) in cases of public health emergencies caused or believed to be caused by exposure to toxic substances, [to] provide medical care and

gressional Record.[16]

Notable among the expert opinions introduced by plaintiffs is that of Arthur C. Zahalsky, Ph.D., who holds a doctorate in microbiology, and who is a tenured professor of Immunology and Human Diseases at Southern Illinois University.[17] Plaintiffs also provided the testimony of an internist, Harry Shubin, M.D.[18] The plaintiffs also introduced the affidavit[19] of Ian C.T. Nisbet, Ph.D., who had been employed by EPA when it decided to outlaw further use of PCBs except under very limited circumstances.[20] Other expert opinions offered by the plaintiffs included those of Robert K. Simon, Ph.D., an expert in human exposure to chemicals,[21] Benjamin Calesnick, M.D., a pharmacologist,[22] William J. Nicholson, Ph.D., a physicist,[23] and Dr. Herbert Allen, an envi-

---

> testing to exposed individuals, including but not limited to tissue sampling, chromosomal testing where appropriate, epidemiological studies, or any other assistance appropriate under the circumstances; and (E) either independently or as part of other health status survey, [to] conduct periodic survey and screening programs to determine relationships between exposure to toxic substances and illness. In cases of public health emergencies, exposed persons shall be eligible for admission to hospitals and other facilities and services operated or provided by the Public Health Service.

CERCLA § 104(i)(A)-(E), 42 U.S.C. § 9604(i)(A)-(E).

16. *Paoli*, 916 F.2d at 839. The court noted that Dr. Barsotti was also cited in the legislative history of the Toxic Substances Control Act. *See* 15 U.S.C. §§ 2601-2629 (1977).

17. *Paoli*, 916 F.2d at 839. Dr. Zahalsky currently is specializing in the area of scientific consultation for litigation. He divides his time between teaching and research at the University and his private consulting work. *Id.*

18. *Id.* at 838, 840. Dr. Shubin submitted expert opinions on the issue of causation for plaintiffs in two previous cases involving the Paoli site. He concluded that the illnesses he diagnosed were caused by exposure to PCBs. *Id.*

19. *Paoli*, 706 F. Supp. at 371. Given the time restrictions in conducting discovery sufficient to establish the requisite burden of proof, Dr. Nisbet's findings were submitted in affidavit form. *Id.*

20. *Paoli*, 916 F.2d at 841. Dr. Nisbet received his doctorate from Cambridge University in 1958. He has authored numerous articles in the area of human health risks associated with exposure to toxic substances. *Id.*

21. *Id.* Dr. Simon received his doctorate degree from the University of Maryland. He describes his areas of specialization as industrial hygiene, toxicology and forensic analytical chemistry. *Id.*

22. *Id.* Dr. Calesnick is a Professor of Medicine at Hahnemann Medical College where he also serves as Professor of Medicine and as Director of Hahnemann's Division of Human Pharmacology. He has published over 100 articles on Pharmacology and has received numerous academic and professional honors. His affidavit concluded that the *Paoli* plaintiffs require "medical surveillance as a consequence of their exposure to PCBs at Paoli." *Id.*

23. *Id.* Dr. Nicholson received his doctorate degree from the University of Washington and is currently a professor of Community Medicine at Mount Sinai School of Medicine in New York City. *Id.* He conducted a series of tests con-

ronmental chemist.[24]

In essence, plaintiffs' expert witnesses proffered evidence: (1) disputing the methods and conclusions of the ATSDR Study conducted to ascertain PCB levels in railyard neighborhood residents;[25] (2) asserting the validity of animal studies and other testing results in linking PCB exposure to human disease;[26] (3) tracing PCBs in the plaintiffs' bodies to the Paoli railyard;[27] and (4) demonstrating the presence of immunological abnormalities in the plaintiff group.[28]

B. Challenges from the Defense

In response, the defendants submitted what was referred to as a "mega-affidavit," an affidavit signed by several leading physicians, researchers, and experts supporting the defense position.[29] These experts did not simply dispute the opinions proffered by Doctors Barsotti, Zahalsky and the others; rather, they contended that *no* competent or responsible scientist would take the position set forth by plaintiffs' experts.[30] Among the principle areas of

cluding that: (1) PCBs have adverse health effects on humans; and (2) animal studies have relevance for predicting human illness. *Id.*

24. *Id.* at 838-39. Dr. Allen is the current Director of Drexel University's Environmental Studies Institute. He testified that plaintiffs' elevated PCB levels were a result of exposure to contaminants at the Paoli railyard. *Id.*

25. *See Paoli*, 706 F. Supp. at 372. The chief flaws in the ATSDR Study were the following: (1) failure to take into account recent evidence concerning threshold backgrounds of PCB exposure; (2) lack of correlation between PCB levels in the soil and in the blood levels of the testing group; (3) exclusion of relevant questions concerning contact with soil or other sources of PCB exposure; (4) failure to focus on children in exposure studies; (5) lack of a control group to determine comparable levels of exposure; (6) failure to adequately investigate potential PCB exposure; (7) improper exclusion of certain individuals, which negated the study's random sample effect; (8) improper exclusion of an individual with high PCB levels from the study group; and (9) improper calculation of PCB levels of the general population, which negated the disproportionately high PCB exposure of the *Paoli* plaintiffs. *Id.*

26. *See Paoli*, 916 F.2d at 841.

27. *Id.* at 839. Dr. Barsotti conducted gas chromatography testing at the *Paoli* site. By comparing chromatographic tracings of the plaintiffs' blood with tracings of the soil at the site, she was able to demonstrate that PCB exposure was directly linked to the railyard. She concluded that plaintiffs' PCB exposure was a "substantial factor" in causing their illnesses. *Id.*

28. *Id.* at 840. Dr. Zahalsky opined that PCBs can damage the human immune system "because they alter the cell production and replenishment rate of immune cells, and impair the survivability of those cells." *Id.* He also stated the the PCBs at Paoli were a "substantial factor" in causing damage to the plaintiffs' immunological systems. *Id.*

29. *Paoli*, 706 F. Supp. at 366 n.1 (listing medical and scientific personnel included in joint affidavit).

30. *Id.* at 366. The filed affidavit asserted that, "[w]e have reviewed the

dispute were: (1) the actual health risks associated with exposure to PCBs;[31] (2) the validity of applying animal studies and other research to issues of human causation;[32] (3) the admissibility of novel scientific techniques;[33] and (4) the appropriate role of peer-reviewed literature.[34]

At the outset, the defendants argued that generally accepted scientific and medical opinion regarding PCBs indicates that non-occupational exposure does not cause adverse health effects.[35] The validity of the ATSDR Study's findings was vigorously defended[36] while the relevance of animal studies and other methodologies was contested as a questionable indicator of human illness.[37] The introduction of meta-analysis, wherein data from a number of different epidemiological studies are consolidated and

---

extensive literature on PCBs and have found that *no reasonable medical or scientific basis exists* for concluding that chronic exposure to PCBs cause cancer, hypertension, cardiovascular diseases, elevations in serum triglycerides or cholesterol levels, liver disease, joint irritation, pancytopenia, post-operative humans." *Id.* (emphasis added).

31. The defendants cited a November 1987 ATSDR study, *Toxicological Profile For Selected PCBs (draft)*, assessing the relevant toxicological testing for PCB exposure. The report concluded that "[a]dverse health effects have not been observed in people in the United States with nonoccupational exposure." *See Paoli*, 706 F. Supp. at 365-66.

32. *Id.* at 367. The defense conceded that animal studies are useful to regulatory agencies in determining whether a chemical might pose a threat to public health. However, they asserted that these studies are not appropriate in determining an individual defendant's liability in a tort action "where the question is whether it is more likely than not that defendant caused plaintiff's injury." *Id.*

33. *Id.* at 373. *See also* Anthony Z. Roisman, *'Junk Law': Defense Attack on Causation*, TRIAL, Sept. 1991, at 51. The author advocates the admissibility of what has been referred to as "junk science." He refutes the traditional scientific assertion that epidemiological studies are necessary to establish causation in exposure cases. Citing the Third Circuit decision in *Paoli*, the author recognizes that "[s]ome courts have finally begun to see the fallacy of relying solely on epidemiology in causation decisions. The most promising movement in this direction has come from the Third Circuit." *Id.* at 53.

34. *See Paoli*, 706 F. Supp. at 373. *See also Paoli*, 916 F.2d at 857-58. The Third Circuit noted that one of the reports under attack by the defense was that of Dr. Nicholson. In his affidavit, Dr. Nicholson states that his report was reviewed by "cooperating researchers and the Industrial Diseases Standards Panel." *Id.*

35. For a discussion of the defense's view of health risks to humans resulting from PCB exposure, see *supra* note 31 and accompanying text.

36. *See Paoli*, 706 F. Supp. at 365-66.

37. *See Roisman, supra* note 33, at 55-56. Ironically, some defendants in toxic tort cases now insist on animal studies where strong epidemiological data supports plaintiffs' assertions. Their intent is to argue that animal studies must be duplicated in biological mechanisms in order to confirm plaintiffs' results. Since the mechanisms which control diseases like cancer are still not fully understood, the insistence on animal studies would essentially preclude a plaintiff from proving causation. *Id.*

re-examined to obtain further information, was challenged by the defense as a novel scientific technique.[38] Finally, the defense claimed that the meta-analysis submitted as evidence by plaintiffs' expert had not been properly peer-reviewed.[39]

C. District Court's Admissibility Rulings

Faced with conflicting expert evidence, the district court excluded all of the evidence set forth by plaintiffs, including the experts' opinions,[40] and granted defendants' motion for summary judgment.[41] In deciding the critical issue of the admissibility of novel scientific techniques, the court relied on its interpretation of the factors set forth in *United States v. Downing*.[42] These factors included: (1) the soundness and reliability of the technique employed in producing the scientific evidence; (2) the possibility of overwhelming, confusing or misleading the jury by admitting the evidence; and (3) the nexus between the proffered scientific evidence and the factual issues in dispute.[43]

In a somewhat cryptic analysis, the court found that all three factors supported the granting of defendants' motion.[44] First, the court accepted the defense's arguments that meta-analysis is not a reliable scientific technique and that the report advanced by the plaintiff's expert, Dr. Nicholson, had not been properly peer-reviewed.[45] Further, the court reasoned that Dr. Nicholson's study would confuse the jury "because of its scientific nature and his credentials so that [the jury] would make more of it than it actually deserved."[46] Finally, the court found that the Nicholson re-

38. *Paoli*, 706 F. Supp. at 373.

39. *Id.*

40. *Id.* at 375. The district court opinion stated that the defense expert's assertions refuting the evidence of higher PCB levels in plaintiffs' bodies is "the only legally admissible evidence in this case." *Id.*

41. *Paoli*, 916 F.2d at 835. The Third Circuit noted that the district court had granted summary judgment for the defendants "on all claims except those for property damage and response costs under CERCLA." *Id.* (footnote omitted).

42. 753 F.2d 1224 (3d Cir. 1985). The *Downing* case involved, *inter alia*, the admissibility of novel scientific testimony to establish the reliability of eyewitness identifications. *See id.* at 1232-37.

43. *Paoli*, 706 F. Supp. at 373 (quoting *Downing*, 753 F.2d at 1237).

44. *Id.* at 373. The district court provided little if any explanation for its ruling that plaintiff failed to meet the *Downing* considerations. In dismissing Dr. Nicholson's evidence concerning causation, the court disputed both its admissibility as a novel scientific technique and its relevance. *Id.*

45. *Id.*

46. *Id.* Despite the district court's concern with the jury's perceived inability to determine the weight of Dr. Nicholson's credentials, the court later ques-

port "could not be the basis for anyone to say with a reasonable degree of scientific certainty that some particular person's disease . . . was caused by PCBs."[47] Essentially, the court enabled the defense experts to neatly extricate themselves from what would have been a conventional battle of the experts. However, as the appellate court later determined, the credibility of the experts and the validity of their asserted positions is a question more properly left to the members of the jury.

III. THIRD CIRCUIT RESOLUTION OF EVIDENTIARY ISSUES

A. Rule 702 and the Reaffirmation of *United States v. Downing*

In its 1990 decision setting aside the district court's evidentiary rulings,[48] the Third Circuit found both procedural and substantive flaws in the lower court's analysis.[49] Procedural errors cited by the appellate court included the district court's failure to allow plaintiffs an adequate opportunity to present their evidence,[50] its ruling on an incomplete factual record, and its inadequate articulation of the bases for its rulings.[51] The appellate court further criticized the lower court's procedural application of the Federal Rules of Evidence.[52]

Substantively, a number of evidentiary issues arose in the remand of the district court's holding. One such issue was the relevant qualifications of the experts. The Third Circuit addressed this evidentiary question by criticizing "the district court's insistence on a certain kind of degree or background [as] inconsistent with our jurisprudence in this area."[53] As the court noted, the Rule's language and accompanying Advisory Committee Notes allow a person with a variety of skills and backgrounds to qualify as an expert.[54] The court, in resolving the Rule 702 issue, needed to

---

tioned "whether the plaintiffs' experts really are experts." *Id.* at 375-76. The court found that many experts "seem to have very little formal academic training in the areas in which they testify." *Id.*

47. *Id.* at 373.

48. *In re* Paoli R.R. Yard PCB Litig., 916 F.2d 829 (3d Cir. 1990), *cert. denied*, 111 S. Ct. 1584 (1991).

49. *Id.* at 836.

50. *Id.*

51. *Id.*

52. *Id.* For further discussion of the Third Circuit's interpretation of the relevant Federal Rules of Evidence in the *Paoli* decision, see *infra* notes 65-77 and accompanying text.

53. *Paoli*, 916 F.2d at 855.

54. *See* FED. R. EVID. 702. Rule 702 provides that, "[i]f scientific, technical or other specialized knowledge will assist the trier-of-fact to understand the evi-

determine whether or not a toxicologist, rather than a physician or medical doctor, could opine about the injuries to a plaintiff as a result of the contamination.[55] Specifically, the court was faced with an argument that a physician may be better able than a toxicologist to draw conclusions concerning injuries resulting from prolonged exposure to PCBs.

The court's decision supported plaintiffs' contention that while the defense may legitimately dispute an expert's qualifications, conclusions as to reliability go to the weight of the opinion and should be a decision properly left to the members of the jury. The trial court is not the appropriate decisionmaker in weighing the merit of expert opinions, particularly on a motion for summary judgment involving a cold paper record.[56] Moreover, in determining the reliability of scientific evidence submitted by experts, "courts must err on the side of admission rather than exclusion."[57]

The Third Circuit decision provided additional guidance for judicial consideration of the three factors set forth in *Downing*. In determining the appropriate level of reliability, the court noted that "the reliability requirement must not be used as a tool by which the court excludes all questionably reliable evidence."[58] The court noted that, under the Federal Rules of Evidence, it would not require a 95% reliability demonstration as might a sci-

---

dence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise." *Id.* *See also* FED R. EVID. 702 advisory committee's note. The note provides, in pertinent part, as follows:

> The fields of knowledge which may be drawn upon are not limited merely to the "scientific" and "technical" but extend to all "specialized" knowledge. Similarly, the expert is viewed, not in a narrow sense, but as a person qualified by "knowledge, skill, experience, training, or education." Thus within the scope of the rule are not only experts in the strictest sense of the word, *e.g.* physicians, physicists, and architects, but also the large group sometimes called "skilled" witnesses, such as bankers or landowners testifying to land values.

Id.

55. *See Paoli*, 916 F.2d at 855.

56. It is interesting to note the subtle distinctions in judicial characterization of expert background and qualifications, as described in the district court and circuit court opinions. *See, e.g.*, *Paoli*, 706 F. Supp. at 369-70 (minimizing Dr. Barsotti's qualifications to discuss plaintiffs' illnesses). *Cf. Paoli*, 916 F.2d at 839 (highlighting Dr. Barsotti's achievements and contributions to U.S. Government research and Congressional debate). *See also supra* discussion note 46.

57. *Paoli*, 916 F.2d at 857.

58. *Id.* *See also* DeLuca v. Merrell Dow Pharmaceuticals, Inc., 911 F.2d 941, 956 (3d Cir. 1990) (advocating admission of any appropriate evidence designed to assist trier of fact).

entist in a laboratory. Conversely, the court stated that it would not arbitrarily demand that evidence be 51% accurate.[59] The court reasoned that a flexible approach would simply take into account whether or not the proffered analytical method would assist the trier of fact.[60] As there had been no disagreement in the record concerning the reliability of meta-analysis as a scientific method, the court concluded that the evidence was improperly excluded.[61]

The appellate court summarily dismissed the requirement that expert testimony be subjected to peer review, finding no such requirement in the Federal Rules of Evidence.[62] While reaffirming the flexibility of the *Downing* analysis, the Third Circuit emphasized the less discretionary requirement of a "developed record and specific findings on reliability issues."[63] Noting the absence of in limine hearings and expert depositions, the appellate court held that it had no basis to make a proper admissibility determination.[64]

B. Rule 403 and the Function of Summary Judgment

The Third Circuit also questioned the district court's application of the Rule 403 balancing requirement[65] when it excluded plaintiffs' expert evidence.[66] The court noted that the determination of whether the probative value of the evidence outweighs the danger of unfair prejudice should rarely be made in a preliminary phase of litigation, particularly in a summary judgment motion.[67]

---

59. *See Paoli*, 916 F.2d at 857.

60. *Id. See generally* Robert A. Shults, *Expert Witnesses in Environmental and Toxic Tort Cases*, 32 S. TEX. L. REV. 533, 546-48 (1991) (providing overview of varying judicial approaches to determining validity of expert testimony).

61. *See Paoli*, 916 F.2d at 857. The court noted that if the defense had produced any evidence that meta-analysis is an inaccurate scientific method, then there might be a basis for excluding meta-analysis as a reliable method. *Id.*

62. *Id.* at 858 (citing *DeLuca*, 911 F.2d at 954).

63. *Id.*

64. *Id.* at 858-59. The court maintained that, as a result of the inadequate record, "[w]e cannot affirm what we cannot review." *Id.* at 859.

65. *See* FED. R. EVID. 403. Rule 403 provides that, "[a]lthough relevant, evidence may be excluded if its probative value is *substantially out-weighed* by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." *Id.* (emphasis added).

66. *Paoli*, 916 F.2d at 859. The court also cites *Downing*, 753 F.2d at 1241, to affirm the efficacy of the in limine hearing in conducting appropriate factfinding. *Id.*

67. *Paoli*, 916 F.2d at 859 ("[W]e stress that *pretrial* Rule 403 exclusions should rarely be granted.").

The court reasoned that there is no harm at the stage of litigation where there is no jury empaneled. Moreover, the preliminary phases of litigation involve an evaluation of the necessity of assembling a jury and beginning a trial where a more complete record would be required.[68] The Third Circuit reasoned that if the district court invoked Rule 403 at this early stage of litigation a "virtual surrogate" for a trial would be necessary.[69] A surrogate trial, essentially duplicating a real trial at the summary judgment stage, makes little sense, particularly in an era of growing resistance to protracted litigation.

C. Conflicts in Methodology - Rule 703 Issues

The appeals court also questioned the district court's application of Rule 703[70] in *Paoli*. The appellate court noted that the lower court's decision had few, if any, clear factual findings and that the court had essentially chosen among conflicting opinions rather than excluded plaintiffs' opinions on evidentiary grounds.[71] The appellate court emphasized the Rule 703 requisites established in *In re Japanese Electronic Products*.[72] In particular, the court reaffirmed the *Japanese Electronics* findings concerning the reliability of expert testimony: " '[t]he proper inquiry is not what the court deems reliable, but what experts in the relevant discipline deem it to be.' "[73] The court further emphasized the requirement to compile a full and adequate basis for review by specifically delineating the data that experts in the field find

68. *Id.* "We believe that Rule 403 is a trial-oriented rule. Precipitous Rule 403 determinations, before the challenging party has had an opportunity to develop the record, are therefore unfair and improper." *Id.*

69. *Id.* at 859-60. The record on the point at issue would have to be sufficiently complete for such a process to occur. *Id.*

70. FED. R. EVID. 703. Rule 703 provides as follows:

> The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

Id. (footnote omitted).

71. *Paoli*, 916 F.2d at 853.

72. 723 F.2d 238 (3d Cir. 1983). *Japanese Electronics* involved an action by American television manufacturers against Japanese television manufacturers for alleged antitrust, tariff, price discrimination, and antidumping violations. The Third Circuit held, *inter alia*, that the district court erred in substituting its determination concerning admissibility of expert materials relied upon as evidence. *Id.* at 277-78.

73. *Paoli*, 916 F.2d at 853 (quoting *Japanese Electronics*, 723 F.2d at 276).

reliable.[74]

The court further held that the district court's treatment of certain novel scientific technique test results did not reach the factual inquiry necessary to clearly support its exclusion of the evidence.[75] Moreover, the district court did not allow the plaintiffs adequate opportunity to discover or challenge the scientific data proffered by the defense experts.[76] Again, the appellate court underscored the need for a trial-like procedure to properly assess admissibility of expert evidence.[77]

IV. MEDICAL MONITORING - THE LANDMARK PROVISION

The Third Circuit's resolution of certain evidentiary issues, while significant, did not break new ground. While the clarification of conflicting interpretations in applying the Federal Rules of Evidence was notable, I submit that there was nothing remarkable about the evidentiary portion of the decision. Perhaps a more significant holding was the recognition of the medical monitoring claim, the first appellate court decision recognizing a viable cause of action for the tort in Pennsylvania.[78]

The court defined an action for medical monitoring as one which "seeks to recover only the quantifiable costs of periodic medical examinations necessary to detect the onset of physical

74. *Id.* The court cited the following areas as not constituting a proper reviewable foundation: (1) no specific reference to the evidence chosen by the district court as credible; (2) no discussion of the theory on which it rejected certain expert opinions; and (3) no identification of those opinions it meant to exclude. *Id.*

75. *Id.* at 854. The district court found the "consensus conclusion" of the scientists' findings to indicate that plaintiffs' illnesses were not caused by the PCBs at the Paoli site. The lower court, however, did not consider evidence that certain plaintiffs may have been exposed to other contaminants as well as PCBs. *Id.*

76. *Id.* at 854-55. Specifically, the court held that the district court should have conducted an in limine hearing, should have allowed oral argument on the evidentiary issues, and should have tailored its case management order to "give plaintiffs an adequate opportunity to discover defendants' experts' positions." *Id.* at 854.

77. *Id.* at 855. The court noted that "[a]t least some process should have been devised to afford plaintiffs a surrogate for that trial scenario where the equivalent evidentiary exclusion and adverse judgment might occur. On this ground alone, the summary judgment would have to be set aside." *Id.*

78. *Paoli*, 916 F.2d at 849. The court noted that while neither the Pennsylvania Supreme Court nor the Superior Court had touched the issue of medical monitoring, a trial court decision indicated that this type of claim might proceed past the summary judgment stage. *Id.* at 849 n.20. For a discusssion of prior Pennsylvania trial court decision addressing the issue, see Merry v. Westinghouse, 684 F. Supp. 847, 848-50 (M.D. Pa. 1988).

harm."[79] Moreover, the court stated that the issue of whether a plaintiff requires medical monitoring is a reasonable jury determination.[80] In so holding, the court outlined several significant policy reasons for recognizing the tort: (1) toxic exposure injuries, even if latent, can at some point cause significant harm; (2) the irresponsible discharge of toxic chemicals should be deterred; and (3) plaintiff's early detection and treatment of injuries should be encouraged.[81]

V. ROLE OF THE JURY IN COMPLEX CIVIL LITIGATION

A. Historical Significance of the Seventh Amendment Right to a Jury Trial

In resolving the evidentiary disputes at issue in *Paoli*, the Third Circuit simply reasserted the proper roles of the court and the jury in settling civil controversies. Since the founding of this country, the jury has played an integral role in maintaining public confidence in our court system.[82] While the Framers of the Constitution may not have shared a common vision of the utility of the jury in resolving civil disputes, they generally agreed that the institution of the jury was to be held "in high estimation."[83] Their adoption of the Seventh Amendment to the Constitution formally recognized and preserved this fundamental right.[84]

---

79. *Paoli*, 916 F.2d at 850 (distinguishing medical monitoring claims from enhanced risk claims).

80. *Id.* at 851. The court found that the jury must determine whether medical monitoring is "*probably*, not just possibly necessary." *Id.* (emphasis added).

81. *Id.* at 852. The court noted that recognizing the tort does not require judicial speculation about the probability of future injury. Courts must simply decide only if medical supervision, a much less costly remedy, is warranted. *Id.*

82. *See* CONSTITUTIONAL HERITAGE SERIES, FEDERALISTS AND ANTIFEDERALISTS: THE DEBATE OVER THE RATIFICATION OF THE CONSTITUTION 3 (John P. Kaminski & Richard Leffler eds., 1989). Between 1763 and 1788, an intense debate raged in this country between the Federalists and Antifederalists concerning the nature of the newly formed American government. Federalists advocated a strong central government and a federal constitution. Antifederalists argued that a central government would endanger the sovereignty of the states, and feared any federally mandated Bill of Rights. *Id.* Antifederalists also feared that a federal constitution might endanger the established system of jury trials. *Id.* at 120. Alexander Hamilton, a leading Federalist, advocated preservation of the trial by jury despite Constitutional silence on the issue. *See* THE FEDERALIST NO. 83, at 516-32 (Alexander Hamilton) (Henry Cabot Lodge ed., 1888). Hamilton viewed the trial by jury as a "valuable check upon corruption . . . [because] it would be necessary to corrupt both court and jury" to achieve an unjust result. *Id.* at 523.

83. *See, e.g.*, THE FEDERALIST NO. 83, *supra* note 82, at 521.

84. *See* Costantino & Master, *supra* note 1, at 281. Generally, the right to trial by jury in civil cases was supported by early Americans. There were some

From early in the nation's history, commercial and mercantile interests have expressed their discomfort with lay juries deciding "complex" or "technical" issues. This tension has been a constant threat to the right to jury trial. The nation gradually evolved from an agricultural society into a mercantile economy where commercial affairs were dominant.[85] Significantly, the latter part of the eighteenth century marked the first attempts by the legal and commercial communities to curtail the role of the juries.[86] Merchants and insurance companies, in particular, felt threatened by what they viewed as a growing pattern of large jury awards to plaintiffs, inhibiting further industrial growth.[87]

As a result of the move to restrict the power of juries in deciding commercial disputes, a trend emerged which would lay the foundation for modern evidentiary practices. In the early part of the nineteenth century, the traditional view that juries were the proper judges of both fact and law began to change. A sharper distinction was drawn between law and fact with a resulting functional separation of judge and jury.[88] For the first time, the presiding judge in a civil matter was required to provide the jury with an opinion concerning every relevant point of law involved in a case.[89] This change in the judicial role broadened considerably, emerging as the now familiar principle that issues of law are to be

---

Federalists who did not view this right as essential to the preservation of liberty, but feared its non-inclusion would defeat the efforts to ratify the Constitution. *Id.* *See also* R. Ben Hogan, III, *The Seventh Amendment*, TRIAL, Sept. 1987, at 76 (discussing ongoing significance of historic origins of Seventh Amendment).

85. *See* MORTON J. HORWITZ, THE TRANSFORMATION OF AMERICAN LAW 1780-1860, at 141 (1977). The author notes that by 1800 there was a corresponding marked increase in commercial lawyers in this country, servicing the newly emerging and powerful merchant community. Accordingly, the legal community became more sensitive to the impact of commercial law decisions. *Id.*

86. *Id.* at 141-42. Merchants were often adversely affected by unfavorable jury decisions. The legal community joined with the mercantile industry to restrict the scope of juries, employing two basic procedural devices: (1) submitting points of law directly to judges to avoid jury deliberation on the issue; and (2) expanding the use of new trials if the jury verdict was "contrary to the weight of the evidence." *Id.*

87. *Id.* at 141. Marine insurance litigation between merchants and insurance companies increased significantly, fostering fear in the mercantile community that their rights were being regulated by lay jurors with little knowledge of the law. *Id.*

88. *Id.* at 142-43. At the end of the eighteenth century, the prevailing view was that juries were competent to determine questions of law. The emerging emphasis on the separation of functions led to more elaborate procedural control of juries. Where jury instructions had once been advisory, they later became mandatory as the jury's power to determine the law declined. *Id.*

89. *Id.*

decided by the court while issues of fact are left to the jury's determination.[90] A significant consequence of the delineation of the roles of judges and jurors was a new judicial control of jury verdicts.[91]

B. Preservation of the Jury as Factfinder

With the advent of the law/fact decisional dichotomy, the inevitable question of the competence of a jury as factfinder arose as litigation became more complex.[92] While the Supreme Court has touched on the subject, there has been no firm resolution of the proper role of the jury in complex cases.[93] While some practitioners have suggested authorizing exceptions to the Seventh Amendment right for complex cases or empanelling special expert juries,[94] support for the traditional jury remains strong.[95]

A recent symposium on civil juries, co-sponsored by the Brookings Institute of Washington, D.C. and the American Bar Association's (ABA) Litigation Section,[96] underscored the trepidation experienced by most attorneys at the prospect of substituting the judge for the jury as factfinder in complex litigation.[97]

90. *Horwitz*, *supra* note 85, at 143. One unforecasted result of the new jury procedure was the existence of multiple and often conflicting instructions to the jury. This in turn increased the number of new trials ordered for errors in proceedings below the appellate court level. *Id.*

91. *Id.* The author notes that these procedural changes also allowed the development of a "uniform and predictable body of judge-made commercial rules." *Id.*

92. *See generally* Joe S. Cecil, *Citizen Comprehension of Difficult Issues: Lessons Learned from Civil Jury Trials*, 40 AM. U. L. REV. 727 (1991) (arguing that while technical nature of civil trials has increased, lay juror has unrealized potential for meaningful participation in proceedings). *But see* Joseph C. Wilkinson, Jr. et al., *A Bicentennial Transition: Modern Alternatives to Seventh Amendment Jury Trial in Complex Cases*, 37 KAN. L. REV. 61, 66-67 (1988) (echoing concern that uncomprehending jury could unwittingly produce unjust decision).

93. *See, e.g.*, Ross v. Bernhard, 396 U.S. 531 (1970). In a footnote of the *Ross* opinion, the court briefly addressed how the legal nature of an issue may be determined, including in its criteria "the practical abilities and limitations of juries" as a consideration. *Id.* at 538 n.10. *See also* Note, *The Right to a Jury Trial in Complex Civil Litigation*, 92 HARV. L. REV. 898 (1979) (discussing applicability of *Ross* test and separation of legal and equitable issues).

94. *See, e.g.*, Wilkinson et al., *supra* note 92, at 104-05 (advocating greater use of special masters and court-appointed panels of experts).

95. *See, e.g.*, Costantino & Master, *supra* note 1, at 286-87. The authors aver that limiting the traditional Seventh Amendment right to jury trial in complex cases "where there are no clear and compelling historical or contemporary precedents is indeed ill-conceived and premature." *Id.*

96. *See* Emily Couric, *Jury System Alive and Well*, A.B.A. J., Sept. 1992, at 32.

97. *Id.* Notably, counsel for large corporations frequently prefer juries to judges as factfinders despite their occasional frustration with the "unpredictability and irrationality of jury verdicts." *Id.* at 32-33.

While acknowledging the average juror's frequent lack of the requisite educational background to properly assess complex scientific or other highly technical evidence, the symposium participants overwhelmingly advocated the fundamental role of the jury.[98]

Despite the burdens placed upon jurors to digest highly technical information in a complex matter, the preservation of the traditional jury system continues to override any movement towards radical change. While modern controversies frequently demand more sophisticated evidence, the solution lies in improving the methods of educating jurors rather than in diminishing their roles.

VI. CONCLUSION

The *Paoli* case presented a particularly challenging array of complex evidentiary issues for resolution. Despite the complexity, jurors are capable of digesting and resolving these kinds of expert disputes if given proper expert witness assistance. However, this expert evidence must be set forth for proper jury deliberation as is other relevant evidence, in open court following standard trial procedures. There is an inherent danger where "super scientists" pre-determine the scientific parameters controlling the litigants in a court of law. If outcome-determinative information is withheld from a jury in order to mitigate the complexity of a case, the foundation of our legal system may be seriously eroded.

---

98. *Id.* Among the preliminary recommendations reported by the Symposium organizers were the following:

> (1) Permit jurors to take a more active role in a trial. They could . . . take notes, submit written questions, and [] review the trial record on computer during deliberation.
> (2) Liberalize evidence rules to make more information available to jurors.
> (3) Allow greater use of technology, such as videotaped testimony and computerized exhibits.
> (4) Ensure that juries better represent the community.
> (5) Return to larger juries and permit alternate jurors to deliberate.
> (6) Follow a "one-day/one-trial" standard for jury service, in which jurors not called the first day for trial are dismissed.
> (7) Provide better pay, benefits, and conditions for jurors, along with a "juror bill of rights" that could, for example, spell out a right to decline media interviews.
> (8) [R]educe budget shortfalls through more extensive use of alternate dispute resolution and better judicial management.
> (9) *Resist efforts to reduce the jury's role.*

Id. (emphasis added).

From the earliest days of this country one of the single issues uniting the Founders' task of establishing a lasting form of democratic government was the fundamental importance and value of a trial by jury. Although arguments have been made throughout the nation's history that juries are something to distrust or that they are somehow a lesser means of resolving disputes, their participation in the judicial system is absolutely vital. As Professor Wolfram noted in his study of the Seventh Amendment:

> [T]he anti-federalists were not arguing for the institution of the civil jury trial in the belief that jury trials were short, inexpensive, decorous, and productive of the same decisions that judges sitting without juries would produce. The inconveniences of jury trial[s] were accepted precisely because in important instances, through its ability to disregard substantive rules of law, the jury would reach a result that the judge either could not or would not reach. Those who favored the civil jury were not misguided tinkerers with procedural devices, they were, for the day, libertarians who avowed that important areas of protection for litigants in general, and for debtors in particular, would be placed in grave danger unless it were required that juries sit in civil cases.[99]

In conclusion, jurors are capable of deciding issues involving proper methodology of scientific proof if given the opportunity and proper expert evidentiary assistance. They have proven themselves competent to decide equally complex issues in antitrust cases, to hear economic testimony on the projected rate of inflation, and to determine the sanity of criminal defendants. Accordingly, when the jury is finally convened in the *Paoli* case, I am confident that it will competently evaluate the merits of the scientific testimony and will ultimately do justice in arriving at its decision.

---

99. *See* C.W. Wolfram, *The Constitutional History of the Seventh Amendment*, 57 MINN. L. REV. 639, 671-76 (1973).