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The Impact Of The Daubert, Joiner, And Kumho Tire Decisions On The Admissibility Of Expert Opinion Evidence

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I. INTRODUCTION

Some of the most alarming news a plaintiff facing a motion for summary judgement in a federal tort case can receive is that the expert testimony she plans to offer is inadmissible. For such a plaintiff, expert opinion testimony is often the only evidence available to establish causation. Without this evidence the plaintiff often cannot make out her prima facie case and is effectively barred from relief.

Rule 702 of the Federal Rules of Evidence states:

> "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or 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."[1]

With this broad statement the Federal Rules of Evidence set forth the standard that governs the admissibility of expert testimony.[2] In 1993, the Supreme Court interpreted Rule 702 of the Federal Rules of Evidence as containing a reliability requirement for the admissibility of expert testimony.[3] This new requirement was based on an assessment of the methodology the expert used to arrive at her conclusion.[4] In *Daubert v. Merrell Dow Pharmaceuticals*,[5] the Court overturned the existing test for the admissibility of expert opinion testimony, the *Frye* test.[6]*Daubert* strove to create a flexible inquiry into the reliability of expert testimony that would be in keeping with the "liberal thrust" of the Federal Rules.[7]

In 1997, in *General Electric Co. v. Joiner*, the Court once again addressed the admissibility of expert testimony holding that a district court judge's decision to admit expert testimony, based on an assessment of the reliability of both the methodology and conclusions of the expert, will only be reviewed under an abuse of discretion standard.[8] In the years following *Daubert* federal courts have added additional factors to the original test, making it more difficult to achieve admissibility.[9] Federal courts have also ignored and/or discredited a well-accepted methodology for establishing causation[10] and applied the *Daubert* factors to nonscientific expert testimony, contravening the intent of the *Daubert* court.[11] The result in some instances has been that it is now more difficult to achieve admissibility of expert testimony than prior to *Daubert*.[12]

The Supreme Court revisited the issue of expert testimony in the spring of 1999 in *Kumho Tire Company, Ltd. v. Carmichael*.[13] In *Kumho Tire* the Court concluded that the *Daubert* inquiry was applicable to nonscientific testimony (previously, the *Daubert* test was applied only to scientific testimony).[14] The Court left it to the trial judge to determine "whether Daubert=s specific factors are, or are not, reasonable measures of [the expert's] reliability."[15]*Kumho Tire* gives the trial judge an enormous amount of latitude in determining the reliability of expert testimony. The trial court's evaluation could, in some cases, usurp the role the Seventh Amendment traditionally has reserved for the jury.[16] This decision by the trial judge will be reviewed under the abuse of discretion standard at the appellate level after *Joiner*.[17]

One of the most problematic issues *Daubert* and *Joiner* have left in their wake has been disingenuous appellate review. After the *Joiner* decision in 1997 district court decisions to admit or exclude expert testimony have been reviewed under the deferential abuse of discretion standard, and different appellate

judges have taken different views on how the district court decision should be scrutinized.[18] Plaintiffs have also attempted to forum shop to keep their cases out of federal courts (unless their forum state applies a *Daubert*-like reliability screen), or, if the case is removed to federal court, the plaintiffs will seek out federal judges who are open to their expert witness's methodology.[19] The addition of certain factors to the *Daubert* test by federal courts also raises the question of whether the courts that are adding these factors are usurping the role of the jury in federal tort cases.[20]

This paper will examine the impact of the *Daubert* and *Joiner* decisions on a plaintiff seeking to admit expert opinion testimony in a federal tort case. The possibility of having to meet additional *Daubert* factors for admissibility,[21] doubts over whether the trial court may follow an accepted government methodology for determining causation,[22] and the possible programmatic application of the *Daubert* factors to non-scientific testimony[23] make it extremely difficult for a plaintiff to predict whether her expert testimony regarding causation in a federal tort case will be admitted.

In addition, by allowing trial court judges to enlarge their *Daubert* gatekeeping role so greatly, the current application of the *Daubert* and *Joiner* tests has given judges the authority to evaluate witness credibility, a function that historically has been the jury's role.[24] Some commentators have argued that *Daubert* and *Joiner* give a judge so much latitude that she could remove a witness she believes is dishonest.[25]

The current test for the admissibility of expert testimony applied by some courts is contrary to the intent of the *Daubert* Court.[26] In some cases, the test has excluded evidence that would have been admissible under the *Frye* test, which *Daubert* specifically overruled in an attempt to make the admissibility of expert testimony less difficult.[27]

II. BACKGROUND

A. *The Development of the Current Test for Admissibility*

Prior to 1993, the standard for determining the admissibility of expert scientific testimony was set forth in 1923 by the D.C. Circuit in *Frye v. United States*.[28] The *Frye*[29] approach became known as the "general acceptance" test[30] and, under that test, scientific evidence was not admissible unless the proponent persuaded the trial court that the methodology used "ha[d] been sufficiently established to have gained general acceptance in the particular field in which it belongs."[31]

Seventy years after *Frye*,[32] in 1993, the United States Supreme Court considered the admissibility of expert testimony in *Daubert v. Merrell Dow Pharmaceuticals*.[33] The plaintiffs in *Daubert* were minor children whose mothers had taken Bendectin, an anti-nausea drug, while pregnant.[34] The plaintiffs claimed that Bendectin had caused their birth defects and sought damages from the drug's manufacturer, Merrell Dow.[35] Merrell Dow was granted summary judgement at the trial court level on the grounds that plaintiffs' expert testimony could not prove that Bendectin caused plaintiffs' birth defects.[36]

The Ninth Circuit Court of Appeals affirmed the district court decision holding that certain evidence that the plaintiffs wished to admit, the reanalysis of existing epidemiological studies, was admissible only if it was based on a technique generally accepted as reliable within the scientific community.[37] The Ninth Circuit cited *Frye*[38] as the source of the general acceptance standard.[39]

The Supreme Court granted review in *Daubert*[40] to resolve a split among the federal circuits.[41] The *Daubert* court concluded that Rule 702[42] superseded the *Frye* test[43] and went on to articulate its own test for the admissibility of scientific evidence.[44]

The question under review in *Daubert* was whether Rule 702[45] or the *Frye* test was the applicable standard for the review of expert testimony. The *Daubert* decision did not discuss the admissibility of nonscientific expert testimony.[46] The *Daubert* court intended to provide guidelines for the judge's role as a gatekeeper concerning novel scientific evidence[47] and set forth four factors that the judge should evaluate in determining the reliability of scientific evidence.[48] The factors which the trial court should consider are: (1) whether the testimony is based on theories or techniques that can be or have been tested;[49] (2) whether the theory or technique has been subjected to peer review or

publication;[50] (3) the known or potential rate of error;[51] and (4) the degree to which the theory has gained "general acceptance" within the scientific community.[52] Although general acceptance was no longer a precursor to the admissibility of scientific testimony, widespread acceptance or rejection could be an important factor in ruling the evidence admissible.[53]

In 1997 the Court again addressed the issue of the admissibility of scientific testimony, this time in *General Electric Co. v. Joiner*.[54] In *Joiner*, a city electrician who had developed small cell lung cancer sued General Electric alleging that his workplace exposure to carcinogenic chemicals encouraged the growth of his cancer.[55] Through his work Joiner often worked in and around electrical transformers.[56] Electrical transformers are typically filled with a "dielectric fluid" that cools and insulates the electrical unit inside the transformer.[57] Part of Joiner's work required that he stick his hands and arms into the dielectric fluid.[58] Additionally, Joiner claimed that the fluid occasionally splashed into his mouth and eyes.[59] The dielectric fluid in some of the transformers Joiner worked on contained polychlorinated biphenyls ("PCBs"),[60] and Joiner's experts' theory was that the PCBs caused Joiner's lung cancer.[61]

At the trial court level Joiner attempted to introduce the depositions of experts who testified that the chemicals Joiner had been exposed to were the likely cause of his cancer.[62] The district court ruled the testimony inadmissible on the grounds that it did not meet the *Daubert* test.[63] The district court judge had excluded the evidence on the basis that the expert testimony was based on "subjective belief," not hard science.[64] The Eleventh Circuit Court of Appeals reversed the district court decision on the grounds that a jury should decide the weight of the evidence.[65]

The United States Supreme Court reversed the appellate court in *General Electric Co. v. Joiner*.[66] The Court reaffirmed the trial judge's role as a gatekeeper and then went on to alter the standard set forth in *Daubert* by asserting that both the expert's conclusion and methodology should be examined by the trial judge.[67] The Court held that a trial court judge's decision to exclude or to admit scientific evidence could be overturned by an appellate court only if the trial court abused its discretion in admitting or excluding that evidence.[68]

The Supreme Court decided *Kumho Tire Ltd. v. Carmichael* in March of 1999.[69] The Court granted review in *Kumho Tire* to resolve a split in the federal circuits over whether the *Daubert* test was applicable to nonscientific expert testimony.[70] In *Kumho Tire* an expert engineer was prepared to testify to the cause of a tire blowout that caused the Carmichael's automobile accident.[71] That accident killed one passenger and injured several others. The tire in question, which had a tread depth of 11/32" when new, was worn down to depths between 3/32" and no tread at all over the surface of the tire.[72] The tire had also had at least two punctures that had been insufficiently repaired prior to the blowout.[73] Nevertheless, the expert was prepared to testify that a design defect, not the tire's age and history, had caused the blowout.[74]

The trial court excluded the expert's testimony based on the fact that his testimony did not meet *Daubert*.[75] The Eleventh Circuit reversed, holding that a *Daubert* analysis was only appropriate where the expert relies on scientific principles rather than "skill or experience based" knowledge.[76]

In reversing the appellate court decision the Supreme Court concluded that *Daubert's* general principles were applicable to all expert testimony. The Court also observed that "the test of reliability is flexible and *Daubert's* list of specific factors neither necessarily or exclusively applies to all experts or in every case."[77]

The Court chose to reexamine the engineering expert's testimony under the four existing *Daubert* factors before concluding that it was inadmissible. At one point the Court questioned whether the expert's conclusions would have been the same had he been working for a tire manufacturer rather than a plaintiff.[78] Given the condition of the tire before the blowout, the engineering expert's testimony was undoubtedly suspect both to the trial court and to the Supreme Court. However, as discussed below, questions regarding the expert=s credibility should be addressed by the jury at trial, not by the judge through a rigid application of the *Daubert* factors, at the summary judgement phase.

Kumho Tire can have a potentially devastating affect on experts whose theories are not based on a methodology that is testable, or whose expertise is based on experience (for example, an expert automobile mechanic). The net result of *Kumho Tire* is that a judge could potentially exclude the testimony of a nonscientific expert simply by applying the *Daubert* factors, regardless of whether these factors were indicative of the expert's reliability as a witness.

The effect of both *Daubert* and *Joiner* can be seen in a recent Fifth Circuit Court of Appeals decision, *Moore v. Ashland Chemical Inc*.[79] The Fifth Circuit evaluated the medical causation testimony of a physician under the *Daubert* test and the additional limitations imposed by *Joiner*,[80] and concluded that the testimony was inadmissible under both standards.[81] This case will be discussed in more detail in Part III.A. below.

B. *The Curtailment of the Jury's Role*

The United States Supreme Court abolished the *Frye* test in 1993 to liberalize the admissibility of expert testimony.[82] At the time the *Daubert* decision was written, the Court acknowledged that the factors it delineated were not exclusive.[83] This view was recently affirmed in *Kumho Tire*.[84] In the wake of the *Daubert* decision several courts have added additional factors to the *Daubert* test.[85] These additional factors can create an almost insurmountable barrier to the plaintiff seeking to introduce expert testimony. In some cases this extension of the *Daubert* test arguably extends the role of the judge into the domain traditionally reserved for the jury.[86]

In *Muzzey v. Kerr McGee*,[87] the United States District Court for the Eastern Division of Illinois added the following factors to its discussion of the *Daubert* test: (1) whether the expert is proposing to testify about matters growing naturally and directly out of research he has conducted independent of the litigation, or whether he has developed opinions expressly for the purposes of testifying;[88] and (2) whether the expert formed his opinion and then looked for reasons to support it[89] rather than doing research that led to his conclusion.[90]

The *Muzzey* Court found it "significant" that none of the experts had done any research on the proffered theory outside of the context of the lawsuit, asserting that research independent of the litigation offers "important objective proof that the research comports with the dictates of good science."[91] But the fact that the expert's research does not grow naturally out of research, conducted independent of the litigation, would seem to be an appropriate subject for cross-examination and offers little insight into whether the expert complied with the relevant scientific method.[92] The *Muzzey* court's use of this additional factor to exclude expert testimony shows how the *Daubert* factors and their progeny can be used to abridge the jury's role of determining the weight of the evidence.[93]

Consistent with this line of reasoning, in *Cabrera v. Cordis Corporation*[94] the Ninth Circuit began its *Daubert* analysis by mentioning that the expert whose testimony was in question advertised his services as an expert for plaintiffs in silicone gel breast implant cases on the World Wide Web.[95] The court observed that "one very significant fact" about the expert's testimony was that he "developed his opinions expressly for the purposes of testifying."[96] While this fact on its own did not make the expert's testimony inadmissible, the *Cabrera* court felt that the expert must show that he has followed the scientific method practiced by at least a recognized minority of scientists in his field.[97] In addition to evaluating the expert's testimony under the existing *Daubert* factors, the Ninth Circuit in *Cabrera* imposed a *Frye*-like general acceptance requirement upon an expert who developed his opinions for the purpose of testifying.[98] The Ninth Circuit would appear to feel that the question of whether an expert is "puffing for a fee" is a question that should not be left to the fact finder to determine.[99] This view is contrary to the opinion expressed by the Tenth Circuit in *Compton v. Suburu* which observed that "the weight and credibility of [the expert] testimony were issues for the jury."[100] One commentator has also pointed out that this approach ignores the *Daubert* Court's admonition to focus on the scientific principles and methodology of the proposed testimony.[101]

In another decision, *Dukes v. Illinois Central Railroad*,[102] the United States District Court for the Eastern Division of Illinois relied on the existing *Daubert* factors as the basis for imposing an additional requirement on an expert witness.[103] The *Dukes* court required that a neurosurgeon testifying to the

cause of the plaintiff's carpal tunnel syndrome[104] provide objective support for his opinion by way of testing or empirical data.[105] The *Dukes* decision labeled the first *Daubert* factor as the most important,[106] and then proceeded to list a series of tests that the expert could have performed - but did not - that related to variations in the way plaintiff's injury could have been caused.[107] The *Dukes* court viewed the expert's medical diagnosis as a scientific theory on its own and went on to apply the *Daubert* factors to that opinion.[108] The fact that the expert had not conducted alternative tests, an issue which the jury should have addressed in giving weight to the evidence, was enough to exclude the expert's testimony completely.[109]

C. *The Difficulties of Applying Daubert to Nonscientific Testimony*

The *Frye* test for admissibility was historically applied only in criminal cases to "new and novel" explanatory theories.[110] The *Frye* test was not applied to nonscientific or technical testimony.[111] The *Daubert* case centered around testimony based in what has historically been considered one of the "hard sciences;" medical and pharmacological studies, and the *Daubert* factors reflect this restriction.[112] However, this limitation has not discouraged some federal circuit courts from aggressively applying the *Daubert* factors to non-scientific testimony.[113] Prior to *Kumho Tire* the federal circuits were split over whether *Daubert* should be applied to nonscientific testimony at all and, if so, to what degree.[114]

In *Kumho Tire* the Court held that the *Daubert* test applies, not just to scientific testimony, as *Daubert* held, but to all expert opinion testimony. The question *Kumho Tire* left unanswered was when and to what extent the *Daubert* factors should be applied to nonscientific expert testimony. *Kumho Tire* gives the trial judge complete discretion to programmatically apply all of the *Daubert* factors, or alternatively to not apply *Daubert* at all to nonscientific expert testimony. *Kumho Tire* does not eliminate the problems caused by the inconsistent application of the *Daubert* test; rather it gives judges the authority to apply a test for admissibility that may be entirely incompatible with the type of testimony offered. The incompatibility of the *Daubert* factors to many types of nonscientific expert testimony will be explained in more detail below.

Within the federal circuits, *Daubert* has been read most narrowly to apply only to expert testimony in the hard sciences and most broadly to apply to all reliability issues presented by all expert testimony.[115] The broadest reading of *Daubert* has been rejected by leading federal commentators on the grounds that "it is inconsistent with both policy and precedent to make the admissibility of all expert testimony depend on a showing that the expert's testimony is completely reliable in all respects."[116] These commentators have also observed that *Daubert* does not take the position that all experts should be subjected to a *Daubert* inquiry, and nothing in the Federal Rules of Evidence compels a rigid *Daubert* inquiry of this type of testimony.[117] The view that the *Daubert* factors may be inapplicable to certain types of expert testimony was echoed in *Kumho Tire*.[118]

This criticism has not precluded the First, Third, Fifth and Sixth Circuits from rigidly applying the *Daubert* factors to non-scientific, expert testimony.[119] In *Berry v. City of Detroit*,[120] the expert witness was a retired law enforcement officer with a degree in criminology.[121] This witness testified that the Detroit police department's failure to adequately discipline its police officers after prior misconduct was the proximate cause of a victim's shooting death at the hands of a Detroit police officer.[122] The Sixth Circuit, after acknowledging that the testimony was "nonscientific," proceeded to apply the *Daubert* test and found the evidence inadmissible because of the fact that the causation theory had not been formally tested, subjected to peer review or accepted in the field.[123]

The nature of the circumstances the nonscientific expert is testifying about make the literal application of the *Daubert* factors to nonscientific testimony difficult, as oftentimes nonscientific principles are not easily retested.[124] The circumstances surrounding events such as single occurrences of chemical exposure are unique and not easily replicable. Since many nonscientific opinions are not based on experiments that can be duplicated in a laboratory, they are not compatible with the *Daubert* factors.[125] In products liability cases an expert may have the experience and knowledge necessary to testify as to the feasibility of an alternative design to show that the product in question was defective. However, the actual construction of the alternative feasible design to produce a testable

product may be cost prohibitive for the lone plaintiff.[126] One court held that under *Daubert* the plaintiff was required to produce a testable design regardless of the financial hardship or face trial without his expert testimony.[127]

The programmatic use of the *Daubert* factors to evaluate nonscientific expert testimony can create a complete bar for relief for the plaintiff who is seeking to establish causation in a federal tort case through the use of expert testimony. In addition, the strict use of the *Daubert* factors to evaluate nonscientific testimony involves a credibility assessment and usurps the jury's role of evaluating the reliability and credibility of the witnesses.[128]

D. *Decisions Under Daubert and the Weight-of-The-Evidence-Methodology*

Due to the nature of toxic tort and exposure cases, conclusive scientific evidence establishing a causal link between the plaintiff's injury and the defendant's product in the form of human epidemiological studies,[129] although favored, is often not available.[130] The reasons for the unavailability of this type of evidence relate to the fact that, once a particular product gives rise to suspicions that it may be causing harm, the manufacturers are likely to remove it from the marketplace or issue precautions as to its use.[131]

In single plaintiff negligence actions for exposure to toxic substances, the lack of conclusive epidemiological evidence relates to the uniqueness of the plaintiff's injury in terms of the circumstances of the exposure and the fact that few other individuals may have been exposed to the chemical compound involved.[132] Additionally, in human epidemiological studies, unlike animal studies, it is difficult to establish a control group.[133] If one group of individuals is not exposed to the product in question, the individuals may be exposed to other products that are harmful (such as cigarette smoke or workplace toxins) that distort the causative effects of the product being tested.[134]

The plaintiffs in both the *Daubert* and *Joiner* cases had studies in which after-the-fact examinations of individuals who had been exposed to the products in question[135] were conducted.[136] In both cases the studies indicated an elevation in the occurrence of the type of harm the plaintiffs in *Daubert* and *Joiner* suffered.[137] However, the data in these studies were insufficient to support the conclusion that the elevations could not have been the result of random natural phenomenon.[138] The Environmental Protection Agency has concluded that human epidemiological studies are "useful in generating hypotheses and providing supportive data, but can rarely be used to make a causal inference."[139]

When conclusive epidemiological evidence is not available, scientists must look to other methodologies to establish causal connections between substances and illnesses.[140] The term "weight-of-the-evidence" refers to the set of protocols used by federal agencies when science does not have a conclusive answer to the question of whether a product causes a specified disease.[141] For example, in determining the carcinogenic properties of a product, the Environmental Protection Agency regulations call for a scientist to assemble data and then make a "judgement" as to "how likely an agent is to be a human carcinogen."[142] The conclusions reached depend on the "subjective judgement" of the scientist assessing the data who must "use inference to reach decisions about what action to take . . . . Those decisions often cannot rest on certitudes."[143]

The *Daubert* Court held that in order for scientific evidence to be admissible it had to be reliable, and "[the] overreaching subject [of the reliability inquiry] is the scientific validity - and thus the evidentiary relevance and reliability - of the principles that underlie a proposed submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate."[144] This statement is an outgrowth of the Court's earlier conclusion that "it would be unreasonable to conclude that the subject of the scientific testimony must be 'known' to a certainty; arguably there are no certainties in science."[145]

One question that remained after *Daubert* was whether the "weight-of-the-evidence" approach is a "scientifically valid" approach for determining causation in toxic tort cases.[146] The experts in *Joiner* used a "weight-of-the-evidence" methodology to assess whether Joiner's exposure to transformer fluids

caused his lung cancer.[147] None of the experts suggested that any one of the studies taken alone was sufficient to establish causation; rather, they relied on all of the studies taken together (in addition to their interviews with Joiner and their review of his medical records).[148] The trial judge, however, examined the studies one by one and concluded that each study, standing alone, was not sufficient to establish causation and was therefore inadmissible.[149]

The Court of Appeals reversed the trial court's ruling, asserting that the "weight-of-the-evidence" approach was scientifically acceptable.[150] Reasoning that while each piece of evidence may not be conclusive on its own, the evidence viewed "in [its] entirety" may result in a "perfectly reasonable conclusion" that the product in question caused the injury.[151]

Justice Stevens, in his partial dissent, addressed the conflict between the two lower courts and agreed with the appellate court concerning the acceptability of the "weight-of-the-evidence" approach.[152] Justice Stevens argued that it is not "intrinsically 'unscientific'" for an expert to arrive at a conclusion after weighing all the available scientific evidence.[153]

The majority opinion in *Joiner* did not address the question of whether the "weight-of-the-evidence" methodology is scientifically acceptable.[154] The majority instead came to the conclusion that it was not an abuse of the trial court's discretion to conclude that there was "too great of an analytical gap between the data and the opinion proffered."[155] However, Justice Stevens pointed out in his partial dissent that the majority opinion gave the district court the discretion to treat "weight-of-the-evidence" methodology as reliable.[156]

As federal judges have differing views on the "weight-of-the-evidence approach,"[157] the fact that a certain judge is friendly to the "weight-of-the-evidence" methodology would give the plaintiff seeking to establish causation through this type of evidence, a powerful incentive to forum shop.[158]

The examples above illustrate the struggle federal courts have had in reading the *Daubert* holding.[159]*Kumho Tire* will not likely remedy this problem as it could encourage judges to apply the *Daubert* factors more aggressively, rather than more thoughtfully. The inconsistent application of the *Daubert* test to nonscientific expert testimony and the addition of factors to the original test make it difficult for the plaintiff in a federal tort case to predict whether her expert testimony will be admissible. Equally problematic is the fact that, after *Joiner*, trial court decisions, whether consistent with *Daubert* and *Kumho Tire* or not, will be reviewed under the abuse-of-discretion standard at the appellate level. These problems are well illustrated in a 1998 Fifth Circuit Court of Appeals decision addressed below, *Moore v. Ashland Chemical Inc*.[160]

III. ANALYSIS

A. *An Example of The Problems Created by the Application of Both Joiner and Daubert: Moore v. Ashland Chemical Inc.*

A recent decision by the Fifth Circuit Court of Appeals[161] demonstrates the devastating effect the *Daubert* and *Joiner* holdings, applied together, can have on a plaintiff attempting to establish causation in a federal tort case. The ruling also illustrates the problems that will arise when inconsistent rulings by trial courts on identical issues are reviewed under the *Joiner* abuse-of-discretion standard.[162]

In *Moore v. Ashland Chemical Inc*.[163] the plaintiff, a trucker, became ill after helping to clean up a chemical spill at the defendant's trucking terminal.[164] Several months later, Moore was treated by Daniel Jenkins, a board-certified pulmonary specialist, who had been a member of the faculty of the Baylor College of Medicine for forty-four years.[165] Dr. Jenkins diagnosed plaintiff's symptoms as reactive airways dysfunction syndrome ("RADS"), caused by his exposure to the chemical spill.[166] Dr. Jenkins admitted that he had never treated a RADS patient with a history of exposure to toluene.[167] Additionally, Dr. Jenkins had not conducted any research on the subject.[168]

The District Court declined to permit the physician to testify as to his opinion that the chemical the plaintiff was exposed to was the cause of his injury.[169] The trial judge concluded that the physician

had no scientific basis for the opinion that the chemical in question caused plaintiff's RADS and that it would be inconsistent with the court's gatekeeper role under *Daubert* to admit the opinion.[170]

A divided panel of the Fifth Circuit reversed, holding that the *Daubert* factors are only applicable when the opinion was predicated on hard science.[171] The *en banc* majority decision reversing the panel decision and upholding the trial court's exclusion of the testimony, was based on the conclusion that the physician's opinion was "hard science" and was subject to *Daubert's* standards for admissibility.[172] In support of this proposition, the *en banc* majority looked to the fact that both the *Daubert* and *Joiner* decisions involved questions of medical causation. Having reached the conclusion that the physician's opinion was susceptible to a *Daubert* inquiry, the *en banc* majority proceeded to apply the *Daubert* factors to the proposed testimony.[174]

The *en banc* majority in *Moore* concluded that the physician's testimony could not meet any of the *Daubert* factors.[175] Even if the testimony had met the *Daubert* threshold, the *Moore* majority read *Joiner* as adding an additional prerequisite for admissibility; "the district court, while acting as gatekeeper for expert evidence, must evaluate whether there is an adequate fit between the data and the opinion proffered."[176] This additional requirement, which focuses on the expert's conclusion, is contrary to the holding of *Daubert* where the Court emphasized that "the inquiry envisioned by Rule 702 is . . . a flexible one . . . . The focus of course must be solely on principles and methodology, not on the conclusions they generate."[177] As Judge Dennis pointed out in his dissent; "[t]he majority opinion creates a schism between this court and other circuits . . . and disregards the teachings of federal evidence law scholars."[178]

The *en banc* majority opinion in *Moore* echoed the sentiment put forth in *Daubert*, that cases involving products that have not been subjected to hard scientific testing must be resolved in a timely manner.[179] After recognizing the lack of hard scientific evidence available to plaintiffs in these types of actions, the *en banc* majority "nevertheless insist[ed] that every admissible medical causation opinion in a chemical injury case must have a hard science, *Daubert* factor related, basis."[180] The requirement advanced by the majority presents a major barrier to the plaintiff in a chemical injury case; if no hard scientific data is available, the plaintiff must face trial or the defendant's motion for summary judgement without the testimony of her medical causation witness.[181]

B. *The Issues Raised by the Moore Decision*

There is a compelling irony in the *en banc* majority's application of the *Daubert* factors to the physician's causation testimony. Had the plaintiff been seeking to admit the physician's medical causation testimony under the *Frye* "general acceptance" test, he would have succeeded. For "it is undisputed that the methods and techniques used by [plaintiff's physician] were generally accepted within the doctor's own clinical medical disciplines."[182]*Daubert* and *Joiner*, as applied together in *Moore*, have created a higher threshold for the admissibility of expert testimony than the *Frye* test. *Daubert* specifically overruled the *Frye* test on the grounds that Frye's "general acceptance" requirement was at odds with the "liberal thrust" of the Federal Rules and their "general approach of relaxing the traditional barriers to "'opinion' testimony." Historically, the *Frye* test was not applied at all to nonscientific testimony; if the expert was not testifying to a conjectural or speculative theory, his testimony was admitted.[184] When a test for the admissibility of opinion evidence is applied where one was not before, less, as opposed to more, evidence is admitted.[185] In overturning *Frye* it is unlikely that the Court in *Daubert* sought to make the admission of scientific evidence harder.[186]

Of further irony is the fact that if Moore had filed his motion in a federal district court in the Second Circuit,[187] his expert causation testimony would not have been subjected to *Daubert* scrutiny. In all likelihood the expert testimony would have been admitted and that decision to admit would have been reviewed under the *Joiner* abuse of discretion standard at the appellate level.[188] This scenario exemplifies the problem of inconsistent judicial rulings on identical issues and will lead inevitably to forum shopping on the part of both plaintiffs and defendants.[189] The *KumhoTire* decision would not alter this outcome, as nothing in the opinion would have precluded a Second Circuit judge from relying solely on *Daubert's* general acceptance prong in admitting Dr. Jenkins' medical causation testimony.[190] "[I]t will at times be useful to ask [a witness] whether his preparation is of a kind that others in the field would recognize as acceptable."[191]

The combined effect of a court's application of the *Daubert* and *Joiner* decisions can have a devastating effect on the plaintiff who is attempting to establish causation through the use of expert testimony, as is evidenced by the result in *Moore*.[192] As Judge Dennis pointed out in his dissent, the *Daubert* Court did not intend to require that the Daubert factors be applied monolithically to all expert testimony. Rather, the Daubert Court offered a trial judge several factors with which to assess the reliability of hard-scientific, expert, opinions that are based on methodology that is not generally accepted within that particular field.[194]

> The *Daubert* Court did not suggest . . . that the Federal Rules of Evidence authorize a federal court to formulate a rule that, in effect, bars a clinical physician from expressing an opinion as to the probable chemical causation of a disease in a specific individual until the existence of a general causal relationship has been confirmed by the use of hard scientific methodology.[195]

Judge Dennis continued by pointing out that "[t]he use of the *Daubert* factors to screen medical causation testimony threatens to require the exclusion from evidence of vast numbers of clinical medical opinions, although they are generally accepted as trustworthy by physicians practicing in their fields, and . . . were routinely accepted as reliable by our courts both before and after *Daubert*."[196]

"Experience is to nonscientific experts what experimentation is to scientists."[197] The experience of a nonscientific expert constitutes her expertise in a given field.[198] The Fifth Circuit's application of the *Daubert* factors to nonscientific testimony is problematic. Requiring an expert to test his theories is not feasible unless the expert relies on a given methodology.[199] Equally problematic is the fact that expert testimony that is based on experience often cannot be examined through "peer review"[200] or "general acceptance."[201] However this testimony may be as valuable to the trier of fact as scientific testimony which can be evaluated through the *Daubert* factors.[202] Even the *Kumho Tire* Court acknowledged that, in some cases, "the relevant reliability concerns may focus upon personal knowledge or experience."[203]

The evaluation of Dr. Jenkins' testimony via the *Daubert* factors is troubling for an additional reason. The Seventh Amendment guarantees a right to a jury trial in federal tort actions for damages.[204] The *Daubert* factors were not designed to evaluate the nonscientific testimony of a medical causation expert.[205] Using the *Daubert* factors to evaluate expert testimony that is not based on hard science is also impractical.[206] A more appropriate inquiry would be the flexible approach to the Daubert test endorsed in *Kumho Tire.*[207] By examining Dr. Jenkins' causation testimony under the *Daubert* factors, the *Moore* court performed a credibility assessment.[208] In performing a function that has historically been carried out by the jury, the *Moore* court arguably deprived Moore of his Seventh Amendment right to a jury trial.[209]

The *Moore* court read *Joiner* as imposing an additional limitation on plaintiffs seeking to introduce expert opinion evidence; there must be an adequate fit between the expert's data and the opinion proffered.[210] Under this view the experts' conclusions are evaluated twice, once by the judge at the pre-trial *Daubert* hearing, and then at trial by the jury.[211] Before receiving a judgement the plaintiff must win twice, once before the judge at the summary judgement phase, and then before the jury in the actual trial.[212] At the same time, the defendant need only win once, by attacking the expert=s conclusions either before the judge or at trial.[213]

Although the "weight-of-the-evidence" methodology[214] was not at issue in *Moore*, the future use of this methodology in the Fifth Circuit is jeopardized. Often a physician will rely on the "weight-of-the-evidence" methodology to come to a conclusion about the cause of an ailment.[215] The physician is well suited to introduce this testimony as she can discuss the studies she relied upon in conjunction with her own examination and diagnosis of the plaintiff's illness. If the physician is prohibited from testifying after not meeting the *Daubert* test, the plaintiff will be unable to introduce evidence that is based on the "weight-of-the-evidence" methodology. Even if the physician is able to pass *Daubert* scrutiny, the questions about the use of the "weight-of-the-evidence" methodology left unanswered by *Joiner* remain.[216]

By aggressively applying the *Daubert* factors to nonscientific testimony and adding factors to the original test, certain federal courts have made it extremely difficult for plaintiffs to present expert testimony.[217] These difficulties are compounded when courts impose additional requirements on the expert whose research was conducted for the purposes of the litigation.[218] In his dissenting opinion in the *Daubert* decision, Chief Justice Rehnquist warned that "general observations by the Court often carry great weight with lower federal courts."[219] He went on to express concern over the fact that the majority's vague and abstract observations concerning the trial judge's gatekeeping role were not anchored to the actual dispute, and that federal judges could be forced to become amateur scientists to fulfill that role.[220] While the first part of Chief Justice Rehnquist's prophecy has come true (federal courts have embraced the *Daubert* factors and the trial judge's gatekeeping role),[221] the second part has not. Instead of becoming the amateur scientists Chief Justice Rehnquist contemplated, many federal court judges have instead adopted a hostile stance towards expert opinion evidence, preferring to exclude it rather than look outside of the rigid *Daubert* factors for other indicia of reliability. The result of this posture is that issues concerning the expert's credibility, which in the past would have been challenged during cross-examination, can now be used by the judge to bar the expert from testifying altogether.[222]

IV. PROPOSAL

The problems that have arisen in the wake of *Daubert* and *Joiner* are not easily remedied. The recent *Kumho Tire* decision has exacerbated these problems. *Kumho Tire* gives trial judges, who were already struggling with the *Daubert* test, even more room for error. By simply enhancing the trial judge's gatekeeping function, instead of providing more concrete guidelines concerning the admissibility of expert testimony, the*Kumho Tire* decision makes the judge's role more difficult. As Chief Justice Rehnquist pointed out in *Daubert*, judges are not amateur scientists and are not equipped to evaluate the reliability of complex scientific testimony.[223]

Chief Justice Rehnquist's point is exemplified in the *Kumho Tire* opinion where the Court observed that "[the expert's testimony] fell outside the range where experts might reasonably differ."[224] The range of difference between expert opinions is often ill defined or a matter of dispute, and many trial judges do not have the scientific knowledge to determine what the reasonable "range" of difference is.

The primary reason that trial courts exclude the testimony of experts is the fear of a "hired-gun" expert's testimony disproportionately swaying the jury.[225] There are many empirical studies that either support or, alternatively, discredit this belief.[226] It is important for judges to keep purely speculative and highly prejudicial expert opinion evidence away from juries. At the same time judges should not, for fear of admitting such evidence, exclude legitimate opinion evidence solely because the expert may have relied on a methodology that cannot be evaluated by the rigid *Daubert* factors.

One alternative to the traditional adversarial method of presenting expert testimony is for the trial court to appoint neutral experts, in addition to the parties' experts, pursuant to Rule 706 of the Federal Rules of Evidence.[227] Neutral, court-appointed, experts would allow judges to be less aggressive in excluding expert testimony, as flaws in the expert testimony would be illuminated not only through cross-examination but through the neutral expert's testimony as well.[228] Court-appointed experts can help resolve the conflicting testimony presented by the opposing sides[229] and address the problems that arise when one or more of the experts testifying has inadequately presented the issues.[230] When the parties' experts present two diametrically opposed points of view, a neutral, court-appointed expert can help the jury by presenting an impartial opinion.[231] Justice Breyer advocated the use of neutral experts in his concurring opinion in *Joiner*.[232] Rule 706 also contemplates the payment of neutral experts.[233] In a civil action the experts' fees "shall be paid in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs."[234]

While neutral experts can be important in providing the judge and jury with unbiased information about the facts of the case and the opposing experts' testimony, the use of neutral experts is not without drawbacks.[235] As a result of the jury's perception that the expert is entirely neutral, the neutral expert's testimony may lead jurors to disregard the legitimate testimony of the parties' witnesses.[236] With this in mind, the court and the opposing parties must ensure that the expert is without bias.[237] Otherwise

the trial judge runs the risk of admitting prejudicial testimony and defeating the purpose of consulting a neutral expert.

Courts will not be likely to appoint neutral experts who have had a history of testifying for one side or the other in the past.[238] However, a large percentage of the scientific community is dependent upon the corporate world for financial support.[239] Although these scientists may not normally testify as expert witnesses, they may have biases or conflicts of interest that will affect the outcome of their testimony.[240] At the same time, many scientists work for or with government agencies that have adopted the "weight-of-the-evidence" methodology.[241] These experts may have biases and prejudices of their own.[242] Identifying these biases before trial is imperative, as once the expert is appointed, cross-examination is the only mechanism by which the parties can counteract the neutral expert's testimony.[243] One commentator has proposed that it would be advisable to develop a cadre of academic scientists whose only activity outside of research is service as court-appointed neutral experts so that their neutrality could not be questioned.[244]

In addition to appointing experts pursuant to Rule 706, the trial judge can appoint experts pursuant to Rule 104 of the Federal Rules of Evidence.[245] The difference is that under Rule 706 the experts are required to act as additional witnesses, subject to deposition and cross-examination at trial, while experts appointed under Rule 104 remain independent of any ongoing proceedings.[246]

A recent example of this practice took place in *Hall v. Baxter Healthcare*[247] where the judge appointed neutral experts to help interpret testimony on the causal connection between silicone gel breast implants and the complaints of the plaintiffs.[248] To assess the complex scientific issues in dispute, the judge appointed independent technical advisors from the scientific community pursuant to Rule 104.[249] The experts reviewed the voluminous materials of both parties and then participated in a Rule 104 hearing where both parties presented their expert witness testimony.[250] At the Rule 104 hearing the experts on both sides were questioned by counsel, the court, and the neutral experts.[251] After the hearing the court submitted prepared questions to the neutral experts regarding causation, and the experts later submitted reports with answers to these questions. The judge ruled on the admissibility of the expert opinion testimony after reviewing these reports.[252]

V. CONCLUSION

Without an effort on the part of trial courts to provide neutral evaluation of expert testimony pursuant to Rule 706, the plaintiff in a federal tort case faces an almost insurmountable barrier to the admissibility of expert opinion testimony in certain federal courts.[253] As it stands now, the way in which the *Daubert* and *Joiner* decisions have been applied in some jurisdictions has resulted in a situation that is contrary to the intent of the *Daubert* holding. In some circumstances it is now more difficult to admit expert testimony than it was under the *Frye* test that the *Daubert* Court overruled.[254] The addition of factors to the *Daubert* test by certain federal courts arguably involves a credibility assessment on the part of the judge in her role as "gatekeeper."[255] Traditionally, credibility assessments were part of the jury's function.[256] The misappropriation of the jury's traditional role of evaluating witness credibility is also inconsistent with the *Daubert* Court's intent of liberalizing admissibility of expert opinion evidence.[257]

These problems will become the more acute as the conflicting views of trial courts regarding the use of the *Daubert* factors, as well as credibility evaluations of expert witnesses by judges, are reviewed under the lenient abuse-of-discretion standard after *Joiner*.[258] The inconsistent appellate rulings this standard of review will produce will result in forum shopping and incongruous judicial rulings on identical issues. *Kumho Tire*, by giving trial judges even more discretion in making these types of decisions,[259] will likely compound these problems.

The effect of *Kumho Tire* on the admissibility of expert opinion evidence remains to be seen. On the one hand, *Kumho Tire* can present a major obstacle in the path of the plaintiff seeking to admit expert opinion evidence. At the same time, *Kumho Tire* encourages trial judges to be more flexible in their approach to the *Daubert* reliability inquiry.[260] However, *Daubert* offered the same encouragement to trial judges and it was largely ignored. Judging from the Court's own systematic application of the *Daubert* test in *Kumho Tire*, flexible inquiries seem unlikely. Particularly if the expert's

credibility is as doubtful as the expert's in *Kumho Tire* was. After *Kumho Tire* the need for neutral experts is all the more pressing. With the advice of neutral experts a trial judge could make an informed decision regarding the reliability of expert opinion testimony, as opposed to closing the door of the courthouse to a plaintiff with a legitimate claim.

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1. FED. R. EVID. 702.

2. *Id.*

3. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993).

4. Michael H. Gottesman, *From Barefoot to Joiner: Triple Play or Double Error?*, 40 ARIZ. L. REV. 753, 755 (1998).

5. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993).

6. The test articulated in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923),(whether the offered techniques are generally accepted in the expert's field) was the common law test for admissibility, predating the federal rules by 50 years. Before Frye the general rule concerning expert testimony was that the testimony was admissible if the testimony was offered by a qualified witness and was relevant to an issue. Kristina L. Needham, Note, Q*uestioning the Admissibility of Nonscientific Testimony After Daubert: the Need for Increased Judicial Gatekeeping to Ensure the Reliability of All Expert Testimony*, 25 FORDHAM URB. L.J. 541, 544 n.24 (1998).

7. *Daubert*, 509 U.S. at 588-94 (1993).

8. *General Elec. Co. v. Joiner*, 118 S. Ct. 512 (1997).

9. *See Muzzey v. Kerr-McGee*, 921 F. Supp. 511 (N.D. Ill. 1996); *Dukes v. Illinois Cent. R.R.*, 934 F. Supp. 939 (N.D. Ill. 1996).

10. The "weight-of-the-evidence" methodology is commonly used by government agencies to determine whether a product causes a particular disease. *See also infra* Part II.D.

11. *Daubert*, 509 U.S. at 579.

12. *See* Moore v. Ashland Chem. Inc., 151 F.3d 269 (5th Cir. 1998).

13. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 (U.S. Mar. 23, 1999).

14. *Id.* at *4.

15. *Id.* at *11

16. *See infra* Part II.B.

17. General Elec. Co. v. Joiner, 118 S. Ct. 512 (1997).

18. The Third Circuit advocates a "hard look" at rulings that non-suit plaintiffs in toxic tort cases, while the Fifth Circuit endorses review "with a sharp eye" of district court rulings that reflect "a let it all in philosophy" *See* Gottesman, *supra* note 4 at 778 nn.84-85.

19. *See* Gottesman, *supra* note 4, at 777.

20. *See* William M. Sneed, *The Ongoing Revolution in Expert Witness Practice: Daubert and the Seventh Circuit*, 86 ILL. B.J. 418, 421 (1998).

21. *See infra* Part II.B.

22. *See infra* Part II.D.

23. *See infra* Part II.C.

24. *See* Lisa M. Agrimonti, Note, *The Limitations of Daubert and Its Misapplication to Quasi-Scientific Experts, A Two-Year Case Review of Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 35 WASHBURN L.J. 134, 147-48 (1995).

25. *See* Gottesman, supra note 4, at 776.

26. The *Daubert* Court sought to articulate a test for admissibility that would be in keeping with the "liberal thrust" of the Federal Rules of Evidence. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 588-89 (1993).

27. *See infra* Part III.B.

28. 293 F. 1013 (D.C. Cir. 1923).

29. Id.

30. *See* Needham, *supra* note 6, at 544-45.

31. *See* Needham, *supra* note 6, at 544-45.

32. 293 F. 1013 (D.C. Cir. 1923).

33. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993).

34. *Id.*

35. *Id.*

36. *See* Sneed, *supra* note 20, at 419.

37. *See* Sneed, *supra* note 20, at 419.

38. 293 F. 1013 (D.C. Cir. 1923).

39. *See* Sneed, *supra* note 20, at 419.

40. 506 U.S. 914 (1992).

41. *See* Needham, *supra* note 6, at 548 n.66.

42. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 587 (1993).

43. *Id.*

44. *Id.* at 593.

45. *Id.* at 585.

46. *Id.* at 582.

47. *Id.* at 593.

48. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 593-94 (1993).

49. *Id.* at 593.

50. *Id.*

51. *Id.* at 594.

52. *Id.*

53. *Id.*

54. General Elec. Co. v. Joiner, 118 S. Ct. 512 (1997).

55. *Id.* at 516.

56. Joiner v. General Elec., 864 F.Supp 1310, 1312 (N.D. Ga. 1994).

57. *Id.*

58. *Id.* at 1312.

59. *Id.*

60. Congress banned the sale of PCBs in 1978, with limited exceptions, because "PCBs present an unreasonable risk of injury to health or the environment." *Id.* at 1312 (citing 15 U.S.C. º 2605(a)).

61. *Id.* at 1314.

62. *Id.*

63. *See* Frank Myers, *Recent Development, Evidence; General Electric Co. v. Joiner: Judge's Discretion with Scientific Evidence*, 21 AM. J. TRIAL ADVOC., 697, 697 (1998).

64. General Elec. Co. v. Joiner, 118 S. Ct. 512, 516 (1997).

65. *See* Michael L. Ford, *Supreme Court Review: October 1997 Term: General Elec. Co. v. Joiner*, 4 ENVTL. LAW. 695, 700 (1998), (quoting *Joiner v. General Elec. Co.*, 78 F.3d 524, 533 (11th Cir. 1996)).

66. General Elec. Co. v. Joiner, 118 S. Ct. 512 (1997).

67. *Id.* In response to Joiner's argument that *Daubert* requires the judge to scrutinize not the conclusions offered by the expert but solely the expert's "principles and methodology," the *Joiner* Court replied that "[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." *Id.* at 519.

68. *Id.*

69. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 (U.S. Mar. 23, 1999).

70. *Id.* at *4.

71. *Id.* at*5

72. *Id.*

73. *Id.*

74. *Id.*

75. Carmichael v. Samyang Tires, Inc., 923 F. Supp. 1514, 1521-22 (S.D. Ala. 1996).

76. Carmichael v. Samyang Tires, Inc., 131 F.3d 1433, 1435-36 (11th Cir. 1997).

77. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 (U.S. Mar. 23, 1999)..

78. *Id.* at *14.

79. *Moore v. Ashland Chem. Inc.*, 151 F.3d 269 (5th Cir. 1998).

80. The additional limitation imposed by Joiner concerns the necessity of a relationship between the expert's methodology and her conclusions. *General Electric Co. v. Joiner*, 118 S. Ct. 512, 519 (1997).

81. Moore v. Ashland Chem. Inc., 151 F.3d 269, 279 (5th Cir. 1998).

82. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 588-89 (1993).

83. *Id.* at 594.

84. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 at *9 (U.S. Mar. 23, 1999).

85. *See* Muzzey v. Kerr-McGee, 921 F. Supp. 511 (N.D. Ill. 1996); Dukes v. Ill. Cent. R.R., 934 F. Supp. 939 (N.D. Ill. 1996); *see also* In re Paoli R.R. Yard PCB Litigation, 35 F.3d 717 (3rd Cir. 1994). Where the court, in order to fulfill its Daubert gatekeeping function, examined the following criteria: (1) whether a method consists of a testable hypothesis; (2) whether the method has been subjected to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; (8) the non-judicial uses to which the method has been put. *Id.* at 742. Additionally, the *Paoli* court proposed a ninth catch-all factor: "as well as any others that are relevant." *Id.* at 742 n.8.

86. "Traditionally, the judge rules on the admissibility of expert testimony, whereas the jury evaluates the testimony's credibility and weight." *Developments in the Law-Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1510-11 (1995) [hereinafter *Developments*].

87. Muzzey v. Kerr-McGee Chem. Corp., 921 F. Supp. 511 (N.D. Ill. 1996). At issue in Muzzey was whether radiation from defendant's ore refinery allegedly caused a minor plaintiff's blood disorder known as polycythemia vera or "PV." *Id.* at 513-18. The plaintiff had three experts willing to testify to a causal link. *Id.* These experts relied upon published studies and research linking PV and exposure to radiation in establishing this causal link. *Id.*

88. *Id.* at 518.

89. Termed the antithesis of the scientific method by the Muzzey court. *Id.*

90. *Id.*; *see also* Cabrera v. Cordis Corp., 134 F.3d 1418, 1422 (1998).

91. *Muzzey*, 921 F. Supp. at 519, *quoting* Daubert v. Merrell Dow Pharmaceuticals, Inc., 43 F.3d 1311, 1317 (9th Cir. 1995) [hereinafter *Daubert II*].

92. *See Sneed*, *supra* note 20, at 421.

93. *See Sneed*, *supra* note 20, at 421.

94. 134 F.3d 1418 (9th Cir. 1998).

95. *Id.* at 1422.

96. *Id.*

97. *Id.*

98. *Id.*

99. *See* David L. Faigman, *Appellate Review of Scientific Evidence Under Daubert and Joiner*, 48 HASTINGS L.J. 969, 979 (1997). *See also McCullock v. H.B. Fuller Co.*, 61 F. 3d 1038, 1044 (2nd. Cir. 1995) (holding that disputes as to strength of the expert's credentials, faults in his use of differential etiology as a methodology, or lack of textual authority for his opinion, go to the weight, not the admissibility, of his testimony).

100. 82 F.3d 1513 (10th Cir.), *cert. denied*, 117 S. Ct. 611 (1996).

101. *See* Developments, *supra* note 86, at 1516.

102. Dukes v. Illinois Cent. R.R., 934 F. Supp. 939 (N.D. Ill. 1996).

103. *Id.* at 948-49.

104. Carpal tunnel syndrome is characterized by "[s]oreness, tenderness and weakness of the muscles of the thumb caused by pressure on the median nerve at the point at which it goes through the carpal tunnel of the wrist." TABER'S CYCLOPEDIC MEDICAL DICTIONARY 298 (Clayton L. Thomas ed., 16th ed. 1989).

105. *Dukes*, 934 F. Supp. at 948-49.

106. *Id.* at 948, citing Stanczyk v. Black & Decker, Inc., 836 F. Supp. 565, 567 (N.D. Ill 1993). The first *Daubert* factor is whether the evidence is based on theories that have been tested. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 593 (1993).

107. *Dukes*, 934 F. Supp. at 948-49.

108. *See* Sneed, *supra* note 20, at 421.

109. *See* Sneed, *supra* note 20, at 421.

110. *See* 2 MICHAEL H. GRAHAM, HANDBOOK OF FEDERAL EVIDENCE, '702.5, at 33 (4th ed. Supp. 1998).

111. *Id.*

112. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 583-90 & n.8 (1993).

113. *See* Berry v. City of Detroit, 25 F.3d 1342 (6th Cir. 1994) (directly applying *Daubert's* four factors to the nonscientific testimony of a expert on the subject of police department discipline).

114. *See* Compton v. Suburu of Am., Inc., 82 F.3d 1513 (10th Cir.), *cert. denied*, 117 S Ct. 611 (1996)(holding that *Daubert* does not apply to nonscientific testimony because nonscientific testimony is based on expert's experience rather than scientific methodology).

115. 29 CHARLES ALLEN WRIGHT & VICTOR JAMES GOLD, FEDERAL PRACTICE AND PROCEDURE '6266, at 290-91 (4th ed. 1997).

116. *Id.*

117. *Id.See also* Graham, *supra* note 110, at 34-36. Graham argues that the application of the *Daubert* factors to nonscientific evidence is inconsistent with the *Daubert* opinion. Graham also contends that "most importantly the nonapplication [of the *Daubert* factors to nonscientific testimony] would prevent the hardship of testing incurred by many plaintiffs in product liability litigation." *Id.* at 36.

118. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455, at *10 (U.S. Mar. 23, 1999).

119. *See* Den Norske Bank AS v. First Nat'l Bank of Boston, 75 F.3d 49, 57-59 (1st Cir. 1996) (using *Daubert* to evaluate reliability of expert testimony of banker on banking industry practices); Habecker v. Clark Equip. Co., 36 F.3d 278, 290 (3rd Cir. 1994) (finding testimony of accident simulation expert inadmissible after assessing expert's methodology under *Daubert*); Marcel v. Plaid Oil Co., 11 F.3d 563 (5th Cir. 1994) (excluding testimony of economist because conclusions not based on sufficient data made testimony unreliable); Berry v. City of Detroit, 25 F.3d 1342 (6th Cir. 1996) (excluding nonscientific expert testimony because it failed to meet the four *Daubert* factors).

120. 25 F.3d 1342 (6th Cir. 1996).

121. *Id.* at 1348-49.

122. *Id.* at 1348.

123. *Id.* at 1350-51.

124. Edward J. Imwinkelreid, *The Next Step After Daubert: Developing a Similarly Epistemological Approach to Ensuring the Reliability of Nonscientific Expert Testimony*, 15 CARDOZO L. REV. 2271, 2284 (1994).

125. *Id.*

126. *See* Stanczyk v. Black and Decker Inc., 863 F. Supp. 565 (N.D. Ill. 1993). A prototype of the alternative design plaintiff's expert witness was testifying about would have cost between $20,000-$40,000 to build.

127. *Id.* at 567.

128. *See* Agrimonti, *supra* note 24; *see also* Thornton v. Caterpillar, 951 F. Supp. 575 (D. S.C. 1997). The *Thornton* court held that admissibility is for the judge and reliability is for the jury. The court went on to observe that judges who interject themselves into the jury's fact-finding role under the guise of determining admissibility must become expert in every field of knowledge and that it is debatable whether judges can effectively accomplish this goal. *Id.* at 578.

129. "Epidemiology is the study of the distribution and determinants of disease in human populations." Gerald W. Boston, *A Mass-Exposure Model of Toxic Causation: The Content of Scientific Proof and the Regulatory Experience*, 18 COLUM. J. ENVTL. L. 181, 231 (1993).

130. *See* Allen v. Pennsylvania Eng'g Corp., 102 F.3d 194, 197 (5th Cir. 1996) (citing Brock v. Merrill-Dow Pharmaceuticals, Inc., 874 F.2d 307, 311 (5th Cir. 1989), *modified by*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990)).

131. *See* Gottesman, *supra* note 4, at 767.

132. *See* Moore v. Ashland Chem. Inc., 151 F.3d 269, 281 (5th Cir. 1998) (Dennis, J., dissenting).

133. *See* Gottesman, *supra* note 4, at 768.

134. *See* Gottesman, *supra* note 4, at 768.

135. In *Joiner* the plaintiff had studies relating to PCB exposure and in *Daubert* the plaintiff had studies relating to the anti-nausea drug Bendectin. *See* Gottesman, *supra* note 4, at 767.

136. *See* Gottesman, *supra* note 4, at 767.

137. *See* Gottesman, *supra* note 4, at 767.

138. *See* Gottesman, *supra* note 4, at 768.

139. EPA Final Guidelines for Carcinogenic Risk Assessment, 51 Fed. Reg. 33,992, 33,995 (1986) [hereinafter *Guidelines*].

140. *See* Gottesman, *supra* note 4, at 768-71.

141. *See* Gottesman, *supra* note 4, at 769.

142. *See Guidelines*, *supra* note 139, at 33,996.

143. *See* Gottesman, *supra* note 4, at 770, (quoting Brief Amici Curiae of Physicians, Scientists, and Historians of Science in Support of Petitioners at 9-10, Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993) (No. 93-102))).

144. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 594-95 (1993).

145. *Id.* at 590.

146. *See* Gottesman, *supra* note 4, at 771.

147. General Elec. Co., v. Joiner, 118 S. Ct. 512, 522 (1997) (Stevens, J., dissenting).

148. *Id.*

149. *Id.*

150. 78 F.3d 524, 532 (11th Cir. 1996).

151. *Id.*

152. *Joiner*, 118 S. Ct. 512, 522 (1997) (Stevens, J., dissenting).

153. *Id.*

154. *Id.* at 512.

155. *Id.* at 519.

156. *Id.* at 523.

157. *See* Gottesman, *supra* note 4, at 777.

158. *See* Gottesman, *supra* note 4, at 777.

159. *See infra* Parts II.B.-D.

160. 151 F.3d 269 (5th Cir. 1998).

161. 151 F.3d 269 (5th Cir. 1998).

162. *See infra* Part III.B.

163. Moore v. Ashland Chem. Inc., 151 F.3d 269 (5th Cir. 1998).

164. *Id.* at 271-72.

165. *Id.* at 272-73.

166. *Id.* at 273.

167. Toluene is the chemical Moore was exposed to at defendant's shipping terminal. Moore v. Ashland Chem. Inc., 151 F.3d 269, 278 (5th Cir. 1998).

168. *Id.* at 273.

169. *Id.*

170. *Id.*

171. *Id.* at 275 n.6.

172. Moore v. Ashland Chem. Inc., 151 F.3d 269, 275 (5th Cir. 1998).

173. *Id.* at 275 n.6.

174. *Id.* at 278-79.

175. *Id.* at 279.

176. *Id.* at 276 (quoting General Elec. Co., v. Joiner, 118 S. Ct. 512, 519 (1997)).

177. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 594-95 (1993).

178. Moore v. Ashland Chem. Inc., 151 F.3d 269, 275, 281 (5th Cir. 1998) (Dennis, J., dissenting).

179. *Id.* at 275-76 (quoting Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 597 (1993)).

180. *Moore*, 151 F. 3d at 281 (Dennis, J., dissenting).

181. *Id.*

182. *Id.* at 280 n.1 (Dennis, J., dissenting).

183. *Daubert*, 509 U.S. at 588 (quoting Beech Aircraft Corp. v. Rainey, 488 U.S. 153, 169 (1988)).

184. *See* Graham, *supra* note 110, at 33.

185. *See* Graham, *supra* note 110, at 34.

186. *See* Wright & Gold, *supra* note 101, at 290-91.

187. In *Zuchowicz v. United States*, 140 F.3d 381 (2nd Cir. 1998), the Second Circuit allowed the admission of a pulmonary medical expert's causation testimony. *Id.*

188. *See* General Elec. Co. v. Joiner, 118 S. Ct. 512 (1997).

189. *See* Gottesman, *supra* note 4, at 777-78.

190. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 at *10 (U.S. Mar. 23, 1999).

191. *Id.*

192. Moore v. Ashland Chem. Inc., 151 F.3d 269, 281 (5th Cir. 1998) (Dennis, J., dissenting).

193. *Id.* at 281 n.2 (Dennis, J., dissenting).

194. *Id.* at 281 (Dennis, J., dissenting).

195. *Id.* at 281 (Dennis, J., dissenting).

196. *Id.* at 286 (Dennis, J., dissenting).

197. *See* Imwinkelreid, *supra* note 109, at 2290.

198. *See* Graham, *supra* note 110, at 37-38.

199. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 593 (1993) (quoting Michael D. Green, *Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy Of Agent Orange and Bendectin Litigation*, 86 NW. U. L. REV. 643, 645 (1992)(defining scientific methodology as being based on testable hypotheses)).

200. The *Daubert* Court, while acknowledging that publication was "but one element of peer review," did not articulate any other elements. *Daubert* at 593.

201. *Id*. at 594.

202. *See* Needham, *supra* note 6, at 564.

203. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 at *9 (U.S. Mar. 23, 1999).

204. *See* Gottesman, *supra* note 4, at 760.

205. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 589-90 (1993).

206. *See* Agrimonti, *supra* note 24, and accompanying text.

207. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 at *9 (U.S. Mar. 23, 1999).

208. *See* Agrimonti, *supra* note 24, and accompanying text. 209. *See Developments*, *supra* note 86, and accompanying text.

210. Moore v. Ashland Chem. Inc., 151 F.3d 269, 276 (quoting General Elec. Co. v. Joiner, 118 S. Ct. 512, 519 (1997)).

211. *See* Gottesman, *supra* note 4, at 776.

212. *See* Gottesman, *supra* note 4, at 776.

213. *See* Gottesman, *supra* note 4, at 776.

214. *See infra* Part II.D.

215. The experts in Joiner relied on "weight-of-the-evidence" methodology to reach their conclusions about causation. Joiner v. General Elec. Co., 864 F. Supp. 1310, 1313-14 (N.D. Ga. 1994).

216. *See infra* Part II.D.

217. *See In re* Paoli R.R. Yard PCB Litigation, 35 F.3d 717.

218. *See* Cabrera v. Cordis Corp., 134 F.3d 1418, 1422 (9th Cir. 1998).

219. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 598 (1993) (Rehnquist, C.J., dissenting).

220. *Id*.

221. *See infra* Part II.A.

222. *See* Sneed, *supra* note 20, at 420.

223. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 598 (1993) (Rehnquist, C.J., dissenting).

224. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455 at *11 (U.S. Mar. 23, 1999).

225. *See* PETER W. HUBER, *GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM* (1991) (arguing that the testimony of paid experts was a threat to the American economy because juries could not recognize the expert who was an impostor testifying solely for a fee, and that the resulting awards issued by these juries would deter manufacturers from introducing products into the marketplace out of fear of outrageous tort liability).

226. *See* Neil Vidmar, *The Performace of the American Civil Jury: An Empirical Perspective*, 40 ARIZ. L. REV. 849 (1998).

227. FED. R. EVID. 706 reads in part; "The court . . . may appoint expert witnesses of its own selection." *Id*.

228. *See Developments*, *supr*a note 86, at 1589-90.

229. *See Developments*, *supra* note 86, at 1589-90.

230. *See Developments*, *supra* note 86, at 1589-90.

231. *See Developments*, *supra* note 86, at 1589-90.

232. General Elec. Co. v. Joiner, 118 S. Ct. 512, 520-21 (1997).

233. FED. R. EVID. 706.

234. *Id*.

235. *See Developments*, *supra* note 86, at 1590-91. An additional, compelling question, raised by the use of neutral experts is whether such experts would themselves be subject to a *Daubert* examination by the court. This *Hobbesian* question, which could easily become the subject of another paper, will not be addressed in this paper.

236. *See Developments*, *supra* note 86, at 1590-91.

237. *See Developments*, *supra* note 86, at 1590-91.

238. *See* Gottesman, *supra* note 4, at 776.

239. *See* Gottesman, *supra* note 4, at 776.

240. *See* Gottesman, *supra* note 4, at 776.

241. *See* Gottesman, *supra* note 4, at 776.

242. *See* Gottesman, *supra* note 4, at 776.

243. *See Developments*, *supra* note 86, at 1591.

244. *See* Gottesman, *supra* note 4, at 776.

245. Rule 104 states: "Preliminary questions concerning the qualifications of a witness . . . or the admissibility of evidence shall be determined by the court." FED. R. EVID. 104. The Rule contemplates that the judge will determine whether or not the conditions for admissibility have been met by reviewing the pros and cons of the issue. It should also be noted that the normal rules of evidence in general do not apply to this process. FED. R. EVID. 104 advisory committee's note.

246. Hall v. Baxter Healthcare, 947 F. Supp. 1387, 1393 n.8 (D. OR. 1996).

247. *Id*. at 1387.

248. *Id*. at 1392.

249. *Id*. at 1393.

250. *Id*.

251. *Id*.

252. Hall v. Baxter Healthcare, 947 F. Supp. 1387, 1394 (D. OR. 1996).

253. *See infra* Part II.A.

254. *See supra* Part II.B.

255. *See* Agrimonti, *supra* note 24, at 147-48 (arguing that using *Daubert* to screen technical expert testimony inevitably involves a credibility assessment and usurps the role of the fact-finder, who is charged with evaluating witness credibility).

256. *See Developments*, *supra* note 86, at 1521.

257. *See* Agrimonti, *supra* note 24, and accompanying text.

258. General Elec. Co. v. Joiner, 118 S. Ct. 512 (1997).

259. Kumho Tire Co., Ltd. v. Carmichael, No. 97-1709, 1999 WL 152455, at *4. (U.S. Mar. 23, 1999).

260. *Id*. at *10.

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