

Institutional Constraints on the Ethics of Expert Testimony

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We examined the dilemmas posed by the involvement of expert witnesses in court cases and the institutional constraints on the ethics of expert testimony. The causes for the incorporation of bad science into legal decisions, potential solutions to this dilemma, and the limitations of these solutions are considered. We concluded that law, science, and experts must respond to the problems posed by expert witnessing.

Key words: ethics, expert testimony, expert witness

A *Wall Street Journal* article chronicles how, for 40 years, the tobacco industry has used scientists to conduct studies for it establishing the absence of a link between cancer and the use of tobacco (Freedman & Cohen, 1993). These same scientists have also testified in court on behalf of tobacco companies defending against civil suits brought against them by smokers and tobacco users who have developed cancer. The authors describe these scientists as follows:

In relying on such research, the tobacco industry is "exploiting the margins of science," contends Anthony Colucci, a former top researcher and later director of scientific litigation support at R.J. Reynolds. He offers an analogy: "There's a forest full of data that says tobacco kills people, and sitting on one tree is a lizard with a different biochemical and physiological makeup. The industry focuses on that lizard—that tiny bit of marginal evidence." (p. A6)

This story is only one of many that highlights the ethical dilemmas posed by the involvement of scientists and mental health professionals (referred to

hereinafter as scientists) in the legal system (see, e.g., "Brief," 1993). Yet, there is a long history of cases in which the courts seek scientific information to aid their decision making, make judgments as to what are the true scientific facts for the purpose of that case, and then create law partially based on these facts (e.g., Anderson & Winfree, 1987; Black, 1988; *Brown v. Board of Education*, 1954; Ennis & Litwack, 1974; Faigman, 1989; Gianelli, 1980; Loftus, 1986; Loftus & Monahan, 1980; Moenssens, 1984; Munsterberg, 1908; Osborne, 1990). If the proffered scientific evidence is invalid and/or unreliable, erroneous rulings and bad law can result (e.g., Christian, 1990; Faigman, 1986, 1989; Faust & Ziskin, 1988; Gianelli, 1980; Huber, 1991a, 1991b; Osborne, 1990; Saks, 1989, 1991).

This is a significant problem for the fields of law and science. To the extent that legal opinions must be based on facts, including scientific facts, and to the extent that the conclusions made about scientific matters may be invalid due to the misuse of science by scientists and lawyers (e.g., Champagne, Shuman, & Whitaker, 1991; Faust & Ziskin, 1988; Saks, 1991; Shuman, Whitaker, & Champagne, in press), the law will be compromised.¹ This problem is compounded by the fact that scientifically compromised judgments presented in legal proceedings can be used by lawyers and judges who look to prior appellate court decisions to support their conclusions about the validity and reliability of certain scientific testimony. Thus, a particular form of scientific testimony could gain legal acceptance without ever undergoing independent rigorous scientific or legal scrutiny. Indeed, once scientific judgments become part of the court's holding in a case, they take on precedential value and can be applied in analogous situations.² For example, consider the case of the admissibility of expert witness testimony on battered woman syndrome to establish self-defense in criminal cases in which women have killed their partners after a history of physical abuse. Most courts accept the admissibility of battered woman syndrome testimony in such cases (Ewing, 1987, cited in Faigman, 1987) with little scientific or legal scrutiny of its supporting research.

¹One may argue that promoting desired policies or values is more important to the law than rendering decisions based on scientific facts. For example, in *Price Waterhouse v. Hopkins* (1989), the court admitted expert testimony about the nature of sexual stereotyping in sex discrimination litigation involving a woman denied partnership in a leading accounting firm. In cases such as these, it may be more important to increase the number of woman partners in large accounting firms than to ensure that the psychological findings about sexual stereotyping are validly applied to such real-life cases. It is not clear to what extent courts engage in this kind of legal politics. We expect, however, that it describes only a small percentage of the total number of cases.

²The holding typically consists of the application of the law to a particular set of facts. Once a fact is included in the court's holding, it becomes the law to be followed in similar future cases. This is in contrast to facts that may appear in the body of the opinion and are not included in the actual holding itself. These latter facts would possess no precedential value under the doctrine of *stare decisis*.

Faigman (1986, 1987) criticized the logic and methodology of the research on which such testimony is based, and he suggested that such expert witnesses may bias their research to comport with their testimony and theories.

Indeed, the law, including bad law, can affect the future course of science. For example, consider the history of the admissibility of expert witness testimony on the existence of rape trauma syndrome to show that a complainant did not consent to sexual behavior with an accused rape defendant. Such testimony was first held to be admissible in a 1982 Kansas Supreme Court case (*State v. Marks*, 1982). The *State v. Marks* decision was rationalized on the basis of a small number of studies that were methodologically flawed. Not surprising, at about the same time, the Minnesota Supreme Court decided that, except possibly in extraordinary cases in which the complainant is a child or mentally retarded, the rape trauma syndrome is inadmissible (*State v. Saldana*, 1982). Such disparity in judicial acceptance, combined with the visibility of the scientific issue, encouraged mental health researchers to conduct more studies to document the existence and breadth of rape trauma syndrome as a clinical entity. Thus, the goals of science and the direction and course of ensuing research in some cases can be influenced and subtly biased by the needs of litigants. The frequency of research being initiated at the request of litigants or potential litigants is significant enough that the Carnegie Commission on Science, Technology, and Government argued in an amicus brief before the U.S. Supreme Court that the lack of peer review of research should not be a barrier to its introduction into litigation ("Brief," 1992).

Given that scientific judgments can be and are being made by the law and that the development and use of scientific information will be affected by the law in the future, the rest of this article focuses on the causes of the incorporation of bad science in the law, the potential solutions to this dilemma, and the limitations of these solutions.

CAUSES FOR CONCERN

When scientists disagree in their daily work, it is typically for legitimate reasons. Scholars may have different theoretical and methodological orientations, existing research may not provide definitive answers, the same data can be interpreted in a variety of ways, the appropriateness of the sampling techniques may be disputed, the appropriateness of the statistics chosen may be open to question, and so forth. When scientists are acting as experts in litigation, however, the question is whether the disagreements among them, when they have been hired by opposing sides in the case, are legitimately based or if there are other reasons driving the divergence in their opinions (e.g., Epstein & Klein, 1987; Faigman, 1986; Graham, 1986; Shuman et al., in press). Consequently, scientists, lawyers, and policy makers need to concern themselves with

the way the law seeks out and uses scientific information. In fact, as is discussed next, there are numerous problems with the use of scientific evidence presented by experts that are caused by characteristics of the legal process and the scientific enterprise.

To begin with, it is important to recognize that, in the majority of legal cases, the attorneys do not care about the discovery of scientific truth (or, arguably, any other type of truth or justice). Instead, they are concerned only with winning the case for their client. This means that they maximize the data and testimony that support their case and minimize those data and facts that conflict with their theory of the facts (e.g., Holden, 1989; Saks, 1990, 1993). If scientific information will help them achieve this goal, they will use it (Shuman et al., in press). They will also bend it, however, or selectively present the parts of it that suit their needs, even if the partial representation distorts the scientific truth.

This activity is neither illegal nor immoral for attorneys.

The advocate's duty is to advance the most persuasive evidence and arguments on behalf of a client that can be done without perpetrating a fraud on the court. Presenting "biased" arguments and evidence in this endeavor not only is permitted, it generally is ethically required. This is part of what it means to be an advocate. (Saks, 1993, p. 5)

Although they cannot knowingly lie, lawyers are not required to present the whole truth. Rather, truth is supposed to emerge from the adversarial process, with each side presenting the strongest, biased case for their client. Even though in most cases the science is ancillary to the litigation, the scenario would not differ if the scientific issues were the focal point. Each side would still be obligated to present the best case in order to win for the client, even if the scientific truths became half truths in the process.

Given the lawyer's alliance with the client's interests, it should not be surprising that many lawyers actively seek an expert who will present evidence that supports the client's cause, not someone who may be the best advocate for the science (Shuman et al., in press). Indeed, lawyers go expert shopping until they find the right expert for their needs (e.g., Champagne et al., 1991; Shuman et al., in press). If an expert disagrees with the lawyer's view of the facts, he or she will not be hired to testify.

Finding the right experts often means indoctrinating them at the outset. As Saks and Van Duizend (1983, p. 73) aptly put it, "it is probably not correct to say that experts can be bought, but proper to say they can be sold—by the same professional advocates who will have to sell the case to judges and juries." Although lawyers often do not tell the experts what to say for fear that this information can be revealed during cross examination, the lawyers manage to convey the message to the experts by giving them briefs and motions to read

and by sharing with them their theories of the facts of case. Empirical studies suggest that lawyers and experts are not always so discreet. For example, there is evidence that lawyers frequently coach experts and that experts are generally receptive to being coached (Champagne et al., 1991; Shuman et al., in press). This process can, and in many cases probably does, lead experts to present something less than scientific truth (e.g., Shuman et al., in press). Indeed lawyers' interests in winning for their respective clients can lead to the hiring of experts whose sole job is to help the retaining lawyer discredit the opposing expert and the expert's testimony. Consequently, it is not uncommon for litigation to deteriorate into a battle of the experts (where experts can become adversaries) instead of remaining neutral and propounding truly scientific ideas.

Perhaps a larger problem is the lack of a scientifically appropriate definition of an expert in the law. For example, according to Rule 702 of the Federal Rules of Evidence (1974),

If scientific, technical, of other specialized knowledge will assist the trier of fact to understand the evidence 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. (p. 91)

In addition, Rule 104 of the Federal Rules of Evidence requires the court to make a preliminary determination of the expert's qualifications and an analysis of whether such testimony aids the trier of fact.

The threshold for what constitutes the requisite specialized knowledge or skills and the consequent threshold for admitting expert testimony is so low that virtually anyone with some knowledge beyond that of the average juror might qualify (e.g., Brief of the Group of American Law Professors, 1992). And this determination of an expert witness's competency is discretionary with the court (e.g., *Shipp v. General Motors Corp.*, 1985). Some commentators suggested that judges applying the admissibility standards merely check the credentials of the experts, confusing experts with expertise (e.g., Sales, Shuman, & O'Connor, in press), thereby increasing the probability of misrepresenting untested biases as science. This has been partially corroborated empirically by a study finding that judges do not use criteria measuring expertise in the scientific community to qualify expert witnesses (Shuman et al., in press). Thus, the first-year PhD's testimony could be admitted in the same trial in opposition to the seasoned senior scholar's testimony, or the young scholar who is truly an expert on a particular topic could be challenged by a senior person who stopped being productive 20 years earlier. There is also nothing in the rules to prevent the PhD with training in one area from becoming the lawyer's expert on an entirely different matter, despite the fact that one of the characteristics of expertise is that it is task specific, with very little transfer from

high-level proficiency in one area to proficiency in another area (Bedard & Chi, 1992). Conversely, the lack of operational standards for defining experts that judges follow can lead to true experts not being admitted to testify. In a case involving the use of excessive force by police officers, an expert on police administration and field procedures was deemed by the judge to possess no expertise beyond matters of common sense (J. Fyfe, personal communication, February 23, 1993).

Even with a definition of expert that scientists would find more appropriate, the problem with the law's use of experts would still be substantial. For instance, how does the lawyer find an appropriate expert? A seemingly simple problem can pose an enormous obstacle for the uninitiated. It is relatively easy for scientists to call a few colleagues and identify 6 experts on a topic, but the typical lawyer would not know who to start calling. This should not be surprising. Can the typical scientist identify the 6 best lawyers in any of the numerous subareas of law?

Finally, although the lawyer will find some scientist to act as the expert, most lawyers are simply not knowledgeable about who is a true expert on a particular topic—at least from the scientists' point of view. When you combine this fact with the lawyer's obligation to present the best case for winning his or her client's cause, it is easy to see why lawyers would choose as experts those individuals who would support the position of their clients and be maximally persuasive to the judge or jury—and not necessarily choose the most knowledgeable or ethical scientists on the matter.

Scientists are not innocent parties in this scenario. Part of the reason for this lies in the distinction between the type of and sophistication of the expertise needed. The law may ask for two types of information from the expert: *adjudicative facts*—facts that are used in determining whether an event relevant to a specific case occurred; and *legislative facts*—facts that transcend the particular dispute, are used to create or modify a rule of law, and establish the factual assumptions on which fundamental questions of law are decided (Davis, 1942). For instance, in a child custody dispute, psychological testimony that Parent A was more fit to rear the child than Parent B would constitute evidence of an adjudicative fact. In the same type of case, expert testimony opining that the presence of mothers are considered by psychologists to be more important than fathers to the healthy psychological development of a child would be evidence of a legislative fact. Clearly, the level of scientific sophistication required to address each type of knowledge can vary from the relatively mundane to state of the art. Yet, experts typically are not rigorously prequalified by the attorney for their ability to handle these types of problems or for their ability to engage in various levels of sophistication in analysis.

What will stop a scientist from being honest with the lawyer and the finder about the limits of his or her expertise? Obviously, some scientists are

poor monitors of their own inadequacies. These scientists would assume that they are doing a competent job for science when they are not. As for other scientists, there is no justifiable reason why their limitations are not made clear to the attorneys and why they play a compromised role. Unfortunately, most scientists do not apply the same rigor in the decision-making process when deciding to be experts and when acting as experts as they do when deciding to engage in or when conducting research.³ In addition, when conducting research, the scientist has to prove every assertion; when in a legal setting, scientists can earn quick money with opinion testimony rather than established fact. One can see how the witness can wind up advocating for values and biases rather than empirical fact. Indeed, some experts want this to happen because they rely on their ideological commitments as the basis for their testimony rather than premising it on scientific fact.

Yet, the adversarial nature of the litigation should make the scientist want to be a real expert if he or she hopes to survive the rigors of cross examination and be a persuasive advocate for the scientific facts (e.g., *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 1991). Unfortunately, the scientist may not realize the significance of legal testimony to the parties involved and society, appreciate the rigors of the adversarial process, or have the time or motivation to prepare for the task in a way that would ensure expert testimony.

The fact that many experts may not make the same commitment to a lawsuit as they do to their research is not surprising. Testifying is a burden that almost always supplements the existing workload, not supplants it. For research scientists, there is typically no reward from their university or comparable employer for testifying. If anything, it is looked down on or simply tolerated. And even if there is the time, the consultant's salary typically does not justify expending significant effort in preparation to ensure that the scientific information is state of the art. When the fee is lucrative, scientists are subtly and sometimes not so subtly pressured to bias testimony to conform to the needs of the attorney—that is, if they wish to maintain their consulting role and fees in the case and build a reputation that will bring in other similar consultancies. In some cases, it may not be the lack of time or money that is the difficulty. Instead, it may be the attorney's fault for not impressing on the expert the need for meticulous preparation and exacting accuracy. Nevertheless, this fact does not excuse the scientist from performing their services in a slipshod manner.

Unfortunately, the genuine concern of some scientists with the inadequacies of the adversarial process and their inability, for whatever reason, to cope with it lead them not to become experts. To them, the lack of preparation time, the

³It is possible that the rigor is similar, which might partially explain why our journals are not filled with brilliant scholarship.

lack of money to justify their time for preparing, the apparent lack of concern of the lawyers for the whole scientific truth, and/or the potential for manipulation on the witness stand by attorneys on both sides make opting out a rational choice. Yet, that decision weakens the quality of the expert pool and negatively influences the overall quality of expert information presented when we look across all cases.

The decision not to participate also may be stimulated by concern that the science has not progressed far enough to provide information that should guide policy decisions or be used in settling disputes (Sechrest, 1985). Opting out in this case seems sensible. Yet, for every scientist who chooses this path, there are several others waiting to jump in—whether it be ego related, for money, or due to a genuine misguided belief that they have something to contribute. As some lawyers are likely to note, the scientific community has its share of “whores.” The result, once again, is that the legal system tends toward accepting bad science and making bad law in those cases in which scientific information is at issue.

Finally, we need to spend a moment focusing on the finder of fact (i.e., the judge, or jury if there is one). If the opposing side is not appropriately prepared, the factfinder could be easily swayed by one side's expert testimony—no matter how poorly it may represent scientific facts (Osborne, 1990). For example, many of the police experts in this country make a living by testifying in isolated, small town courts, where scholarly or professional expertise does not exist (J. Fyfe, personal communication, February 23, 1993). Even if both sides are prepared, how is the judge or jury to decide what are the true scientific facts when a battle between diametrically opposed experts ensues? Moreover, the factfinder's power to discern the truth is seriously hampered whenever scientific information is being presented. These individuals are not required to have scientific training and, thus, cannot be judging the scientific evidence on its technical merits. Rather, they must be relying on their (mis)perceptions of its scientific accuracy and/or on extraneous grounds such as the impressiveness of an expert's credentials or demeanor (Brodsky, 1991) and the ability of an expert to communicate their opinions in a nontechnical fashion and reach firm conclusions (Champagne et al., 1991).

ARE THERE REMEDIES?

The potential causes for concern in the way the law often seeks and uses scientific input and in the way scientists often provide such information create a disturbing portrait—one that should not be ignored. What are the potential remedies?

Revising the Law and Restructuring the Legal Process

An obvious approach to minimizing current concerns would be to revise the law relating to expert witnesses. Changing the definition of expert and the standard for the admissibility of scientific information (Sales et al., in press) are logical places to begin. Unfortunately, changing these dimensions is difficult because by tightening the requirements for the admissibility of an expert, for example, we would be tampering with the factfinder's need for access to information. The law has traditionally favored freer access while relying on the factfinder's prerogative to assess the credibility of the witness and the presented information. This is particularly appropriate for cases that require less sophisticated analysis by the expert, but it is inappropriate for cases involving more sophisticated scientific issues. Future scholarship should reconsider the rules of admissibility for expert witnesses by focusing the distinction between clinical and actuarially based expert testimony (Sales et al., in press) and by evaluating the expert in light of the issue and sophistication of the analysis relating to the issue, which will be the focus of the expert's testimony.

Changing standards for the admissibility of the scientific information also is problematic partly because scientists do not always agree on what is acceptable science. Editors of scientific journals know how frequently reviewers disagree on the merits of a manuscript! One approach that should be considered, however, is to focus on the pragmatic considerations that the court would use when implementing the admissibility standard. For example, the U.S. Supreme Court in *Daubert v. Merrell Dow Pharmaceutical, Inc.* (1993) suggested a number of these considerations (e.g., determining whether the proffered scientific information has been subjected to peer review) for implementing the admissibility standard in federal cases. Although it is beyond the scope of this article to explore the decision (see, e.g., Sales et al., in press), suffice it to say that tightening the implementation of pragmatic considerations can go a long way toward gaining precision in the broad legal standard. Scientists could be helpful in the process of specifying these pragmatic considerations.

Another logical focus for change would be on improving the factfinder's ability to adequately assess the credibility of experts and the validity of the assertions they utter on the witness stand. One innovation that warrants attention would be to use a Special Master (a representative of the court, e.g., Rule 53 of the Federal Rules of Civil Procedure) to make findings regarding the scientific facts. Special Masters are often used in complex litigation, which pose some similarities to the cases that involve complex scientific matters. These Special Masters could be selected for their knowledge of the scientific matters under controversy, or they might be a panel of such people rather than an individual. An obvious practical limitation of this innovation is that it would

limit the lawyer's opportunity to influence a jury directly through the experts. Thus, some and perhaps many lawyers who rely on experts to successfully conduct their cases might oppose such a change. Using a panel of Special Masters might also raise the issue of improperly usurping the jury's function as factfinder. Despite the potential obstacles, who is better to judge the quality and value of science than scientists?

There are ways to provide expertise to the judge if he or she is the factfinder in the case. Encouraging judges to use independent, neutral, nonwitness, expert consultants to advise them directly is a possibility worth exploring (e.g., *Reilly v. United States*, 1988; Spencer, 1991; also see the next subsection). The limitations of this approach are the restricted circumstances under which the law allows the use of these experts, the reluctance of many judges to use them, and the difficulty courts might have in selecting appropriate individuals to be such experts.

In addition to providing judges with independent experts, special protocols could be developed that spell out in detail the substance and sequence of questions a judge should ask lawyers and experts when faced with particularly complex or arcane scientific evidence. For example, the Federal Judicial Center is developing such a protocol to assist judges with the use of specific types of scientific evidence such as DNA evidence. Such an approach has merit, but questions alone are unlikely to solve the problems of poor science in the courtroom unless the protocols are detailed, available for all scientific issues, and used by the judiciary and bar on a regular basis.

Finally, judges could provide cautionary instructions to jurors about the content and limits of the scientific knowledge. These instructions have already been accepted by some courts (see, e.g., *State v. Long*, 1986; *United States v. Telfaire*, 1972). This is another area in which ethical scientists can aid the court (i.e., by aiding in the development of the content of these instructions).

A Role for Scientific Organizations

Whatever the effects of changing the law and legal process, solving problems of bad science being introduced through expert testimony is not likely to occur without the efforts of the scientific community. One action that should be considered is having professional scientific organizations (e.g., the American Psychological Association [APA], the American Psychological Society, and the American Association for the Advancement of Science) take an active role by providing experts to the legal system, reviewing for accuracy the scientific information that is presented, and evaluating the validity of the scientific assumptions that courts make when reaching their decisions. Although it sounds like a sensible beginning to solving a major problem, the solution is fraught with problems.

Scientific organizations would have difficulty designating who are the true

experts on any given topic. For instance, who defines the level of expertise that is needed for each case? Lawyers are typically unsophisticated in the given scientific topic unless they have been handling cases in the area for several years. Scientists in the professional organization would have difficulty with successfully taking on this role because they are not familiar with the law or the nuances of the questions that the law would be asking. In many cases, it would take a scientist working with a lawyer to help define how much expertise is truly needed for each case—a time-consuming, cumbersome, and costly procedure. If this procedure was not followed, however, the criteria for inclusion on a list might remain vague or “loose,” and this may result in as wide a disparity in the qualifications of the included experts, as is currently the case with the experts lawyers choose. Even if the impossible happened and such a list could be created for each case, there are practical difficulties that would need to be surmounted. For instance, a large number of talented people cannot translate scientific information in ways that are clear to jurors or deal aptly with cross-examination. It would be very difficult for a professional association to determine in advance whether someone it recommended was up to this task. Without making such an assessment, the expert could damage a lawyer’s case.

If these problems do not kill the enterprise, political infighting about who should be included would likely paralyze the selection process. In fact, given the proliferation of scientific and professional organizations, it seems reasonable to conclude that competing scientific groups would try to offer the service with different individuals and different standards of practice. It is important to address the issue of value neutrality in science when allowing scientific organizations to provide experts for the legal system. In addition, some professional experts form professional organizations precisely for this purpose—to sell services rather than ensure expertise.

Conversely, the adversarial nature of lawyers and the legal system would encourage and indeed compel lawyers to seek experts who were willing to present information favorable to their cause. If such experts were not on the organization’s list, lawyers would seek them elsewhere. Although a jury might hear about the approved list during the qualification of the expert, it is not at all clear that they would be substantially influenced by this fact. There also would be horrendous logistical problems in matching experts to legal cases. For instance, if the experts are all on the east coast and the case is in South Dakota, what will induce the lawyer to pay the additional cost of securing the services of the out-of-state expert? Extra lead time also may be required to select and match experts to a case. In some cases, the timeframe could be prohibitive. Finally, even if these problems could be solved, antitrust law might prohibit some forms of the activity. A private entity would create a restrictive list of people who provide services and encourage the consumers of those services to contract only with those people. There are ways around creating a legal monopoly that would need to be carefully explored.

Perhaps the scientific organization could play a role in reviewing for accuracy the scientific information that is to be presented in cases. At the trial level, there would be significant barriers to implementing this service. Although both parties might want the service if they could afford it and if it could be used to discredit the other side's expert and expert testimony, they would not want the service if it would be used to discredit their own witnesses. Because they could not be sure of the organization's stance until they hired it to look at the facts, the attorneys might be leery of hiring the organization for fear that this decision could backfire on them.

Even if the lawyers did not fear this possibility, for whom would the organization work—the plaintiff/prosecutor, the defense, or the court? The attorneys are not likely to accept a situation in which the organization worked for both sides. Assuming both sides asked for its services, should the organization work for the side with the best experts and help them discredit the opposing side or work with the side with the weaker experts and educate them about what are the scientific facts? The choice is not an obvious one.

There is also the possibility that such an organization could work for a neutral body such as the court. By having the court employ the experts (e.g., Rule 706 of the Federal Rules of Evidence, 1974; *Students of California School for the Blind v. Honig*, 1984) recommended by the organization, the argument that experts are advocates could be weakened; but this presumes that the organization and its recommended experts are truly unbiased, which may not be accurate. In addition, as already noted, courts infrequently use such neutral experts.

Assuming the service was made available, there are three important limitations of its impact. First, the organization could not force its service on parties that did not solicit its help. As a result, many will not use the service—at least for years to come. Second, for those cases that do come to the organization, there could be too many for the organization to handle competently without compromising the quality of its work or encouraging scientists to give up science and become professional experts. This option is self-defeating because once the scientists become the expert-entrepreneurs, they may compromise their scientific ethics to keep clients happy and to ensure a steady flow of business. Hence, the service's quality may deteriorate over time. Third, there may not be a definitive scientific answer for the issues in the case. Rather, scientists may legitimately disagree. Yet, the judge or jury must find for one side. The legal system will not accommodate the postponement of a decision until more research on the matter is conducted.

Scientific organizations might become involved at the appellate court level as well (e.g., through the drafting and submission of amicus briefs). We do not discuss this possibility because it raises similar issues to those just discussed. In addition, this type of activity is already occurring, and experience has shown that such briefs are submitted in a minuscule number of cases.

Finally, the scientific organization might research the way experts and scientific information are selected and used in litigation. Research needs to shed light on (a) the decisions lawyers make when selecting experts and the decisions scientists make when agreeing to be an expert; (b) the communications that transpire between the lawyer and the scientist and the effect that these interactions have on the scientist's behaviors when acting as an expert; and (c) the match between the scientist chosen to be the expert, the type of social fact question being addressed, the level of sophistication in scientific analysis that would be required to address the issue accurately, the type of preparation that the scientist undertakes in preparing for the task, and the resultant expert testimony that the scientist provides. Such data is essential if we are to document the extent and contours of the problem, develop scientifically sound causal explanations for the observed behaviors, and propose reasonable approaches for remediating the difficulties. The findings of such work will provide the foundation for legal change and for convincing the legal system of its necessity. Although this activity can stimulate long-term solutions, it does not address the dilemma of bad science being introduced into current cases.

Public Scrutiny of Testimony

In science, it is typically assumed that the pressure peers exert when they scrutinize and offer criticism of another's scholarly work helps ensure appropriate scientific behavior. If true, this suggests that we should try to make scientific testimony in litigation readily available for peer review (e.g., M. Cataldo, personal communication, August 16, 1986). Perhaps a journal devoted to such testimony—which publishes information on the issue addressed, the testimony given by the experts, the court's conclusions, and critical peer commentary—would encourage more expert behaviors by scientists when testifying. Traditional specialty journals also might consider publishing such material when the topic of a case warrants it. And professional scientific organizations might become involved in this work (American Psychiatric Association's Council on Psychiatry and Law, 1992).

Although this proposal has merit, the scientific testimony and court's conclusions would be prohibitively long in some cases for a traditional-size journal to publish. A possible solution would be to go to a larger but less costly publishing format, but these formats may drive down what may already be a small readership, making the venture financially unfeasible. In addition, the resources necessary to monitor effectively and evaluate the work of even a majority of expert witnesses would be prohibitive, and there are many more relevant cases than a journal could economically publish. On the other hand, even if this approach is used selectively, it might still have a sobering effect on future expert witnesses and testimony, and such reviews could provide the basis for inquiries into members' ethical violations.

Ethical Principles

Any solution that focuses purely on external controls of the expert is unlikely to be fully successful. Attention must be drawn to modifying the expert's behavior such that the concerns addressed in this article do not occur. A dramatic improvement in the quality of expert testimony could occur if experts reflected on their ethical obligations prior to becoming experts witnesses.

For example, Principle A of the *Ethical Principles of Psychologists and Code of Conduct* (APA, 1992) admonishes psychologists to recognize the boundaries of their competencies and the limitations of their expertise. If an expert witness has not kept up with the literature and testifies using out-of-date information, he or she would be violating the responsibility to be competent. And what of clinical psychologists who testify on a topic without training in the area? The issue of competence becomes salient once again.

Principle B of the ethical principles (APA, 1992) suggests that psychologists should promote integrity in psychology. Is the integrity benefitted or harmed by psychologists who assume the hired gun role or advocate their personal values, rather than presenting scientific knowledge? Advocacy that is one sided and intentionally presented to aid the client rather than present accurate scientific information runs afoul of this principle.

Manipulating testimony to achieve a personal goal might also run afoul of Principle F of the ethical principles (APA, 1992). It admonishes psychologists to apply their knowledge to contribute to and improve the society in which they live and work. For example, some testimony on the battered woman syndrome that passes for expertise involves expert witnesses who misuse their profession by failing to raise the existence of professional criticism about the accuracy of the diagnostic classification (e.g., Vidmar & Schuller, 1989). Such expert testimony would thus constitute a violation of the social responsibility ethic.

Similar examples can be found in the ethical standards that set down enforceable rules for conduct. For example, Ethical Standard 1.04 (APA, 1992) mandates that psychologists perform only within their area of competence, whereas Ethical Standard 1.05 requires psychologists to keep abreast of current scientific information to maintain their competence.

Clearly, ethical principles and standards are important to proscribe certain behaviors. But perhaps most important, if studied and applied regularly and consistently in the normal course of activities, ethical principles and standards provide the impetus for potential expert witnesses to evaluate (a) their decision to participate, (b) the way in which they will prepare for participation, and (c) the way in which they will participate. This self-reflection can improve the quality of expert witnessing.

The use of ethical principles and standards is not without its limits however. By their very nature, ethics documents do not specifically address all issues and

conundrums that experts will face in the courtroom. Indeed, ethical principles are typically broadly drawn so that they can be applied to a wide variety of behaviors. For example, Ethical Standard 1.16 (APA, 1992) prohibits psychologists from participating in activities in which their skills or knowledge are misused by others unless corrective mechanisms are available. Does this standard place a duty on psychologists to take reasonable steps to ensure that their testimony is not distorted even by the side that hired them? A potential solution is for the ethical principles to be supplemented by practice standards, such as the "Specialty Guidelines for Forensic Psychologists" (Committee on Ethical Guidelines for Forensic Psychologists, 1991). But whether this document or other practice standards comprehensively address the issues of concern will have to await further analysis (see Sales & Shuman, this issue). In addition, if not adopted by the entire organization, such standards will have limited applicability. For example, the specialty guidelines was adopted by the American Psychology–Law Society/a Division of the APA. As such, it is applicable to the approximately 1,500 members of this division but not the remaining members of the APA.

There are other limitations as well. Standards of practice, including ethical principles and standards, do not guarantee excellence. They only institutionalize the minimum level of acceptable performance—competence. Competence in some court cases may not be sufficient when people's lives and/or property are at stake, particularly if we take our social responsibility ethic seriously. How then would ethical principles specify the expertise needed for different types of cases? A uniform standard may be too low in some cases and too high in others. The ethical principles should focus on the necessity of having requisite skills and engaging in a process of competent preparation to meet the demands of a task. But future writings will need to explore the mechanics of implementing such an approach.

Finally, even if someone's behavior violated the ethical principles and standards, sanctioning the scientist would be a problem. Although the scientific organization that promulgated the ethical principles could enforce them, it could only do so against members. If scientists chose to drop out of the organization, the organization cannot force its rules on them. Even if violators maintained membership, sanctioning the majority of them is unlikely. It takes significant resources to identify and investigate potential violations, hold hearings to give potential violators an opportunity to present their side of the facts, and implement corrective interventions.

Another solution would be to enforce ethical principles and standards through malpractice actions; the principles could be used to designate the acceptable level of practice to which the scientist–consultant would have to adhere. However, expert witness immunity might prevent potential malpractice claims (e.g., *Bruce v. Byrne-Stevens & Associates Engineers, Inc.*, 1989). Even if permissible, the difficulty of this approach is that there would not be

a party who would be likely to sue the scientist and have legal standing to do so. The scientist's employer—the lawyer and the client—would not sue if the scientist's testimony included what they hoped to hear; if the scientist was not going to support the lawyer and client's cause, he or she would not have been retained after the initial interview or would not appear in court. The other side would be unlikely to sue because malpractice actions require that the wrongdoer owe the complaining party a duty to adhere to a certain standard. Because the scientist was hired by the opposing side, the duty would be owed to that side. Some creative lawyering might get the courts to make certain that experts understand that they have a duty to both parties to perform competently on the argument that not to do so would hamper the factfinding process in trials or perhaps perpetrate a fraud on the court. We know of no cases that have considered this issue, however, and would not be optimistic that it would be a winning argument.

The truly injured party is an amorphous one—science, most likely as embodied in one of its scientific organizations. Yet, the scientific organization would not have standing to sue. And even if one did, it is unlikely that an organization would use this approach in any but the most flagrant cases because to do so might open up to question and public scrutiny the competence of the professional behaviors of all members.

CONCLUSION

Clearly, from the foregoing discussion, there are numerous avenues in both law and science that can be pursued to ameliorate the problems posed by the law's use of expert witnesses. The most successful approach probably best lies in a multifaceted attack—one that focuses on the institutional structures of law and science, as well as on modifying the behavior of scientists. In this article, we posited and explored many of the options.

Despite our articulation of the difficulties that are likely to arise in implementing them, most are realistic possibilities, with appropriate planning and justification. For example, subjecting expert testimony to peer review and ethical scrutiny, even if done selectively, would stimulate critical thinking about the desirability of certain behaviors on the part of experts in the courtroom and would change some experts' behaviors. Unfortunately, page limitations preclude a more detailed exploration of these and other solutions and implementing mechanisms, but the guideposts have been clearly marked.

At the same time, we need to educate potential experts about the importance of ethical behavior in the courtroom and about how the ethical principles relate to behavioral choices. This effort should be complemented by a consideration of other professional standards, but it would be greatly enhanced by further articulation of the official position of the APA (and other scientific

organizations depending on the discipline of the expert) in regard to how the ethical principles should be interpreted when the scientist is serving as the expert witness.

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