SPECIAL COMMUNICATION

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Enhancing the Relationship of Science and the Courts

Learned Hand, at the opening of this century presented us with our common dilemma. How can a lay jury, which by definition does not have the requisite scientific knowledge and background, judge the credibility of scientific presentations by experts who present opposing conclusions?

The fact that it is a judge rather than a jury which makes the decision in a *Daubert* hearing on whether an expert should be permitted to testify at all does not resolve the problem. Judges are seldom more knowledgeable than juries. It is somewhat ironic that *Daubert* and good sense tells us to emphasize peer reviewed articles in evaluating scientific testimony. Despite its shortcomings, peer review is by scientists, while we laypersons ultimately judge which peer reviewed studies are to be relied upon.

Sometimes it is possible to cut the Gordian knot by having the opposing experts engage in an unsworn colloquy with the trial judge before trial in an effort to find common ground. Since most experts are reasonable, conflicts of opinions can often be tempered in the course of such discussion.

If the case does go to trial, a lay jury will have to decide, for example, if the plaintiff's birth defects were caused by exposure to the defendant's product. The question, at such a trial, is not whether there is *any* connection between the substance and the defect, but whether the connection has been proven "by a preponderance of the evidence." That standard requires proof that it is more likely than not that the substance caused the defect. In practical epidemiological terms, it means that for every one such defect in the population at large, there would have to be at least one additional defect attributable to the defendants' product. Epidemiological studies and evidence are, however, often unclear.

The case may never get to a jury. The judge, may grant summary judgment, deciding that the plaintiff's evidence is so insubstantial as to present no triable issue.

The fact that one side may lack adequate resources to fully develop its case is a constant problem. I try to stop myself before criticizing any expert, because it may be that the party could not afford a better expert, or that the other side has already monopolized all the "top people" in the field. So I tend, in my role as *Daubert* gatekeeper in the courtroom, to be rather flexible about allowing less-than-Nobel-laureate experts to testify. That does not, however, mean that I accept everything experts say at face value.

Several years ago, I tried a case involving whole-cell pertussis vaccine. The plaintiff was a girl who had experienced seizures at the age of 4 or 5 months. Shortly afterwards, she received the vaccination. She was found later to have suffered profound brain damage. The cause of her neurological disorder was unclear. The question posed at trial was whether it was improper to administer the vaccine after the seizures.

I was aware that there was a strong pediatric consensus in the defendants' favor. Pediatricians, as a group, had addressed the problem. They had taken national votes on the issue and produced a number of papers on which they agreed. These papers indicated that the risk of not administering the vaccine—even after seizures of the type suffered by the plaintiff—was greater than the risk of giving it.

The defendants' experts did the best they could to represent the pediatric community at large.

On the other side, the plaintiff called a scientist I would consider borderline *Daubert* in terms of expert credentials. He had the proper degrees and he had done some research, but had published nothing on the subject and had entered the field at the request of plaintiff's attorney. He relied wholly upon secondary sources—a large number of published articles—to prepare himself for cross-examination.

The jury found, nevertheless, for the plaintiff. A profoundly disabled child, her case was, obviously, very appealing.

At that point, I set aside the verdict, taking into account all the evidence including the inadequacy, in my view, of the proof presented by the plaintiff's expert.

I believe I was justified in setting aside the verdict—and the court of appeals agreed when the plaintiff appealed my ruling. Nonetheless, it would have been better if the paediatric consensus had been presented to the jury. Unfortunately, there was then no generally accepted practicable way to reach out to a scientific community to obtain an expert who could testify as a "neutral authority" in court.

Partly, that was due to the limits of *my* institution: the law and the judiciary. We lack well established procedures by which judges can go outside the courtroom for help and information. And partly it was due to the limits of the scientific institution. No standing scientific panels, for example, are available for court appointment.

The second thing that troubled me was that when the case was over, I felt that impartial scientists who knew the field might well agree that the expert retained by the plaintiff should not be allowed to testify on this subject again. I did not know what, if anything, I could do about this. There was no acceptable mechanism for contacting the relevant professional organizations, nor did I have any assurance that those organizations would have been receptive to my communications. You may have some ideas about that.

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Moreover, there are dangers associated with saying about a person who holds himself out as an expert: "You have acted improperly, and you should not be allowed to testify again." Is that slander? Should the law provide immunity for such statements? I suppose as a sitting judge I would have absolute immunity. But would another witness or a scientific group have such protection?

I was left with the feeling that I needed help, but there was no mechanism for getting it. I have no doubt that this plaintiff's expert will go on testifying and perhaps winning other cases that should not be won, an issue that I know concerns you very much.

Some of the same problems may present themselves in the stack of papers waiting for the judge in any serious science-based case. For example, there have been many published articles representing the consensus of scientists on the teratogenic effects of chlorpyrifos—used in insecticides—in another case I tried recently. Is more research required? And, if so, who will do it, who will pay for it, and how long will it take? The courts must decide cases now, not after years of additional experimentation.

A case study in forensic problems is presented by the breast implant litigation. Many claim a variety of silicone-related illnesses, some of which can be denominated as "local injuries" and others as "systemic diseases." The women's local injuries include pain and suffering arising from capsular contracture, rupture, leakage, migration, granulomas, infection and temporary or permanent disfigurement. They also claim systemic illnesses that include autoimmune and connective tissue disorders. Both sets of claims require intricate expert scientific testimony at trial.

In the breast implant cases, another federal judge, a state Supreme Court Justice and I were charged with trying almost all the New York cases that opted out of the national breast implant class settlement. We jointly utilized a Rule 706 panel of a law professor, an eminent scientist and a professor of science who was also a lawyer to choose a panel of impartial experts.

Judge Jones, who has the Oregon breast implant cases, appointed a panel of local experts to assist him. How to pay for such experts is a problem we can perhaps address in the question period.

Chief Judge Sam Pointer, of the District Court for the Northern District of Alabama, appointed a national Rule 706 panel—consisting of such scientists as a epidemiologist and rheumatologist. It will report in some months. It is being, financed by a special grant from the Federal Administrative Office for the courts. The Federal Multidistrict Panel had assigned to Chief Judge Pointer all federal breast implant cases. When they are not disposed of in Alabama—as when plaintiffs opt-out of the proposed national class action—the cases are sent back to districts such as those in New York for trial. Because of the national unique aspects of the breast implant cases federal funds to finance the 706 panel's work was available.

In the interim, the New York judges are putting off a decision on whether breast implants cause systemic diseases, trying only local injuries such as those due to leaking of silicone from ruptured implants. Most of these cases will now settle since the dollar amounts involved when only local injuries are tried are relatively modest.

The national Rule 706 panel report will be, I suspect, an important forensic event.

Even after the scientists on the 706 panel complete their report there will be difficult unresolved problems. Will lawyers prepare the members of the panel to testify since they probably are naive as prospective witnesses? Who will select and pay for these lawyers? Can they be examined and cross-examined once by representative lawyers for the plaintiffs and defendants on TV tape so that their testimony can be used in trials all over the country without their appearing physically? Unfortunately, the hearsay rules and Rule 43 of the Federal Rules of Civil Procedure requiring testimony orally in open court, as traditionally interpreted, would be a barrier to use of such canned testimony.

I, myself, have used Rule 706 panels successfully in the Manville class action asbestos trial and at a sentencing hearing, but these were relatively simple examples. We have a great deal to learn about Rule 706 panels and other appropriate devices for obtaining "neutral" scientific testimony.

A judge is largely dependent on those experts who file affidavits or appear in court. They may not be the best experts; they may be biased or venal; they may not be evenly matched. But, from the point of view of a judge, they're all we've got. The judge, like the juror, is largely a spectator, forming opinions, and reaching decisions, on the basis of what is presented to him or her in court.

It is for that reason that I suggest that professional scientific and medical societies must take a more active role in policing members of your profession who testify as experts.

That brings me to a basic question: what do judges expect from expert witnesses, individually and as a group?

I can answer that in one word: honesty.

We realize, of course, that there is more than one "honest" answer to most questions, especially questions as complex as those posed to neurologists by attorneys in difficult cases. But a lack of consensus cannot serve as a license to mislead. Proper expert testimony is balanced. It includes expressions of doubt where such doubt exists. A possibility should not be presented as a certainty; a theory should not be stated as a fact.

An expert witness may feel some loyalty to the party who hired him or her, especially if that party has a sympathetic claim. But the expert must also be loyal to his or her profession, and to the system of justice under which we all live.

This does not mean that only majority views should be presented in court. There is as much danger in restricting ourselves to "official positions" as there is in permitting the airing of unpopular views. It also does not mean that only the experts with the longest resumes should be allowed to testify. For reasons that include maldistribution of resources, which I alluded to earlier, not every party can retain the leaders in a given field.

A lawyer will want "experts" he or she calls to the stand to give definite answers. The lawyer will press the scientists to give yes or no answers to questions that do not lend themselves to one-word responses. Judges and jurors also prefer definite answers. Scientists must, however, not allow their testimony to be colored by these pressures.

Experts witnesses are obligated to assist the court and the parties in determining what evidence will be introduced in court and what its probative force should be. Here, the scientific communities, through ethical standards which I do not think have yet been fully developed, should make it clear that withholding information, through the destruction or concealment of relevant documents, is unacceptable.

Ethical standards will tend to have the greatest effect on those physicians who are already most susceptible to moral suasion. Nevertheless, the scientific community has to take a stand in favor of candor.

Scientists should be encouraged to put the needs of society at least at the level of the client's interests. It cannot matter that the witness has worked for months or years for one side, often for a substantial fee. The expert must be willing to say, "I don't know" or "I can't answer that with the certainty you require." Often, after

the expert has been examined by both sides I ask, "Is there anything else you can tell us—anything that might help us to better understand the case?" I should receive an honest answer.

Of course, there is a practical consideration as well: The truth will eventually come out. Efforts to suppress it will be seen by the jury as quite invidious, and may ultimately result in very large punitive damage awards against the party the " expert" tried to help.

In legal-academic circles, much of the debate about expert testimony has focused on the utility of formal peer review as a means of determining what scientific evidence may be introduced in court. In the federal system, until very recently, we were guided by the so-called *Frye* rule, which looked for general scientific consensus of reliability as a predicate for admissibility.

Formal peer review, however, is often of limited utility in eliminating errors or even fraud. At some medical journals, graduate students do much of the work; confirmation of experiments is difficult and expensive; the authors may have a hand in the choice of referees; referees may want to enhance or retard careers; and so on. Given the weaknesses in this process, the courts cannot rely on peer review as the *sine qua non* of admissibility. In the recent *Daubert* case, the Supreme Court held that, instead, judges must consider a number of criteria including scientific plausibility in deciding what expert evidence a jury should hear. That means that the judge, as gatekeeper, exercises a great deal of discretion. He or she also bears the burden of trying to understand the science or medicine involved, so as to serve as an informed gatekeeper.

In exercising that discretion, the courts depend on self-regulation within professions such as yours. Judges ultimately must depend on an ethical scientific-medical community as a check against mendacity.

There are a number of possibilities that the medical and legal communities should explore:

One, which I think is promising, is the publication of expert testimony, or synopses of such testimony, in professional journals. I have often written of the advantages of our system of public trials, in which witnesses appear in *open* court. As a practical matter, however, there are rarely more than a few spectators in the courtroom. Most of you do not have time to become legal buffs, hanging out at the local courthouse as trials that involve neurological evidence unfold. Publication is a means of bringing expert testimony to the attention of those in a position to evaluate it.

Another possibility is the use of written contracts between experts and attorneys that would delineate the responsibilities of expert witnesses—responsibilities that go beyond advocating the client's position. To that end, I have suggested that the Carnegie Commission on Science, Technology and Government consider drafting a model contract for experts and attorneys. With such a document, the expert would have some "protection" from pressures to shade his or her opinion for venal purposes. Such an agreement would also serve to emphasize to attorneys and physicians that the court expects candor from both professions.

Courts have other tools at their disposal. They can, for example, encourage research and analysis by independent national groups. Judges should also more frequently utilize their powers, made explicit by Rule 706 of the Federal Rules of Civil Procedure, to appoint independent experts. In some cases, it may be worthwhile for judges to delay decisions, or provide for intermediate relief, while needed studies go forward—as we are doing in the breast implant cases.

The courts are developing procedures for acquiring more useful expert testimony and for making the courts more expert-friendly. Under a recent amendment to Rule 26 of the Federal Rules of Civil Procedure, each side must be able to examine the proposed testimony of the other side's experts. The amended rule requires experts who are expected to testify at trial to provide, well in advance of trial, a complete written statement of the opinions to be expressed and the bases for those opinions. The statement must be signed by the expert. It must also contain the expert's *curriculum vitae* and a list of all cases in which he or she has testified in the past four years, as well as disclosure of his or her compensation for participating in the case. At trial, these reports are admissible into evidence.

The rule, by the way, has teeth. In one recent New York case, after a plaintiff's expert repeatedly refused to comply with the Rule, the trial judge precluded the expert from testifying. Then, because he concluded that without that testimony the plaintiff would not be able to prove his case, he dismissed the action entirely.

This rule forces the parties to lay out the scientific issues early in the litigation process. Receiving the reports early in the process enables me to schedule the kind of preliminary hearing. I have found that, in such situations, experts—even though they were brought in by the parties—can be very helpful in educating the court. When you say to the plaintiff's or defendant's experts, "Look, we want you to take half a day and explain the general background, give us a short course in epidemiology, or whatever it is that we must understand to decide this case," they tend to do that fairly well.

Under the Federal Rules of Evidence, experts have a lot of leeway. They are permitted to rely on any information that other professionals in their situation would rely on. So, evaluations of, and conclusions based on, the work of other scientists are generally permitted.

This liberal policy has, of course, put pressure on the courts. A good deal of information will come from scientists who have conflicts of interest or, worse, are charlatans. The scientific and medical communities can regulate this inflow and put its stamp on some of this data much more helpfully, I think, than can the courts.

There is one other means of controlling the testimony of experts—one that I suspect we will see more of in the future. That is lawsuits against experts whose testimony is negligent or worse. A recent report in the American Bar Association Journal noted that courts are "increasingly willing" to permit suits against experts. The article noted that such suits "could be one solution to a growing problem of negligence by experts," and that verdicts against experts are pushing professional experts to be more careful.

While it is true that such suits may deter irresponsible experts, it is hard to see this as an encouraging trend, since it solves the problems of one kind of litigation with another kind of litigation. Judges get paid to spend every day in court; scientists have better things to do.

The American Academy of Neurology and other scientific groups seems to have taken a number of encouraging steps toward improving the quality of expert testimony. The Academy's statement on the qualifications and conduct of expert witnesses contains several excellent provisions:

One is a statement that all physicians "have an obligation to testify in court as expert witnesses when appropriate." I concur. If more qualified practicing physicians and other scientists came to court, there would be less of a niche for the hired gun, the neurologist who testifies for a living. I know how difficult it is for you, logistically, to fulfill this obligation. That is why I, and most judges, try to adjust the order of presentation of witnesses at trial to accommodate scientists. We need the most responsible among

them—which may mean the *busiest* among you—to make your views known.

Another provision of the Neurologists' Position Statement states that the expert witness "should be aware that transcripts of deposition and courtroom testimony are public records." As I mentioned before, this fact alone is generally not sufficient to affect most expert testimony. It should be coupled with more frequent publication, so that statements made in court are actually held up to the sunlight of publicity. If medical journals routinely published excerpts from scientific testimony, "rogue" scientists would quickly come to the attention of their peers and the legal profession.

Finally, the policy statement adopted by the neurologists requires that the expert witness testify "fairly and impartially." This brings me back to my original theme. Testifying fairly and impartially may require the expert witness to say, "I don't know" or "I am not sure" or "On the other hand . . ."

We live in a society where people may have come to expect too much from both professions—medicine and the law. They expect certainty and precision, when all we can promise is our best efforts.

Those who command large fees for testifying have an incentive to affect an air of omniscience. This is unhealthy. The medical and legal communities should work to make doubt and uncertainty respectable again. Only then will experts feel comfortable saying what they know *and* what they do not know.

I've said a lot about what we judges expect from experts. I'd be remiss if I didn't say something about what you experts can expect from judges.

I can answer *that* in one word, also: respect. This respect can manifest itself in several ways. First, we should respect scientists' time constraints. Where the same medical issues come up in one trial after another, available technology can be used to lessen the burden on qualified experts. Increasingly now and in the future we will take the depositions of scientists on videotape, to avoid making them answer the same questions over and over again. Of course, we will have to provide for cross-examination, so that parties who come in later have the opportunity to develop issues not adequately covered in past cases.

Second, the law must try to protect scientists from overly harsh cross-examination. Because we really do need their help, we will attempt to shield them from unnecessary slights or unreasonable pressures. When asked an unfair or misleading question, a scientist should feel comfortable saying, "You've asked for a yes or no answer. But, Judge, may I have an opportunity to elaborate?" A judge must provide that opportunity.

We cannot however, protect witnesses against every slight to their egos. Experts are always subject to attack. The other side is entitled to question their bona fides and the bases for their opinions.

One topic that will always come up in court is the doctor's reason for testifying, which often involves money.

To most jurors, $1,000 to $2,000 a day or more for an expert sounds like a tremendous amount of money. The issue of payment almost always comes up on cross-examination, and many of us are uncomfortable with so public a discussion of our finances.

There may be cases in which scientists choose to testify free of charge. This is essentially a gift to the client, and it is one a scientist are more likely to bestow if he or she feels strongly about the issue in the case. They may receive non-monetary benefits—psychic benefits—from seeing a particular position advanced. The volunteer may be less credible than the paid expert because he or she may come to the case with a preferred outcome in mind. Generally, though, I believe the more reputable physicians volunteer their expertise in court, the closer we will come to ascertaining the truth in difficult cases.

We will, of course, never know the absolute truth in any case. There are inherent problems that are simply unavoidable—primarily, the lack of knowledge, the lack of information, about many medical problems. But to the extent that our difficulties arise from standards that are too low or from unethical conduct, I believe that lawyers and scientists can do more, working together, to obtain a result more satisfactory to the courts and therefore to the public which both professions serve.

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