Science in Court

Lawyers and scientists discuss how to improve the handling of "expert testimony" in damage suits involving toxic substances

HOW DO YOU PERSUADE respectable scientists to give expert testimony in the slippery area of toxic torts?

This was one of the major questions addressed in a recent workshop held by doctors and lawyers on improving procedures for scientific evidence in toxic torts—lawsuits involving allegations of health or property damage from toxic or allegedly toxic substances.

Scientists hate to get involved in adversary legal proceedings, especially when they are called upon to issue pronouncements in areas of great uncertainty—such as whether or not epidemiological evidence warrants a conclusion that exposure, say, to dioxin, caused damage to a particular individual.

Procedures for handling scientific testimony in such cases have come under increasing discussion in the past few years. As recently as the early 1980s, toxic tort suits were rarely successful because of the difficulty in proving specific causal relationships. But the situation has changed dramatically, particularly since 1984, when Brooklyn Judge Jack V. Weinstein presided over a pretrial settlement of $180 million for a group of Vietnam veterans who sued seven chemical companies for alleged health damage from Agent Orange.

Since then "the avalanche of multimillion dollar verdicts in toxic tort cases continues with no sign of abating," according to the workshop organizers, E. Donald Elliott of Yale Law School, Paul F. Rothstein of Georgetown University Law Center, and Leon Gordis of Johns Hopkins School of Hygiene and Public Health. These include highly publicized cases over Bendectin, asbestos, swine flu vaccine, IUDs, Velsicol, benzene, paraquat, and PCBs (polychlorinated biphenyls). Last year, for the first time, tobacco joined the list when a plaintiff successfully argued that smoking had caused his wife's death from lung cancer.

The use of expert scientific witnesses in such cases has grown apace. But good scientists willing to participate in the process are rare. Said Bernard Goldstein of Robert Wood Johnson Medical School, "scientists view the adversary process with dismay, distaste, disdain, and fear." Moyses Szklo of Johns Hopkins said scientists regard testifying as a "very disagreeable activity," in which their views are distorted and taken out of context and their very integrity impugned. They have little to gain professionally from becoming involved in a legal suit, and feel conflict between serving the interests of science and those of their client.

The lure of high fees for serving as an expert witness in some cases has, however, created a cadre of professional witnesses whose scientific views are often far outside the mainstream. According to Elliott, particular offenders are "clinical ecologists," a small group of "professional witnesses" that "has dramatically changed the strategic balance in toxic tort cases." Clinical ecologists advance the theory that exposure to small amounts of certain chemicals can alter the immune system, producing what has been described as "chemical AIDS." The theory is based on extrapolations from animal data and has no support from epidemiology, says Elliott. But it has been used in hazardous waste litigation to persuade juries to award large awards to large numbers of people.

Judges urged to expand use of impartial experts to aid the court in assessment of adversaries' scientific testimony

As the legal system operates now, according to participants at the workshop, there is no systematic way to evaluate the validity of evidence presented by expert witnesses. And judges are reluctant to use the tools they do have for a variety of reasons, including unfamiliarity with the subject matter and fear of intruding in the adversary process. Plaintiffs often find expert witnesses who will exploit gaps in what one speaker called "the rough edges" of a body of knowledge. Judges are reluctant to bar testimony from "outliers" whose views contradict those of the majority of scientists for fear they may be silencing a new Galileo. Thus, in Elliott's words, the present system "extends equal dignity to the opinions of charlatans and Nobel Prize winners." The tendency to choose experts with extreme positions can therefore lead to juries to conclude "that there is no consensus and that all scientific conclusions are equally valid."

Rothstein has identified two schools of legal thought with regard to expert testimony. One is the "trust the expert" camp, which takes a lenient view toward expert testimony and believes that decisions on its validity are best left to the jury. The other side favors "strict scrutiny" of the evidence by the court, which may entail dismissal of expert testimony by the judge or even a setting aside of the jury verdict.

Although the more permissive attitude is now the prevalent one, writes Rothstein, "the strict scrutiny camp seems to be an accelerating modern movement and is the direction of the future." Cited as a "pioneering" example of this was a second Agent Orange decision by Judge Weinstein. Some of the plaintiffs opted out of the 1984 case and subsequently brought another suit before the same court, in hopes of achieving a larger award. This time Weinstein, after studying the scientific evidence, decided that no basis existed for the claims by the plaintiff's experts. He issued a summary pretrial judgment on behalf of the defendants.

Two other recent cases have followed the same course. In 1986, U.S. District Judge Thomas Penfield Jackson threw out a jury verdict for the plaintiffs in a case alleging birth defects from the use of Bendectin, an antinausea drug commonly used during pregnancy. He ruled that the plaintiff's expert opinion, based on animal and in vitro research, was contradicted by abundant epidemiological evidence on the safety of the drug. Jackson's decision was upheld on appeal last September.

Similarly, last November, a Pennsylvania judge issued a summary judgment in favor of defendants in a suit by railway workers alleging health damage from PCBs. He threw out expert testimony furnished by the plaintiffs on the grounds that it was irrelevant and contradicted the results of epidemiological studies.

Summary judgment is one of a number of ways a judge can set limits on what is valid scientific evidence. Another, little used, approach is for the court to appoint its own scientific expert. This is allowed under federal rules of evidence and, although widely favored in theory, is rarely used in practice—largely, says Rothstein, because of reluctance to interfere with the adversary process. Many judges do not know the appropriate method or circumstances for selecting an expert. There is also fear that the choice might be seen as tantamount to deciding the case or might cow the jury.

Questions bearing on the selection, evaluation, and treatment of scientific evidence in court is tied up with perennial issues of

elitism versus populism. Lawyer Anthony Z. Roisman, for example, took the populist tack, saying he thought the system works fine the way it is. He said it is important for community values to influence the weighing of scientific evidence and that a judge should never override the jury's prerogative—"a jury vote for one outlier," even when opposed by the overwhelming majority of scientific opinion, "should be upheld."

John H. Langbein of the University of Chicago took an opposite tack, decrying "the cult of the amateur" in American law. "We're purporting to talk of the problem of expertise but what we are really talking about is having ignorant laymen [juries] making multibillion dollar decisions." He said Americans should consider emulating the legal systems in Northern Europe, where judges themselves often have expertise in particular areas of science.

A number of proposals have been put forward to raise the quality of science in court, including science panels, pretrial peer reviews of testimony, and specialized training and resource centers for judges.

Most of those concerned seem to agree that the most desirable immediate step would be to encourage courts to use the tools already available to them and expand their use of court-appointed experts. Workshop participants said their purpose should be for "information enhancement" and to aid the judge in assessing the claims of the adversaries' experts. They agreed that suitable candidates might be identified through consultation with professional societies.

The arrangement, as envisioned, would leave the adversary process intact while improving the quality of information delivered to the jury. And, according to several workshop participants, it would make the role of "expert witness" considerably less unattractive to scientists. Colorado Judge Sherman Finesilver, who has used experts in several cases involving swine flu vaccine, said he has never been refused when he has asked a scientist to serve as witness for the court.

Such arrangements do not necessarily guarantee the victory of rationality, as Judge Jackson related. Several years ago he had a case of a man who was seeking a patent for what was, in effect, a perpetual motion machine. The Patent Office had filed for summary judgment against him. The man had the support of an "expert" with a Ph.D. Jackson looked around for a suitable expert to appoint: he found someone who "seemed perfect"—a former patent commissioner, electrical engineer, and lawyer. The court's expert came up with a report recommending a summary judgment in favor of the inventor, and left the court with a bill for $13,000. ■ CONSTANCE HOLDEN

Election Turmoil at Soviet Academy

A new round of elections is to be held next month by the U.S.S.R. Academy of Sciences for its representatives to the Congress of People's Deputies, following last week's rejection by academy members of almost two-thirds of the officially endorsed candidates.

Those who have already been renominated as candidates for the allotted 20 seats include physicist Andrei Sakharov, planetary scientist Roald Sagdeyev, and economist Nikolai Shmelev.

The unprecedented rejection of official candidates by rank-and-file members was the result of a deliberate protest over the fact that, out of 130 names which had been put forward by research institutes belonging to the academy, only 23 were approved at a special "expanded presidium meeting" held in January. Almost all were top-level scientific officials.

Many complaints—in particular about the rejection of Sakharov—came from individual scientists attending a special 3-day meeting held in Moscow last week which was meant to decide which of the 23 candidates should fill the 20 available seats.

Sakharov himself told the meeting that "we must carry out what I would call a surgical operation," adding that "I believe it is up to us to hold new elections"—a demand which had previously been rejected by academy president Guri Marchuk.

Apparently following Sakharov's advice, a significant number of the 1280 academy members attending the meeting are reported to have deleted almost all 23 names on their ballot paper.

After a count that lasted 7 hours—over twice as long as the vote itself—it was announced that only 8 out of the 23 candidates had received the support of at least half of those casting votes, a necessary requirement for election. Ironically, it was this same rule that led to the previous exclusion from the election of 107 out of 130 potential candidates.

As a result, the news agency Tass has reported that, in line with the country's new electoral laws, a further round of nominations will take place in the next 2 weeks for the 12 seats that remain unfilled.

■ DAVID DICKSON

Fate of R&D Tax Credit Uncertain

Legislation to make permanent the research and development and basic research tax credits was introduced into the House and Senate last week with the endorsement of a majority of members of the House Ways and Means Committee and the Senate Finance Committee. President Bush has also said he favors making the credits permanent. Yet in spite of this support, passage of the legislation this year is far from guaranteed.

The measure is unlikely to be approved on its own, but rather as part of a broader tax package. The problem, however, is that in view of President Bush's oft-repeated opposition to any new taxes, a broad tax bill is unlikely to emerge this year.

The R&D tax credit came into being in 1981 and has permitted companies to claim a tax credit for incremental spending for research and development above a base level. The law expired in 1985 and was renewed again in 1986, but the credit was cut from 25% to 20%. Restrictions also were added to the types of research that qualify for the credit. At the same time, a 20% credit was created for industry-supported research conducted at universities and other academic institutions.

The credits were to expire again in 1988 (*Science*, 19 February 1988, p. 858) but Congress moved last year to extend them through 1989. The cost to the government was again trimmed, however. Companies can still receive a 20% credit, but they must reduce the R&D expenses they deduct on their tax returns by an amount equal to half of the earned credit.

The new House and Senate bills (H.R. 1416, S. 570) continue this provision, but the Bush Administration wants companies to subtract 100% of the tax credits' value from their declared R&D expenses.

The bills also contain a clause, which is supported by the Administration, that would allow start-up companies to carry earned credits forward for 15 years. Such companies have not benefited from the R&D credit in the past because they generally do not make any taxable profits in their early years.

If Congress defers action on the R&D tax credit until next year, says Kenneth R. Kay, executive director of the Council on Research and Technology (CORETECH), it will continue to erode the faith in the tax credit as a public policy tool. "I think we want to make people realize that the tax credit has got to be something that business can count on," he says.

■ MARK CRAWFORD