

PLENARY SESSION: PART I—THE FORENSIC SCIENTIST IN CIVIL LITIGATION

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The Dichotomy of the Expert Witness

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ABSTRACT: The expert on either side is either right, partially right, wrong, or wrong and dishonest. Even strongly opposed testimony is not evidence of dishonesty, although it is clear at least one expert is wrong. Some differences are the result of legitimate differences of opinion. However, the author has identified several categories of testimony that show dishonest intent. It is clear that the growth of financial incentives has increased the number of cases in which there are opposing experts. If some kind of corrective action is not taken, expert witnesses will no longer be an effective force in the legal system. A multidisciplinary testimony review board separate from the ethics function is clearly one answer to the problem.

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In every news account describing a major trial, the contradictory opinions expressed by opposing expert witnesses receive major coverage. This is not only difficult for judiciary and public to understand, but is puzzling to the scientist as well. Valid scientific opinion based on a given set of facts should show a high degree of consistency since scientific principles are, for the most part, immutable. For example, many remember the conflicting psychiatric testimony in the Hinckley case, one side claiming innocence by reason of insanity and the other guilt by responsibility (sanity). I personally found Dr. Deitz's sanity testimony in this case very refreshing, however, only the jury's views are germane. Jury interviews indicate they were completely confused, if not by the conflict, at least by the expert dialogue. I am sure this is as the defense attorney intended. The jury essentially returned a "not guilty" verdict based on the inconsistency of scientific testimony. This decision most certainly made the U.S. justice system the laughing stock of the world. The experts fought to a draw, but the decision went to the defense. We have invented a new judicial concept that could appropriately be titled "innocent by confusion."

In another recent case in the news involving "pathological testimony" in an alleged death by dog bite, the contradictory testimony was clearly mutually exclusive. One expert claimed the death of the elderly woman resulted from multiple lacerations to the throat inflicted by the dog. The opposing expert opted for coronary thrombosis. The first examiner may have left an opening for the second by failure to examine the heart. The second witness's testi-

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mony suggests a very fortuitous heart attack. Someone must certainly have received a fortuitous check in the mail.

Many years ago, this organization—The American Academy of Forensic Sciences—adopted as one of its goals the improvement of the quality of justice through the application of the principles of forensic science. I doubt any of us today would want this changed. I believe the last thing that the prior members of this Academy ever intended was the improvement of the financial status of any Academy member by misleading or inaccurate scientific testimony.

Many of us still remember relatively recent injustices perpetrated by our legal system because of judicial rejection of scientific testimony. (Paternity or rather nonpaternity based on genetic factors immediately comes to mind.) One or two may still be with us who remember this judicial discretion as an outgrowth of an earlier period of fee-based pseudoscientific testimony. Exact repetition of this earlier period is now unlikely because valid scientific principles and scientists are more readily known and accepted. However, current conflict could produce a similar judicial backlash.

Considerable progress has been made by our Academy in setting up scientific qualifications based on experience, education, and training. Research support, publication, proficiency testing, certification, and accreditation form a broad scientific base. Proper qualification of Academy members and other scientists is thus assured as never before. Unfortunately, this does not and cannot insure that each member's qualifications are used in the best interest of forensic science. As long as there are individual experts whose prime motivation is the use of scientific principles for their own benefit, the system is potentially flawed. These individuals form the outlaw element in the scientific community just as criminals consist of the outlaw element in our general population.

How does the testimony of the forensic scientist compare with the activities or missions of attorneys, judges, and newsmen? In the case of attorneys, the comparison is simple. Lawyers do not function as scientists but as advocates in the courtroom and as such, are not sworn to tell the truth. For example, subsequent to trial of the Williams case in Atlanta, one of the defense attorneys made a statement to the media that dog hairs found on the victims were mostly white. Since the Williams' dog was black and tan, the hairs could not have originated from Williams' dog. The truth of the matter is that like most old dogs regardless of species, much of this dog's hair had turned white. If we listen closely to the courtroom argument, we often find the number of whoppers advanced by a lawyer in a particular case is inversely proportional to the merit of his position. Lawyers, in advocating their position, never hesitate to make money available to the helpful expert.

What about the news media? The news media found out years ago that truth was burdensome and not a best seller. Half truths or no truth at all are frequently converted into melodrama to dispell dull reality and generate profit or attention or both. An example was the CBS special on the Missing and Murdered Children. In viewing the program, I recognized the names but not many of the events. Up until the TV program, my information was limited to what I experienced in the investigation of the case. CBS forgot to send me my script.

What about some judges? Judges with special philosophies are often recruited in response to pressure from special interest groups. Judges, after all, were once lawyers and some maintain their advocacy in their judicial roles. They therefore tend to represent the attitudes of their patrons. The current philosophical struggle (split) in the Supreme Court is an example of this process. The appointment process is a well-known mechanism for bypassing democratic process and imposing nonmajority views by legal interpretations of the Constitution. Judicial favoritism is a fact to every student of U.S. history. We live in the midst of utilitarian example.

Might some forensic science experts make a case for the right to testify similarly in their own interest. As scientists we should object to this choice for several reasons:

1. We would automatically become hypocrites, for this philosophy is very distantly related to the principles of science.

2. We are visitors in the courtroom and our continued presence, usefulness, and influence depends on confidence in truth in lieu of confusion.

3. We are responsible for our own behavior and not that of any other profession. We are individually responsible for ourselves and collectively responsible for our disciplines. We need to put and keep our house in order. The continuing stream of opposed testimony not only belittles the field, but is inconsistent with the validity of the science we use and believe in. The judges in this country are expressing considerable dissatisfaction and dismay with scientific testimony in general.

Sources of Controversy in Contradictory Testimony

Human Factors

Human factors apply equally to both sides of the courtroom.

Competition—Court is a contest, a game, more like chess than tennis. Do some experts consider it the ultimate in a macho game encouraged by the applause of counsel?

Job Security—Both prosecution and defense witnesses feel pressure to please their employees or friends. All scientists who work for or with police officers or prosecutors face this pressure just as defense witnesses face corresponding pressure from their employers or clients. Defense attorneys, particularly, feel strongly that in many cases this is a factor in scientific prosecutorial testimony. The question is not if the pressure exists, but whether or not the expert succumbs.

Dishonesty for Economic Reward—Principle versus gain is the oldest contest in human history. For example, in a recent marijuana case, an expert testified that the substance in question was not marijuana but hemp (one and the same), and that the test was only valid in establishing the material was not marijuana. This, of course, turns the principles of chemistry upside down.

Principle—One expert feels often with some justification that another expert has made a mistake and testifies in opposition.

Recognition—The road to fame and fortune is often attained by the expert with the quickest wit and the most plausible story.

Ego—Do experts always differentiate between truth and fantasy? The answer is “No.” Some are so mesmerized by their creative thinking or even language that reality or scientific principle or both are forgotten. When we indulge in camouflaged speculation under the guise of scientific principle, we damage both our own professionalism and profession.

Case Factors

Dispute as to Facts—

1. Analysis is allegedly incorrect. Courts recognize the possibility and permit second analysis by experts. This is certainly not wrong in principle but is subject to abuse. In our laboratory, for instance, we have adopted a complex series of regulations to prevent alteration of evidence by the second expert. The second analysis may be faulty. In every instance, it is essential to retain a portion of the sample for a third analysis by a mutually chosen third party. For example: in two 3,4-methylenedioxymphetamine (MDA) deaths, the pushers were identified and tried for homicide. The defense's expert reanalyzed the tissue in our laboratory and was observed, either deliberately or carelessly, to flush the MDA fraction down the sink. He reported the tissue negative for MDA. A third analysis confirmed the

presence of MDA. We used our observation, our results, and the third analyst's results to discredit the defense's witness.

When dealing with good laboratories, a prejudiced second expert will usually not reanalyze the evidence for fear of reinforcing the value of the first analysis. All court orders for reanalysis in Georgia carry the stipulation that the prosecution will receive a copy of any results, and may call the second expert. Failure of reanalysis is a cop-out by the second expert and should be viewed with suspicion.

2. Analysis is correct but represents an artifact.

Examples are numerous and include:

- a. Analysis for fluoride when the sample has been preserved with fluoride anticoagulants.
- b. Electrolyte profiles when the sample has been preserved with electrolyte containing anticoagulants such as potassium oxalate.
- c. Blood alcohol concentrations when the blood sample has been removed from body cavities contaminated by release of gastric contents.

3. Claim that the method is incorrect or inaccurate. (Arguments as to the appropriateness of the analytical method.)

The claim that the wrong method was used is a standard approach by the second expert. An example is the now famous Minnesota case on the identification of marijuana wherein the defense's expert claimed the only acceptable method of analysis was by mass spectrometry. In truth, there is no such thing as one way to do anything. The second expert is indicating that the first expert did not do it as he would do it and therefore it is wrong. This in itself is an admission of lack of expertise by the second expert because he can only do things one way.

4. Method in itself is insufficient or unconfirmed.

The classic examples here are enzyme multiple immunoassay technique (EMIT®) or radioimmunoassay (RIA) results without confirmation. Accepted chemical procedure is a positive indicative test followed in most cases by a confirmatory test.

The Interpretation or Misinterpretation of the Facts—Generally speaking, the fewer the number of facts upon which to base an opinion, the more imaginative are the interpretations. Sometimes there is confusion between fact and interpretation. Examples are as follows:

- (1) a contact wound is synonymous with suicide,
- (2) a ligature mark means a homicide, and
- (3) a 0.45 blood alcohol is consistent only with death from acute alcoholism.

In some instances, an interpretation is independent of the facts and should be classified as speculation.

Misapplication or Misstatement of Scientific Principles—

1. Principle is correct but a red herring in that it does not apply to the problem. For example: a subject got drunk and had an automobile accident. He was treated in a hospital and released and found dead the next morning with a ruptured viscus. In an ensuing malpractice suit, the expert for the defense claimed there is no pain under these circumstances because, in physiological experiments, electrical stimulation of the gastric mucosa does not result in the sensation of pain. The principle does not apply since this is not the mechanism of visceral pain.

2. Conclusion goes far beyond the application of scientific principles to the evidence. For instance, in a recent murder case in which there was a four-month delay between the incident and the recovery of the body, the defense expert claimed that, based on the deterioration of the clothing fabric, death could have only occurred within a certain two-week period. The

rate of fabric deterioration cannot be determined with sufficient accuracy to justify the conclusion. This was clearly vested interest testimony because the suspect had an ironclad alibi during this period.

3. Quotation of scientific studies that do not exist or are altered to back testimony. For example: in a recent suicide with a high-powered revolver, the medical examiner had difficulty in demonstrating powder residue. Laboratory examination of the tissue under the dissecting microscope with reflected light failed to demonstrate powder residue because it was similar in color to the tissue. Powder residue was only confirmed later by the use of transmitted light that readily identified opaque powder residue embedded in the tissue. The defense called upon an engineer who demonstrated the tremendous number of powder particles in the muzzle blast. It was noted, however, that pictures of the muzzle blast showed the weapon with the hammer back indicating that the expert had superimposed several discharges to "overemphasize" his point.

In all of the above, the intent is to deceive and such testimony is a breach of ethics.

Selection—Scientific thought is almost never unanimous (we assume here that the difference of opinion is not financially motivated). Before trial, a lawyer calls one expert after another until he finds a favorable opinion (opinion shopping). An example is the wide diversity of opinion on the effect of marijuana on driving ability. In this respect, it is important to note that without controversy, scientific advance is stifled.

Summary

The expert on either side is either right, partially right, wrong, or wrong and dishonest. Even strongly opposed testimony is not evidence of dishonesty, although it is clear at least one expert is wrong. Some differences are the result of legitimate differences of opinion. However, I have identified several categories of testimony that show dishonest intent. It is clear that the growth of financial incentives has increased the number of cases in which there are opposing experts. Some forensic science experts have placed themselves in the same category with the oil company consultant who claims there will always be plenty of oil and that all we have to do is drill deeper. This is not compatible with the known principles of the stability limits of petroleum hydrocarbons. This expert is bypassing the oil and drilling directly for money.

If the above has made the reader angry, I have accomplished my purpose, for the writer is also angry. If the reader's anger is directed to the writer, I have either failed to carry my point or the reader is happy with the status quo. If some kind of corrective action is not taken, we will no longer be an effective force in the legal system. Scientific testimony will be in the same category as much of the media coverage. A multidisciplinary testimony review board separate from the ethics function is clearly one answer to the problem.

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