

# The engineer as expert witness

Expert witnesses in legal proceedings must walk a tightrope—providing objective expertise, maintaining professional and ethical integrity, and avoiding advocacy.



by David W. Eryou, LLB

Success in many types of trials depends upon the acceptability of expert evidence. The ability of lawyers to win these cases is linked to the experts they retain. Thus, experts come to be regarded by some lawyers as necessary tools to win a case.

Fees for legal experts can be significant and this, in itself, attracts some to the field of expert testimony. In turn, lawyers become attracted to experts who can produce and deliver winning testimony. This can be the beginning of a continuous loop, which is economically productive to the lawyer and the expert. But, all too often, it becomes a downward spiral in which the expert's professional and ethical integrity is degraded and ultimately sacrificed. An expert witness' career ends when the court refuses to hear his or her evidence because it is deemed too unreliable for the law.

The "novice expert" may not detect the symptoms of a downward spiral until it is too late. Generally, the point of no return happens once an expert opinion is put into writing and delivered to the lawyer on the other side of the case.

Lawyers are attracted to experts because only expert witnesses can create new evidence in the form of opinions. Fact wit-

nesses can only give evidence as to what happened historically. It is the expert's ability to create new evidence by means of an opinion that makes the expert so attractive to the lawyer. If the lawyer can have new evidence created, the lawyer can increase his or her chance of winning the case. The trouble is that lawyers have a vested interest in shaping the evidence experts provide, therefore jeopardizing objectivity.

## Testimony or advocacy?

It's natural for engineers interested in giving expert evidence to ask: "How is it that a court may reject my evidence as being unreliable, when I am only offering what I am trained to do—functioning as an engineer?" The short answer is that, all too often, the expert is subtly guided into doing what the lawyer wants—to create new evidence that will win the case. But this is not the role of the expert engineer. The only role the law allows an expert is to present to the court objective, science-based evidence that will allow it to make findings of fact and law.

Expert witnesses who allow themselves to think otherwise are in danger of becoming advocates. Advocacy is the goal of lawyers, and is incompatible with objective expertise. An expert who claims to "win cases" is an advocate.

One look at the rate of intellectual road kill of those professing to be experts bears this out. The professional death of an expert is, unfortunately, a very public spectacle, which is recorded in court decisions that are read and studied by lawyers. In fact, there is pressure in some professional associations to initiate professional discipline hearings against members who dispense junk science in court proceedings.

## The rigors of expert testimony

Over the last 10 years, there has been a revolution in how the law regards experts. New procedures have evolved to assess the reasoning of those who propose to give expert evidence. No longer can any expert assume that his or her evidence will be heard by the judge. In fact, in today's legal system, experts must meet specific criteria in order to be permitted to testify in open court.

The test bed for these developments has been the United States courts. There are hundreds of American legal cases in which testimony from well credentialed experts has been rejected as being unreliable. There are hundreds of articles explaining how to discredit expert witnesses and prevent them from testifying.

Any engineer interested in being an expert must understand these develop-

ments. There are excellent texts that explain the obligations of being an expert, including *Succeeding as an Expert Witness*, by Harold A. Feder, published by Tagueh Press. It is not that the science of engineering has changed, but rather that the judicial screening procedure has become much more discriminating.

The law demands intellectual integrity in those privileged to give expert evidence. Regrettably, in the past, such integrity was often lacking, but its absence went undetected. Hence junk expert evidence was not rejected, and junk science experts came to believe that expert witnessing was a low-risk occupation. After all, most cases were settled and, in those that went to trial, the cross-examining lawyer was often ineffective.

Times have changed. Now, judges are becoming more astute. Lawyers are now armed with better tools for cross-examination. Junk scientists and junk engineers are much more likely to be found out.

The tide turned in the famous case of *Daubert versus Merrill Dow Pharmaceuticals*, 509 US 579, which was decided in 1993. It spawned a surge of cases that developed the reliability criteria to admit expert evidence.

Prior to the *Daubert* case, judges relied on the expert community to determine whether the knowledge of one of their members was sufficiently dependable for use in the judicial process. *Daubert* overturned that regime. In the case, the Supreme Court of the United States ruled that judges must be satisfied that evidence to be offered by an expert is valid and reliable by reference to underlying scientific principles. What the expert community says is to be disregarded.

Judges are now required to ask themselves these questions: Is there an underlying scientific methodology to the proposed expert evidence? What is the probable error in data produced by the methodology? Are the inferences to be drawn from the data logical and reasonable, or do they require an excessive analytical jump? If all of these questions can be answered positively, experts are allowed to give evidence.

### Current case law

Junk engineering evidence was examined in the 1999 U. S. Supreme Court case of *Kumho Tire Co. Ltd. versus Carmichael*, 119 S.Ct. 1167. *Kumho Tire* dealt with a matter common to engineering: What

caused a tire on a vehicle to fail, resulting in loss of control of the vehicle and bodily injury? Was it a manufacturing defect, or the operator driving on a worn tire?

The plaintiff, Carmichael, had purchased a used vehicle with used tires. After a year or so of use, one tire failed. The vehicle crashed, causing severe injuries to the passengers.

The target defendant was Kumho, the tire's manufacturer. The plaintiff expert, an engineer with a master's degree and 10 years' experience at Michelin America Inc., stated in his expert report that a manufacturing defect was the cause of the tire failure.

*Kumho Tire* applied for a summary judgment excluding the plaintiff expert's evidence. The expert's evidence was excluded—that is, he was not allowed to testify. Without any expert evidence on how the tire failed, Carmichael's case was dismissed. This case starkly demonstrates the "all or nothing" importance of expert evidence. The case was appealed to the Supreme Court of the United States. Carmichael lost again.

The plaintiff expert's evidence was excluded because he did not come to his conclusion by applying engineering principles. Instead, he relied on his observations and experience, which he presented in the context of his advanced engineering degree.

The over arching issue was reliability—what made the proffered evidence reliable or unreliable? In the *Kumho Tire* case, the trial judge examined in detail the methodology proposed by the plaintiff expert to support his conclusions on failure of this particular tire, and concluded that there were logical inconsistencies in the expert's evidence.

*Kumho Tire* was a watershed American case that was governed by the American Federal Rules of Evidence. This year, Federal Evidence Rule 702 will be amended to read: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence 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, provided that the:

- ◆ testimony is sufficiently based upon reliable facts or data;
- ◆ testimony is the product of reliable principles and methods; and

- ◆ witness has applied the principles and methods reliably to the facts of the case.

The same principles are being applied by Canadian courts.

From 1993 to 1999, the American Supreme Court reshaped the law on admissibility of expert evidence. American judges following *Daubert* now do a searching inquiry of the methodology and reasoning of the proffered expert evidence before they admit the evidence. Summary judgment applications, based on a finding that an expert's evidence does not meet the *Daubert* criteria, have exploded in numbers. There appears to be a consensus among American defendants that summary judgment trials are successful in defeating claims based on questionable or junk science.

It is my experience that Canadian judges will do such an analysis. I was counsel in a Manitoba case in which the *Daubert* methods were followed by a judge, resulting in the exclusion of the evidence of a world-renowned American expert with a PhD in engineering.

### Protecting professional integrity

Engineers intending to give evidence in Canadian courts are advised to understand these principles. If they understand and follow the teachings of these cases, there is every reason to expect they will be allowed to testify.

The administration of justice demands that engineering experts use the same intellectual rigour in their expert testimony that they apply outside the courtroom in the engineering profession. Engineers who want to be expert witnesses should associate only with legal professionals who will not compromise an expert witness' professional and intellectual integrity. ◆

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