

# Lawyers vs. Experts

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Perhaps one of the great ironies of modern jurisprudence is that attorneys are becoming more and more dependent on the use of scientific evidence to prevail in court. Nature has never created 2 more visceral enemies than lawyers and scientists. The Hatfields and McCoys are not even in the running as innate adversaries when lawyers and scientists are yoked by necessity. This uneasy alliance occurs because lawyers like to win cases and scientists like to earn livings. The public expects to see scientific evidence in most cases; juries are skeptical when they think it ought to be presented and isn't. Maybe they watch too much television, or maybe most of them come from Missouri; but they expect to hear about DNA, fingerprints, smoking guns, poisons and other such delights. No matter how gifted at oratory, an attorney's chances are better with the help of some lab-coat geeks.

So why are scientists and attorneys so suspicious of one another? My experience tells me that most of the problem lies in their different agendas. Attorneys are advocates. The judicial system assigns them that role; it is their proper place. They are given a position to espouse and then martial arguments and evidence to support it. Whether that position is true is not really relevant. Scientists perceive themselves as objective seekers of truth. They gather data and then formulate a position that is best supported by that data. It may not be the position that is convenient to the lawyer; but to the scientist's way of thinking, it is the 1 that most likely points to abstract truth. This leads to tension, with the lawyer complaining that the scientist is "not helping my case!" and the scientist thinking poorly of the lawyer. This difference lies at the heart of

much of the enmity. Although each may have an intellectual understanding of the other's proper role, there is a gut-deep disconnect. Upon closer thought, the scientist should understand that the lawyer is an advocate and that his job description does not entail promoting abstract truth. The attorney should understand that the last thing he needs is an expert who becomes an advocate or even appears to do so. Nothing can explode in a litigator's face with more devastating effect than a biased expert. The 2 most important traits an expert can bring into court are integrity and competence. Neither is of any use without the other.

Lawyers and scientists both use language very precisely, but sometimes they create misunderstanding by using the same word with a different meaning. One such word is the term "evidence." Lawyers have co-opted that to mean documents and objects that have numbered tags and stickers on them that have been accepted by the court. Well, they can't have it all to themselves. To a scientist, and most lay people, evidence is a physical object or circumstance that points to a certain conclusion. If I have mounds of dirt with tunnels in the middles of them in my lawn, that is evidence that I have gophers, even if no court clerk has put stamps on it.

Another term used very differently is the word "law." To an attorney, laws are sets of rules that a society has enacted to govern the behavior and interactions of its members. Laws that do not have the desired effect or have become obsolete can be repealed or changed. There are certainly laws in science, but scientists don't enact them—they discover them, explain them, and prove them; but they can't alter or change them. Sir Isaac Newton did not enact the Law of Gravity. He probably

would have preferred not to get bonked on the head by the apple. However, having been bonked, he saw the larger implications and constructed mathematical proof of a fundamental principle. No one can repeal the Law of Gravity so as to prevent head-bonking by apples. You just have to stay out from under apple trees. (Personally, the law I would like to get rid of is the Second Law of Thermodynamics. That is the law that states that without energy input, a system gets progressively more chaotic. In plain language, left to themselves, things go from bad to worse. This is why housework never ends!)

Another difference in approach that I have seen cause misunderstandings over the years is the concept of precedent. Lawyers are taught that the oldest ruling on a subject is the guiding precedent. A lawyer who could cite the Magna Carter or, even better, the Code of Hammurabi, would, I imagine, be in judicial nirvana. Scientists, conversely, hold that the latest information that is validated and verified is the best information. We don't refer much to alchemy texts any more, and the 4 humors are positively out of style. Leeches are no longer cutting-edge medical treatment (although your HMO might favor them as they work cheaply). To their consternation, when scientists offer a new type of evidence the courts go into spasms of legal heartburn over whether to accept it. This sometimes leads to tortured legal arguments and rather ludicrous court rulings. As an example, I cite the problems the courts had in the 19th century with the admission of photographs as evidence. Never before had the courts been confronted with evidence that could largely speak for itself. Even physical evidence, such as a bloody hammer in a bludgeoning case, needed a witness to explain its significance. But a picture often tells its tale quite clearly. This caused the courts great concern, as it invaded the sacrosanct role of attorneys in their efforts to influence the juries' perceptions in deciding the facts. After much peptic acid had been secreted, the courts did decide that photographs could be admitted as long as there was a witness to explain their significance, even if this was quite evident from the picture itself. Maybe a little silly, but at least the evidence came in.

Now we proceed to the matter of X-ray photographs. There was at the time a great deal of malpractice litigation about treatment of broken bones. Litigants and their attorneys saw X-rays as a way to clarify the matter and demonstrate the facts. Unlike photographs, X-rays need some

interpretation. They do not record exactly what the eye sees; they show differences in densities, such as that between bone and soft tissue. Plus structures can lie on top of 1 another and be hard to interpret in a 2-dimensional rendition. Adding that not many people are familiar with the detailed structures of human bones, some guidance was very useful to lay jury members trying to understand what an X-ray film demonstrates. This guidance, courts decided, they must not have, as it might confuse them. X-ray films could be presented in court, but no one was allowed to explain what they showed. So for a long time there was the ludicrous situation wherein photographs that explained themselves had to be explained by a witness; but X-rays, which showed unfamiliar structures, could not. Maybe this was good law, but it sure was silly. But I have to cut the lawyers a little slack here, because there was another group bitterly opposed to the admission of X-rays—the medical doctors and surgeons, supposedly the scientists of their day. They were concerned that they would have to make expensive and burdensome X-rays in all cases of suspected broken bones simply to protect themselves in case of litigation.

The 19th century courts would also not allow an expert to state his conclusions. The expert would be asked to describe his observations, but any opinions and interpretations had to be elicited by convoluted hypothetical questions. Consider a medical expert discussing wounds in a death case. He could describe the knife wounds, skull fractures, and contusions he observed on the body but not state his opinion as to whether they were the cause of death. Counsel would have to ask whether, hypothetically speaking, such a set of wounds would account for death. The expert could then give a truthful hypothetical answer that could seriously mislead a jury. Suppose they were wounds that could have been fatal but they were, in fact, *post mortem*. If no lawyer brought that up, the expert was helpless to provide that information. The jury might then conclude that the person had been murdered, when in truth he had died of a heart attack. Again, the legal argument was that only the jury could decide the ultimate facts and that this preserved their right to do so. In fact, all it preserved was lawyers' rights to bamboozle juries for fun and profit. The courts finally decided that this practice was certainly silly and possibly dangerous. And anyway, the jury can still reject the expert's opinion. There has recently been a resurgence of this idea. On a

few occasions, forensic document examiners have been prevented from stating their ultimate opinions about handwriting identification in court. This idea is no better now than it was 150 years ago. Personally I have no plans to play forensic charades in court.

So how did scientists and attorneys come to be in this fractious relationship? Here I would like to cite an excellent reference on the history of expert witnesses in English and American courts, *Laws of Men and Laws of Nature*, by Tal Golan, an associate professor of the History of Science at the University of California, San Diego. Harvard University Press, 2004. Please do not fear that I am recommending the work of an apologist for expert witnesses; being a historian, Professor Golan skewers both lawyers and scientists appearing in court as experts with equal relish and a rather distressing amount of facts and figures.

The use of expert witnesses goes way back into the early days of English common law. These experts were what we would call today technical experts. They derived their knowledge from their occupations. Courts would call upon a group such as a guild or a sea captains' association to provide them with guidance on business practices under litigation. Litigation about a ship wreck and loss of cargo might hinge on whether the wreck was caused by bad luck, bad seamanship, or bad ship building. The court might ask for input from sea captains and ship builders in order to reach a fair settlement. These experts were advisers to the court, not witnesses called by the partisans. All that began to change in the 1700s.

Although there certainly have been individuals studying nature and trying to understand it throughout history, the modern concept of a scientist did not come into existence until the Age of Enlightenment in the 18th century. Almost certainly the phenomenon had arisen in many ancient cultures, including the Greeks and Egyptians, but was lost to history. The 1st great step forward toward the modern scientist occurred when St. Thomas Aquinas rediscovered and published the work of the ancient Greek philosopher Aristotle. His work provided the structure for logical thought that must be the basis for drawing rational conclusions on any subject. Now unfortunately, Aristotle did not believe in making observations. His belief was that perception through the physical senses would, of necessity, be distorted and unreliable. Therefore, true enlightenment could only come from within

the mind. An Aristotelian who wanted to know how many teeth a chicken had would cogitate on the problem and arrive at an answer. Okay, it's a point of view. The next enabling step came with Francis Bacon, the Renaissance philosopher who advocated empiricism. Bacon was all in favor of logic but also advocated observation and experimentation. A Baconian who wanted to know how many teeth a chicken had would obtain a chicken, pry its beak open, and start to count, thereupon discovering to the consternation of a great many philosophers, but not one peasant, that chickens do not have teeth.

Things had to wait for some wars and a whole century of superstition and religious fundamentalism before the public was ready for a new beginning. The 18th century saw the dawn of a new age of rational thought. Was it a reaction to the witchcraft trials of the 17th century that saw so many harmless old ladies executed, or the religious fanaticism that led to regicide? Hard to say, but by the 18th century people were ready for rationalism. It was a time of great commerce and exploration throughout the world. New ideas, art forms, and philosophies were beginning; and people had the wealth and leisure to pursue them. They strove to abandon the mysticism and superstition of the past and replace it with objective observation and logical thought. It was that way of thinking that formed the basis of the startling new form of democratic government dreamed up by the drafters of the American Constitution. We Americans owe a great deal to the 18th century rationalists.

Upon this stage burst Sir Isaac Newton. His insight and understanding of the natural world founded a whole new understanding of the physical world. His followers called themselves Newtonian Philosophers. They studied, observed, measured, and formed theories. They didn't derive their knowledge from experience; they derived it by designing and carrying out experiments, forming hypotheses, testing them, and drawing conclusions. It didn't take long for litigating attorneys to figure out that this information could be useful. It fell to Lord Mansfield, the great jurist of the time, to decide whether the information offered by these Newtonian Philosophers could be accepted in court. He did find it acceptable and launched a whole new kind of evidence. Unlike earlier technical experts who were usually consulted by the court, these new experts were much more commonly called by parties to the case. In England, the expertise most in demand

was chemistry. In America, it was microscopists. As more and more of these experts came into court, it became clear that there was an expert witness corollary to Newton's Law of Reaction. Newton stated that for each action there is an equal and opposite reaction, like the recoil of a firearm. It quickly became evident that for every expert in court saying something was so, there was an equal and opposite expert saying it wasn't. Experts came to be held in low regard, both by the courts and by the public.

In the early 20th century, groups of practitioners began to form professional associations and to set standards and guidelines. Science also improved, so that it became more reliable in many areas of interest to the courts. Gradually scientists earned back the respect they had lost.

So that is how we got where we are now. Experts and attorneys are still wary of one another, with much justification on both sides. Any trial attorney has stories of experts who went all squirrelly on the witness stand. Conversely, experts have their tales of woe. The following are some instances from the expert's perspective. There have been quite a few times over the last 35 years when I wondered just why the attorney who was questioning me decided to pay a visit to us here on earth. As you will see, the following miseries are caused by the lawyers who have called me as a witness. I have never had much problem from opposing counsel. Their job is to make me look bad, and my job is to keep them from doing so. No hard feelings. My first mentor in the profession, Jack McCarthy, told me that I would always have more trouble from the attorneys on my side. Jack spoke great sooth. So here are things that lawyers do that drive experts crazy; I use the male pronoun for grammatical simplicity, but female attorneys bear equal guilt (I am a girl; I can do this.):

1. **The Evil Twin.** On several occasions I have had pretrial conferences with attorneys, and we have gone over my testimony in great detail. We agreed on what questions would be asked and how the evidence would be presented. A day or 2 later, the attorney who questioned me on the stand looked just like the one I spoke to; but the questions coming out of his mouth were in no way related to the ones we discussed. I could only conclude that someone had abducted the person I had actually spoken to and substituted this look-alike, possibly an Evil Twin. If I had the misfortune to have to speak to this clone afterward, he would usually offer the
- constructive criticism that my presentation did not look very well prepared.
2. **Rescuing a Damsel Not in Distress.** Many times I have had opposing counsel marching to his doom like a woolly lamb by feigning a disinclination to address a certain topic. It was, of course, the very topic I wanted to discuss; but it would have looked much better if the other side pounced on it. Just as I had the lawyer swirling nicely around the bowl and was about ready to apply the final whoosh, the attorney who called me decided I needed to be rescued and objected, thereby allowing his opponent to escape the bear trap I had carefully set. This same attorney would then sit at the counsel table like a Muppet with broken strings when I did need help, such as when I was being badgered.
3. **Jumping on the Bandwagon When I Have Just Gotten Myself Out of a Hole.** This usually happens when opposing counsel is trying to get me to do something improper like perform an on-the-stand examination. I will not do this. It is bad science and bad tactics. I'm not going to do it for either side. I am not going to purposely make a lawyer look like an idiot; but if he makes a really valiant effort, I won't stand in his way.
4. **Slipping in a Few Extras.** Many times I have been handed a pile of exhibits in court and asked if I recognized them as the ones I have examined. Upon careful review, I discover a few ringers in there that I have not seen before. If I hadn't caught them....I don't even want to think about it. When I have confronted the attorney in these cases after trial, the offending attorney gave some lame answer like, "Well, they all looked alike to me, so I thought you could just include them all." That is when his necktie knot gets yanked real tight.
5. **Musical Exhibits.** When I am preparing to testify, the attorney casually informs me that some of the known writings on which I have based my findings can't be used. That isn't a problem, is it? Well, yes it is a problem, but not to me. He has the problem of no longer having a witness who has anything to say. My findings are based on all the exhibits. Removing some is like sawing a leg off a three-legged stool. It isn't going to stand up after you do that. So then the exemplars become "sort of known." Attorneys will also



go back and forth between questioned or known in describing respective documents. Here is the way it is for a document examiner: there are 3 categories, 1) questioned, 2) exemplars, and 3) irrelevant. Pick one.

6. Mine Are Better Because I Got Them Out of a Book. One of the 1st things I did all those many years ago when I began to appear in court was to construct a list of qualifying questions designed to elicit my training and experience. I have amended them over the years as I have obtained more credentials. I keep copies of them in my briefcase and provide them to counsel well before court. Most attorneys are delighted to get them. However, once in a while an attorney will reject them. This is usually a greenhorn with the ink still damp on his diploma. He will toss my list aside and tell me that he has acquired a much better list from his law text book and that we will be using those. These questions usually don't pertain to a forensic document examiner. They are either very general, or they are designed to qualify an expert in another area. Needless to say, this does not work out very well, for which I, of course, get blamed.
7. Aid and Comfort to the Enemy. Sometimes I get calls for help in cases where the other side has hired a dubious expert. There are quite a few out there hawking their wares. I keep track of the ones in my area and can usually provide very useful information. It is in my best interest to keep my profession looking as respectable as possible. Occasionally we can keep 1 of these clowns from testifying, but usually not. Courts are very reluctant to deny a proffered expert. But we can show a bad track record and render that witness much less effective. What really galls me is when, a month later, the attorney who asked for my help in discrediting a charlatan hires that same charlatan because he now has a dodgy client and needs a "Liar for Hire." I realize that this is the system, but it really cheeses me off. Also, an attorney should ask this question: If he can destroy such a witness, is this "expert" going to hold up any better when he is on the same side? Is it really a good idea to risk finding himself in court covered in detonated expert goo?
8. Police Thyself. Attorneys will make the helpful suggestion that forensic document

examiners really ought to do more to police our profession better and get rid of some of these charlatans. Lovely idea. We try our best, but there seems to be a steady stream of clients (in the form of attorneys) at their doors. It is lawyers who keep those hacks in business because they can be useful and the courts who keep allowing them to testify.

9. And here is 1 final piece of advice, inspired by news reports some time ago in California. The famous Kevin Starr took up the cause of a rapist/murder scheduled to be executed soon. He proffered affidavits from 5 of the original jurors purporting to say they had changed their minds and from the key witness recanting her testimony to the Governor (our fond term for Governor Schwarzenegger) in a bid for clemency. So this is especially for Kev from a forensic document examiner: Dude, if you are going to forge people's signatures, spell their names right.

It has long been a fantasy of mine actually to tell a room full of lawyers what I really think of lawyers. In 2006 in Seattle, I got to live that dream by making this presentation to the Jurisprudence Section of the American Academy of Forensic Sciences. It was better than being told by my physician that I am too thin and need to eat more fried food.