Feder’s
Succeeding as an Expert Witness
Fourth Edition
Harold A. Feder
Max M. Houck
Feder’s
Succeeding as an
Expert Witness
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Harold A. Feder
with Revisions and Additional Text by Max M. Houck
This book is dedicated to Lucy, who is my anchor, my tiller, my compass. Without you, I'd be adrift at sea.

My father, Max W. Houck, for being so supportive of my education. I owe what I have attained to you.

This book is also dedicated to the narrow-minded, short-sighted, ignorant nitwits who irritate me, much as sand does oysters, to the point of productivity. I hope this is a pearl.

M. M. H.
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Foreword

Peter Neufeld

What does it mean to succeed as an expert witness? Is success measured by whether the side that summoned you to the witness stand prevails at trial? By recommendations that you make a convincing presentation to judge and jury? By the size of the fee you command in the marketplace or the promotions and awards bestowed upon you in the public sector? My own belief is that none of these are benchmarks of success.

Forensic science and, by extension, expert witnesses are at a crossroads. The extraordinary power of DNA to identify the guilty and exonerate the falsely accused is one factor driving the wave of new graduate programs and expansion of undergraduate departments in forensic science. But while DNA typing may be a “truth machine,” all too frequently, the truth revealed in postconviction DNA testing is that years earlier, less powerful (by today’s methods) or misapplied forensic science had been presented at trial by the “successful” expert witness to secure what turned out to be a false conviction.

Television’s fictionalization of crime scene investigation is so successful that the public seems to prefer crimes that are investigated by technicians in white lab coats rather than by old-fashioned gumshoes in rumpled, coffee-stained sport jackets. But is the forensic community’s reliance on TV misplaced when the consortium of national forensic organizations parades the TV actors before Congress to lobby for crime lab funding?

Finally, the national mobilization to combat terrorism and defend the homeland lends urgency and patriotism to the justice system; the “righteousness” of the cause, however, may inadvertently compromise the integrity of the result. In the identification sciences, “matching” the suspect to the crime sample can help win the war on terror much the same as it played an important role in the war on crime. But since experts utilize subjective human judgment, expectation and suggestion can influence outcome. Indeed, one lesson from the DNA postconviction exonerations is that examiner and confirmation bias are involved in too many erroneous hair, toolmark, and bitemark inclusions, as well as mistaken findings of homicide and arson when the cause was ultimately proven to be accidental.

In the aftermath of the 2004 terrorist attack on a commuter train in Spain, the FBI erroneously claimed that the fingerprint of an Oregon attorney with ties to the Islamic community but no criminal record “matched” a fingerprint found on a plastic bag containing detonators found near the Madrid crime scene. In the affidavit used to justify the arrest of the lawyer, the two FBI examiners swore they were 100 percent certain of the match. The Spanish police insisted that the FBI was wrong: an Algerian terrorist was ultimately linked to the fingerprint. Without the persistence of the Spanish police, the FBI would not have reconsidered its findings. One irony of any mismatch is that whenever an innocent man is falsely charged or convicted, the real criminal or terrorist remains at liberty to commit further acts of violence. Faulty forensics may wrongly exclude the factually guilty.
For years, the dominant argument for not regulating experts and forensic sciences was that every time an expert steps inside the courtroom, his work is vigorously peer reviewed and scrutinized by opposing counsel. A forensic scientist might occasionally make an error at the lab bench, but the “crucible” of courtroom cross-examination would expose it at trial. The crucible, however, turned out to be utterly ineffective. In not one of the forensic science scandals of the last 20 years were the transgressions of experts revealed by counsel at trial.

Although forensic science is used most commonly in crimes of violence, and state courts receive almost two hundred times more criminal prosecutions than federal courts, the overwhelming majority of challenges to the admissibility of expert testimony occur in civil cases in the federal system. When the courts in the 1990s moved from the *Frye* standard of admissibility to *Daubert*, they obligated judges to assume the role of “gatekeepers” and to exclude proffered scientific evidence unless it rested on scientifically valid reasoning and methodology. But since most criminal defense lawyers lack the training, skill, time, and money to mount credible challenges to speculative expert testimony, there is nothing for a gatekeeper to tend to. If the crucible is a fiction and the judicial system fails to provide meaningful controls to ensure the integrity of the process, other remedies must be found further upstream.

Because an expert’s conclusions should be predicated on first principles of science, one lesson of the DNA revolution is to require a basic research model that will test the core assumptions in each expert’s discipline. Whereas DNA typing rests on a stable foundation extensively rooted in research well documented in the literature, many of the forensic sciences have not been put through the same paces. Basic research takes money and independence, more than agencies such as the National Institute of Justice can provide. Given the urgency of international developments and the success story of DNA, I think it likely that the federal government will rise to the occasion.

Another lesson of DNA typing is the necessity that other disciplines develop methods to provide meaningful frequencies of attributes and characteristics. New protocols need to be established to minimize unintentional bias. Essential principles of statistics, long overlooked by experts, need to be incorporated to substitute random match probabilities (the kind used routinely in DNA) for the uninformative and often misleading terms *match*, *similar*, and *inclusion*. The published probabilities coupled with known error rates, based on external blind proficiency tests, could then be presented in court. The final downstream fix is to establish reasonable parameters for the content of expert reports and live testimony so as not to distort the probative value of the evidence. An expert’s job is not simply to answer all the questions propounded by the attorneys on both sides. If a question is inherently misleading or scientifically irrelevant, the expert has an affirmative duty to alert the court and put the testimony back on track.

At the beginning of the twentieth century, a critical awareness and creative energy ignited a movement to modernize clinical laboratory medicine. One hundred years later, the time is right for a comparable transformation in forensic science. It is an exciting time for everyone who is part of this community. Succeed by being thoughtful and rigorous scientists. Succeed by being honest, objective, and ethical expert witnesses.
Preface

One of the classes I teach at West Virginia University is the expert witness class. For many reasons, it is one of the most difficult classes the students take. They are used to reading, memorizing, synthesizing, and being tested (which, in my darker moments, I refer to “read, remember, regurgitate”). They are not used to developing a deep-seated, broad understanding of their scientific discipline, being challenged on nuances and things they did or did not do, and thinking on their feet (or seat, as they are in the witness chair). What you face as an expert in the courtroom is completely at odds with what you have learned as a scientist. I tell them at the beginning of the course that if I could take the semester to teach them boxing and poker, instead of expert witnessing, the effect on their readiness for testimony would be much the same. They never listen, unless they box or play poker, and they are inevitably bloodied and emotionally broke by the end.

In his fascinating and insightful book *Strong Representations*, Alexander Welsh explains the development of courtroom presentations into narratives through the use of circumstantial evidence. The shift from person-based testimony to thing-based testimony is instructive for our purposes, as it creates and opens the doorway for the modern expert witness. People may lie or have their eyes fooled, but facts, going back to Aristotle, were considered inviolate. Having someone represent those facts for the plaintiff and defendant was the first great step toward the court system employed today. Welsh notes, People need not go about telling their stories and hoping for the best; instead, the stories should be managed with a careful view to the consequences. This management obviously takes ability and experience and, above all, hard work and therefore can best be left to professionals.¹

Any evidence that is not a firsthand account is considered circumstantial, that is, it relates to the circumstances surrounding the past activity in question. Past activity had to be inferred from the stuff left behind that was indicative of the actions. Physical and real evidence grew in importance but never dethroned the eyewitness testimony. Ultimately, Welsh continues, managing the evidence became nearly as important as the evidence itself—the relaying of the evidence and its significance was the narrative in chief. This was most meaningful for prosecutors, of course, as they carried the burden of proof. To this day, evidence is largely the domain of the prosecutors and their partners in jurisdiction, the police.

A diaspora appeared from the start. The governmental law enforcement agencies had their pro-state mandate. The scientists, although often employed by that same state, had been schooled in the neutrality and objectivity of science: taking sides, other than the side of science, is inherently bad. As my colleague Jim Fraser at the University of Strathclyde has noted, “The relationship between forensic science and the police is a failed marriage.” Neither party gets exactly what it wants. And this is

true every time scientists step into a courtroom—they are the consummate stranger in a strange land. The renowned forensic entomologist Lee Goff of Chaminade University in Hawaii puts it succinctly:

> Academics and the legal system do not usually coexist in comfort. The laws of science and the rules of evidence have little in common. In theory, Academia functions on the principle of collegiality. In theory and reality, the American legal system is adversarial. The average academic entering the legal system is in for a tremendous shock.²

Another of my admonitions to my expert witness students is imagine you are dressed in white shorts, a polo shirt, light tennis shoes, and are carrying a tennis racket. You step through a door onto a large field where multiple large men wearing armor pound you into the earth. You were dressed and ready for tennis but you were on a football field: not your game, not your rules, not your equipment. Welcome to the courtroom.

Having said that, the courtroom need not be a harrowing experience. An expert has been invited—by a subpoena—to the courtroom because of his knowledge, education, and experience. All actions seemingly to the contrary, they want you, they need you in that courtroom. The prepared expert, outfitted with the sword of humility and the shield of patience, need fear nothing from even a highly skilled attorney. In his wonderful book *Testifying in Court*, Stanley Brodsky describes the courtroom-familiar witness:

> The courtroom-familiar witness has a relevant educational background, understands how expert testimony fits into judicial decisions, is unusually detailed in records, and seeks out early meeting with the attorneys...speaks clearly and persuasively to judge or jury in terms they understand...is sensitive to traps in cross-examination and is not fearful about being cross-examined. These witnesses have no problem in admitting what they do not know and being strong and assertive about what they do know. The courtroom-prepared witness has known what to expect and typically departs with at least neutral feelings, sometimes quite positive feelings.³

This idea of the prepared witness can not be stressed enough. If you are not prepared, you should not be in the courtroom—you will, at best, be ineffective and, at worst, dangerous.

The need for this book became self-evident a few years ago when I had trouble finding a suitable text for my court testimony class. I had to settle—and I do not do well with settling. In late 2005 I was asked to review and possibly update and revise *Succeeding as an Expert Witness* by Harold A. Feder (1932–1995), a Colorado attorney and longtime national “expert on experts.” This landmark handbook provided an excellent overview of the expert witness process, primarily from a civil law perspective for private experts. I recognized an opportunity to produce the kind of comprehensive, useful text for my forensic science students that was otherwise unavailable. It meant a strong rearrangement of the existing contents and scope, and some signifi-

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cant additions, to encompass both forensic science students (mostly headed to public labs and criminal cases) and private experts (private labs that handle civil cases). This book is the result of that labor.

As a trial lawyer for 35 years, Harold used experts in most of his cases. Feder wrote and lectured extensively on legal matters, including expert testimony, throughout the United States and Canada for over 20 years. He represented experts. He was engaged as an expert. And he went after experts as opposing counsel in deposition and cross-examination with legendary zeal and effect. His unique experience, perspective, and insights combine to the great benefit of any expert: student, novice, or veteran. I did not know Harold Feder, but I understand that he was a man of great compassion, optimism and good humor, personally and professionally. He made all he did look easy, because he did it with such grace, style, and wit that most never saw the countless hours of hard work that went on behind the scenes to cover all the bases. His great hope was that the material contained in this book would enhance ethical and professional competence for expert witnesses—and attorneys—working within all aspects of the dispute resolution process. He stressed that “advocacy is for the attorney and objectivity is for the forensic expert.”

Harold Feder wrote this text’s underlying work, Succeeding as an Expert Witness, in three editions, the first in 1991, the last appearing posthumously in 2000. That is why his name appears in the current title and as primary author. I would have preferred the privilege of working with Harold as living coauthors of this text. Fate and destiny had it otherwise. His son Harlan, the book’s previous editor and publishing director, says Harold and I “would have gotten on famously.” I will take his word for that. I have done my best to remain true to the substance, essence, style, and integrity of Harold’s work and voice, and of my own. Not an easy task in these circumstances, but a most rewarding one.
Acknowledgments

Acknowledgments are a funny thing: the author wants to take space to publicly thank the people who helped with the book in some way, but often the author is the only one who knows these people. Not so, in this case.

First, I want to thank Becky McEldowney-Masterman for having an enlightening conversation with me in Hong Kong. Had I not dumped on her about my frustration at not being able to find an expert witness textbook for traditional forensic scientists, this book would not have happened.

My students in FIDP 406, Expert Testimony, also deserve recognition for helping me with this text; I always say that students are the best teachers.

The ultimate thank you, however, goes to Harlan Feder for trusting me enough to work with his father’s book and update it. Faith like that is rare these days. I cherish the fact that a mensch like Harlan would entrust his father’s original *Succeeding as an Expert Witness* to my care. Thanks, Harlan, I hope I have not let you down.
Authors

Harold A. Feder (1932–1995) was a trial lawyer with 35 years of trial experience. Most of his cases involved the use of experts. Feder was a fellow of the College of Law Practice Management and the American Academy of Forensic Sciences, a member of the Association of Trial Lawyers of America, past president of the Colorado Trial Lawyers Association, and an active member of the American and Colorado Bar Associations. Feder wrote and lectured extensively on legal matters, including expert testimony, throughout the United States and Canada for over 20 years. He wrote Succeeding as an Expert Witness in 1991; the text was revised in 1993 and updated with additional text in 2000.

Max M. Houck is the director of the Forensic Science Initiative, a program that develops resources and training for the forensic industry. Houck is a trace evidence expert and forensic anthropologist who has worked for the FBI Laboratory, the Tarrant County Medical Examiner’s Office in Fort Worth, Texas, and private industry. Houck is a graduate of Michigan State University and a fellow of the American Academy of Forensic Sciences, among other professional organizations. Houck is also director of Forensic Business Research and Development in the WVU College of Business and Economics. He is a senior teaching/research fellow in the Department of Applied and Forensic Chemistry at Curtin University of Technology in Perth, Australia.

1 Expert Witnesses
An Overview

KEY TERMS

Appellate court
Burden of proof
Civil law
Complainant
Criminal justice process
Criminal law
Depositions
Discovery
Expert
Federal rule of evidence
Grand jury
Jargon
Jury of peers
Lay witness
Opinion
Petite jury
Sixth Amendment of the Constitution of the United States
Technique
Work product

It is the job of the law, and not science, to determine how science is to be used in the courts. But in another sense, our passivity has served both ourselves and the legal system poorly. It is the job of science, and not of law, to determine what is good science and what is not.1

INTRODUCTION

Succeeding as an expert witness requires a basic understanding of who and what experts are. The U.S. legal system permits certain witnesses to render opinions based on data rather than merely reciting information. These opinions are sought to explain past, present, and future events. You may be or already are such a witness. In this book, you will learn why experts are unique and how they are selected to be a

witless. An **expert** is a special, often controversial, position in our court and hearing procedures. **Federal Rule of Evidence** 702 defines testimony by experts:

> If scientific, technical, or other specialized knowledge will assist the trier of fact [judge or jury] to understand the evidence or 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, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

This may seem to be a moot description—what is the big deal? Contrast Rule 702 with Rule 701, “Opinion Testimony by Lay Witness”:

> If the witness is not testifying as an expert, the witness testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness, and (b) helpful to a clear understanding of the witness’ testimony or the determination of a fact in issue, and (c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

If you are guessing that a **lay witness** is everybody who does not possess “scientific, technical, or other specialized knowledge,” you are correct. In religious organizations, all persons who are not a member of the clergy or of any monastic order are called laypersons and collectively comprise the laity. The term is in the law, in the context of any specialized profession, to refer to those who are not members of that profession, in this case, scientists, technicians, or other specialists. If you are not one of these specific people, your testimony must be limited to any facts—or opinions drawn from those experiences.

Experts, on the other hand, are given a special license in testimony: they can testify about their professional **opinion** based on their education, training, and experience in a specific topic. A recent article described an expert as

> a person who, by virtue of training and experience, is able to do things the rest of us cannot. Experts are not only proficient in what they do, but are also smooth and efficient in the actions they take. Experts know a great many things and have tricks for applying these things to problems or tasks. Experts are good at plowing through irrelevant information in order to get at basic issues or actual problems. Experts are also good at recognizing problems as instances of ones with which they are familiar, generalizing alternative solutions and making good choices among the alternatives.²

A few examples may help clarify the difference between laity and experts. Here are some statements of testimony designated either with L for laity or E for expert.

**L:** The man I saw leaving the bank was tall, about 6 feet.

**E:** The individual in the bank surveillance video is between 5 feet 11 inches and 6 feet 2 inches based on the photogrammetric calculations I performed.

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L: The woman had short brown hair.
E: The victim’s head hair was very light brown, artificially treated to a brown color, 6 inches in length or shorter, with characteristics of European ancestry.

L: The guy looked like he was bleeding.
E: The victim has suffered a contusion, one and a half to two inches in diameter over his left orbital at the juncture of the left temporal bone.

It is not only the wording characteristic of a particular group (jargon), in this case, experts, that makes these examples expert testimony, it is the knowledge, skills, and expertise behind the statements and the interpretations that result from them. Experts’ knowledge of methods (photogrammetry), skills at applying them (how did the expert determine the hair was dyed?), and expertise in applying them (practicing as a medical doctor) are what differentiate them from the average layperson. You might know a doctor or a scientist and perhaps understand what they do a bit better than others, but you are not in a professional position to make scientific or medical judgments the way they do. It is not just the knowing, however, that makes an expert. There is, philosophically, a real difference between someone who knows something and an expert:

A technique is a standard method that can be taught. It is a recipe that can be fully conveyed from one person to another. A recipe always lays down a certain number of steps which, if followed to the letter, ought to lead invariably to the end desired.

Should something go wrong, the recipe does not provide the tools for understanding and remediating the problem. It takes a true understanding of how the technique works and why to correct problems or, in fact, to improve. An internal corrective mechanism has been offered as one of the ways to distinguish science (astronomy, for example) from nonscience (astrology).

What kind of education and training make someone an expert? Table 1.1 lists a few of the extensive topics that may require expert testimony. As you can see, many of these topics would require a good deal of education and training for a sufficient level of expertise to offer professional opinions in a courtroom.

Our society reveres those with specialized knowledge. Those who abuse that reverence for personal or professional gain, however, are as equally despised as the real experts are admired. For this reason, Rule 702 adds that the expert’s testimony must be “based upon sufficient facts or data” and be “the product of reliable principles and methods” as well as having been reliably applied. For this reason, federal courts advise their juries concerning expert witnesses:

The rules of evidence ordinarily do not permit witnesses to testify as to opinions or conclusions. An exception to this rule exists as to those whom we call “expert witnesses.” Witnesses who, by education and experience, have become expert in some art,

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### TABLE 1.1
A few of the issues that may require expert testimony

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<td>Blood pattern analysis</td>
<td>Patent, copyright, and trademark</td>
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<td>Boundary disputes and title defects</td>
<td>Pathology</td>
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<td>Causes of fire, flood, or other casualty</td>
<td>Personal injury of all types</td>
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<td>Chemistry</td>
<td>Photography-videography</td>
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<td>Child custody and visitation matters</td>
<td>Pornography issues</td>
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<td>Child or spousal abuse</td>
<td>Probability of rehabilitation effort</td>
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<td>Cleanup procedures and costs</td>
<td>Product liability</td>
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<td>Construction defects</td>
<td>Property valuation</td>
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<td>Contract meaning and interpretation</td>
<td>Propriety of claim procedures and damages</td>
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<td>Crime scene reconstruction</td>
<td>Psychiatric and psychological evaluations</td>
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<td>Criminology</td>
<td>Questioned documents</td>
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<td>Customs matters</td>
<td>Questions of wrongful termination</td>
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<td>Damages for violation</td>
<td>Revocation of professional licenses</td>
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<td>Digital evidence</td>
<td>Safe working conditions</td>
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<td>Discrimination</td>
<td>Search and seizure</td>
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<td>Securities regulation and violation</td>
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<td>Domestic relations</td>
<td>Shoeprints, tire tracks</td>
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<td>Source of mineral specimens</td>
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<td>Taxation</td>
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<td>Environmental and ecologic damage and restoration</td>
<td>Toxicology</td>
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<td>Explosives</td>
<td>Trace evidence</td>
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<td>Failure of drilling rigs or pipe</td>
<td>Value of property for tax purposes</td>
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<td>Fingerprints</td>
<td>Value of statutory benefits</td>
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<td>Firearms, tool marks</td>
<td>Wages, hours, and conditions of employment</td>
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<td>Fraud</td>
<td>Worker’s compensation</td>
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science, profession, or calling, may state an opinion as to relevant and material matter, in which they profess to be expert, and may also state their reasons for the opinion.

You should consider each expert opinion received in evidence in this case, and give it such weight as you may think it deserves. If you should decide that the opinion of an expert witness is not based upon sufficient education and experience, or if you should conclude that the reasons given in support of the opinion are not sound, or that the opinion is outweighed by other evidence, you may disregard the opinion entirely.\(^5\)

It is a hallmark of the U.S. justice system that although the “laity” cannot testify the way experts can, they do make up the juries and have the final say in the case being tried.

HISTORY OF EXPERTS IN TRIALS

Expert scientific witnesses have a long history of service to the courts. The modern expert witness was a specific creation of the late eighteenth century, but the birth- ing was awkward and contentious. As Golan says, the expert witness was “a freak in the new adversarial world, an incompatible and inharmonious, yet indispensable and influential, figure in the modern adversarial courtroom.”\(^6\) At the beginning of the eighteenth century, an English court would have been recognizable to our modern eyes, but only barely. The attorneys were marginally involved, the judge was an active participant and questioned the witnesses, and the accused represented themselves. By the end of the century, the judge was reduced to a neutral referee, the attorneys had taken control of the trial process and were the stars of the courts, and the process had taken on the adversarial approach used today. Scientists in that time were considered to be gentlemen and members of an elite, honor-bound guild who put their reputation first and finances second. Perhaps this is why scientists were allowed to testify in proceedings that did not personally involve them during a time when even the slightest personal interest in a legal matter disqualified someone as a witness. Scientists were perceived to be independent disinterested men of learning who were above the petty squabbles of those in the courts. The experts could, therefore, be counted on to provide and explain impartial objective facts that—although were beyond the knowledge of the public—were central to the resolution of the legal dispute. Some of these perceptions carry over into our modern view of the scientist, but we also know that scientists are only too human: they can make mistakes, lie, and even profit thereby. The adversarial nature of the courts played to these weaknesses and led to a loss of reputation for scientists:

The growing judicial recognition of their status as a special class of witnesses was not all good news for men of science. It may have underlined their critical importance for the judicial process, but at the same time it also perpetuated their marginalization within this process. In moving across professional and institutional boundaries, from the exclusivity of their lecture theaters, workshop, laboratories, and societies to


the public courtroom, men of science hoped to present there laws that were not controlled by human whim. Instead, they found themselves manipulated as mere tools in the hands of the lawyers. … As witnesses, they found themselves isolated in the witness box, away from the decision-making process. Browbeaten and set against each other, they found that their standard strategies for generating credibility and agreement were unsuitable for the adversarial heat of the courtroom. The result was a continuous parade of leading men of science zealously contradicting each other from the witness stand, a parade that cast serious doubts on their integrity and on their science in the eyes of the legal profession and the public.7

In the twentieth century, as the sciences developed from intricate hobbies to defined disciplines of study, so, too, did the reputation of expert scientific witnesses in the courts. It was no longer enough for a witness to declare his expert status; he had to demonstrate it through generally accepted practices used by other scientists in that field. The judge became the arbiter of experts, and legal decisions (United States v. Frye, specifically) followed that assisted in that task. The Frye decision, which will be discussed in more detail later, held that the expert must have suitable credentials to offer the evidence, and the evidence itself must “be sufficiently established to have gained general acceptance in the particular field in which it belongs.” This shift from the person to the process heralded a new way for the legal system to treat science in its midst.

Post–World War II, the scope of the science offered in courts expanded, as did the judges’ responsibility to make sure that it was solid and reputable science and not quackery. By the 1970s, Frye was the standard by which all proffered scientific testimony was measured. During the 1970s, the Federal Rules of Evidence (FRE), the requirements for using evidence in federal courts, were codified, but they made no mention of Frye. Instead, the FRE offered Rule 702, which was broad and inclusive, not to mention vague; what, for example, constituted “scientific, technical, or other specialized knowledge”? The courts intended for this to be sorted out by the experts and attorneys and determined by the judges.

CIVIL AND CRIMINAL CASES

Criminal law is the body of statutory and common law that deals with crime and the legal punishment of criminal offenses. “Criminal offenses” generally means actions that are counter to the good of society. This differs from civil law in that civil actions are disputes between two parties that are not of significant public concern; civil law also is used to describe all law outside of the criminal law context. Criminal law has been seen as a system of regulating the behavior of individuals and groups in relation to societal norms, whereas civil law is aimed primarily at the relationship between private individuals and their rights and obligations under the law. Experts are useful in both kinds of legal cases, but the archtypal forensic scientist who works for a law enforcement agency will work almost exclusively on criminal cases. Private experts face an entirely separate set of additional challenges.8

7 Ibid., 54.
THE CRIMINAL JUSTICE PROCESS

The criminal justice process begins with an alleged crime. An accusation is made (by the person aggrieved, the complainant), which is investigated by law enforcement officers, acting as representatives of the government. A formal complaint, also called an indictment, is presented to a group of citizens, called a grand jury, who determine if enough evidence exists for a criminal trial. If so, the indictment is filed with a court in the appropriate jurisdiction. Grand juries do not exist outside the United States and are not universal within the country (Connecticut, Pennsylvania, and the District of Columbia do not use grand jury indictments); each state that uses them has its own set of grand jury procedures.

The interests of the state are represented by a prosecuting attorney, while the interests of the defendant are represented by his defense attorney or by the defendant, acting as his own attorney. The Sixth Amendment of the Constitution of the United States guarantees a criminal defendant:

- The right to a speedy and public trial, in both state and federal courts, by an impartial jury of the state and district wherein the crime was committed (a “jury of peers”);
- The right to be informed of the nature and cause of the accusation;
- The right to be confronted with the witnesses against him (this is where expert witnesses play a role);
- Compulsory process for obtaining witnesses in his favor (the subpoena); and
- The assistance of counsel for his defense (so-called public defenders, if the accused cannot afford counsel).

While the specific process varies according to the local law, the process culminates with a jury trial (as required by the Sixth Amendment), followed by mandatory or discretionary appeals to higher courts.

The prosecution must prove beyond a reasonable doubt that the defendant is guilty of the crime charged; this is called the burden of proof. The prosecution presents its case first and may call witnesses and present other evidence against the defendant. After the prosecution has presented its case, the defense may move to dismiss the case if there is insufficient evidence, or present its case and call witnesses. All witnesses may be cross-examined by the opposing side. After both sides have presented their cases and made closing arguments, the judge gives the jury legal instructions and they adjourn to deliberate in private. The jury must unanimously agree on a verdict of guilty or not guilty. If a defendant is found guilty, sentencing (punishment) follows, often at a separate hearing after the prosecution, defense, and court have developed information based on which the judge will determine a sentence. As with the guilt phase, the burden is on the prosecution to prove its case, and the defendant is entitled to take the stand in his or her own defense, and may call witnesses and present evidence.

After sentencing, the defendant may appeal the ruling to a higher court. An appellate court (appeellate is the adjectival form of appeal) is a court that hears

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9 Grand juries have more members than a trial, or petite jury, hence the name.
cases in which a lower court—either a trial court or a lower-level appellate court—has already made a decision, but in which at least one party to the action wants to challenge this ruling. The challenge is based upon some legal grounds, such as errors of law, fact, or due process. American appellate courts do not retry the case; they only examine the record of the proceedings in the lower court to determine if errors were made that require a new trial, resentencing, or a complete discharge of the defendant, as is mandated by the circumstances.

**DISCOVERY AND DEPOSITION**

**Discovery** is the pretrial phase in a lawsuit in which each party can request documents and other evidence from other parties or can compel the production of evidence by using a subpoena or through other discovery devices, such as **depositions**. Anything that is relevant is available for the other party to request, as long as it is not privileged or otherwise protected. Relevance is defined as anything more or less likely to prove a fact that affects the outcome of the claim. It does not have to be admissible in court as long as it could reasonably lead to admissible evidence. Discovery, however, does not mean everything is automatically turned over. The court may adjust the limits of discovery on the amount of material requested if it determines that the discovery sought is overly burdensome, redundant, unnecessary, or disproportionately difficult to produce with respect to the importance of the case or specific issue. Also protected are tangible (and some intangible) items created in anticipation of the litigation (so-called **work product**, for example, a memorandum from an attorney outlining his strategy in the case). Protecting work product is considered in the interest of justice because discovery of such work product would expose an attorney’s complete legal strategy before trial. Experts whose opinions may be presented at trial are discoverable, but discovery is limited with experts who are not likely to testify during trial. Any material legally privileged (attorney-client, doctor-patient, etc.) also is exempt from discovery.

One of the main tools in the attorney’s arsenal is the **deposition**. A deposition is evidence given under oath and recorded for use in court at a later date; in the United States, depositions are taken outside of a courtroom. The chief value of a deposition, as with any discovery proceeding, is to give all parties in a case a fair preview of the evidence so that a “level playing field” is achieved and no surprises occur in trial (these used to be called “Perry Mason moments,” after the main character in Erle Stanley Gardner’s novels). In the event a witness is unavailable for trial, his deposition testimony may be read before the jury and made part of the record in the case, with the same legal force as live testimony. It is crucial for the expert witness to prepare for depositions just as he would a court testimony—in some states, depositions can be offered into evidence even if the witness is available! In any case, one party can use a deposition to impeach (or contradict) the witness’s testimony in open court. What you say in a deposition may come back to haunt you on the stand. Some depositions are videotaped, in anticipation of the unavailability of a witness at trial, so that if necessary the videotape may be played for judge and jury. A deposition is designed to accomplish certain specific objectives:
• Gather information
• Uncover inconsistencies in testimony
• Document statements, processes, and work product
• Assess your ability as a witness

The examination is usually done by opposing counsel, with few if any questions by your sponsoring attorney. The setting is generally informal, scheduled in advance, and conducted in the presence of a certified court reporter; recording by video is common. You may also assist the examining attorney at deposition of opposing experts by assessing their qualifications, capabilities, and framing questions for them. Before your deposition, you should review the following:

• Technical and fact data from the case
• Your scientific and technical materials
• Pleadings on file in the case
• Products of discovery, such as interrogatories, document production, and depositions
• Standard scientific works relevant to the subject
• Appropriate legal authorities

Agreement of counsel or court approval is usually necessary before you may be deposed. The pleadings must show that the information sought by deposition cannot be obtained by other traditional and less expensive means of discovery.10 Depositions may be taken either for discovery or in lieu of testimony in court because you are beyond the jurisdictional limits of the court’s subpoena power.

As an expert, you should play an important role in pleadings and discovery preparation. You may be called on to word technical parts of a pleading. You can also review discovery requests and responses for completeness and technical consistency. In some cases, you can help uncover a body of technical data, forms, procedures, protocol, notes, and research materials. It is often essential that you participate at this stage to ensure that requisite scientific and technical information is available before deposition. Preparing for deposition should be a joint effort between you and the attorney.

**PREPARATION FOR TRIAL**

Before trial, you will assist in preparing exhibits and demonstrative charts, tests, and documents. Any demonstration must be tested before the trial or hearing. Trial exhibits should be shown to opposing counsel in advance of trial, and either stipulation or court order approval should be obtained. These are easy ways to guarantee the admissibility of a key chart, exhibit, document, or demonstration. It is proper for you to ask the attorney calling you if these details have been satisfied. Nothing can be as disappointing as preparing costly demonstrations or exhibits that are rejected at

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10This is particularly true under the Federal Rules of Civil Procedure and in states that have adopted similar rules. See, for example, Rule 26(b)(4), Federal Rules of Civil Procedure.
trial because of inaccuracy or lack of foundation. Exhibits and demonstrations must be accurate and technically correct. Demonstrations must be substantially similar to the subject under litigation to be admissible.

Unnecessary exhibits and testimony should be eliminated before trial. Your calculations should be rechecked. Data should be summarized whenever possible: have the raw data available in the courtroom, but refer to summaries of voluminous documents or material. New rules of evidence allow this use of summary data.¹¹ The large amount of raw material you have evaluated before trial can enhance the weight of testimony. The data from which summaries are made must in all cases be available for examination by opposing counsel. Good practice dictates that such information be made available well before trial and be in court for opposition examination.

Preparation for trial is somewhat different from preparation for deposition. The attorney should explain to you the objectives of testimony and describe the physical setting of the hearing room in detail, including positioning of the parties, the attorneys, and the dispute resolution forum.

AT TRIAL

During the trial, you should be aware of the importance of careful testimony, particularly the hazard of inconsistent testimony between deposition and trial. You are admonished to tell the truth and to prepare for deposition or trial testimony by reviewing the facts of the case and your work effort. You should not lose your temper. Speak slowly, clearly, and naturally. If you are familiar with the process, you will not fear the examining attorney or the setting. You must answer only the questions asked, never volunteering information beyond the scope of the question presented. You need not have an answer for every question. Avoid fencing, arguing with, or second-guessing examining counsel. If you make a mistake, correct it as soon as possible. If a negative or apparently damaging fact or omission has been elicited, admit it and move on quickly. To fence, hedge, argue, equivocate, or become angry only exposes you to further cross-examination and a resultant loss of credibility.

Testimony in court, deposition, or hearing should never be turned into a joke. Exaggeration, underestimation, and overestimation are all indications of unwary and ill-prepared witnesses. You must translate technical terms into common, understandable language at every opportunity. Your demeanor and behavior before, during, and after testimony should be the subject of care. Conversations with opposing parties, attorneys, and jurors must be avoided.

At trial your testimony will be divided into five main parts:

- Voir dire, presenting your qualifications as an expert to render opinion testimony
- Direct examination
- Cross-examination
- Redirect and re-cross-examinations
- The judge retaining or excusing you as a witness

¹¹See, for example, Rule 1006, Federal Rules of Evidence.
The remainder of this book deals with these parts.

CONCLUSION

An expert, because of knowledge, training, and experience, is allowed to render opinions about scientific or technical matters during the trial processes. An expert may be called on to assist in all phases of investigation, preparation, discovery, and trial of contested matters. The role of an expert is to transmit specialized information and knowledge to the fact finder (judge or jury). In many cases, effectiveness of the expert will help determine the outcome. Although the primary role of an expert is to provide direct examination, anticipation of cross-examination will facilitate a more persuasive response. Experts should prepare for cross-examination and frame a strategy for answering vulnerable areas. Above all else, an expert should be truthful and answer the questions asked. Testimony may not always be pleasant, but it is an integral part of modern courtroom procedures.

REVIEW QUESTIONS

1. How is an expert different from a lay witness? What can he or she do?
2. What is jargon?
3. When were the Federal Rules of Evidence enacted?
4. What is a technique? Is it the same as a method?
5. What is the difference between criminal law and civil law? What needs do they serve in the criminal justice process?
6. Who or what is a complainant?
7. What is a grand jury? Is it different from a petite jury?
8. What does the Sixth Amendment of the Constitution of the United States provide?
9. What is discovery?
10. What is a deposition? Is it different from a trial? Explain.

DISCUSSION QUESTIONS

1. Is the grand jury process necessary? Why or why not?
2. Why is the Sixth Amendment important to you as an expert?
3. Why is the discovery process necessary? Often, discovery is not reciprocal and the defense does not have to divulge all of its information. Why do you think this is so?

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12 Seventy-eight percent of the students in one of my court testimony classes said they would rather have their hands slammed in a car door twice than have to testify again.
Bibliography