Examples of Expert Witnesses and Their Communities of Interest

Our world is awash with technology. The operation of the most common technical devices remains a mystery to mere mortals. In this chapter, expert witnesses from several different specialty areas describe the nature of their work. Of particular interest here is how each of these experts contributes to and draws on the expertise of other experts within their own professional community of interest. Included among these examples is a look at an Academy Award–winning portrayal of an expert witness who shares several common attributes with effective expert witnesses who testify in real courtrooms. The expert in My Cousin Vinny is extremely well qualified, competent, and credible. She is also able to correct in a clear and convincing way the serious technical mistakes made by the opposing expert in rendering his opinion. The movie version of competing expert witnesses shows how easily the expert with all the facts and the competence and experience to comprehend their meaning wins. The movie and the real-life examples presented in this chapter underscore the importance of the traditional expert community of interest that establishes clear standards of practice and the reputations of experts who apply them. These standards and qualifications are central to the process of the qualification of experts, the evaluation of the credibility of expert testimony, and the ultimate resolution of disagreements between legitimate, qualified experts.
Who Decides Whether an Expert Is Really an Expert?

There is an ongoing debate about whether or not it makes any sense to allow judges and juries to decide that an expert is sufficiently qualified to testify when neither judges nor juries can hope to understand the issues in question as well as the expert does. At the most basic level, this debate is resolved by accepting the consensus of an existing professional community of interest that endorses the proffered expert as a properly qualified member in good standing.

Professor C. A. J. Coady has considered this problem at length in *Testimony*. We have certifying bodies and institutions and their various certificates and, typically, the courts require that the witness be shown to have some relevant certification from such bodies. Doubt can arise, of course, about the credentials of supposedly expert institutions (as admissions officers in universities and similar institutions are well aware) but usually the courts do not doubt such credentials. Were they to require for every such certifying body some proof of its credentials, it is hard to see what could be forthcoming, other than more of the same. In fact their attitude is one of trust in most such bodies and, given that the general reliability of testimony is not in doubt, this attitude can be given an indirect justification. Unless we take a thoroughgoing sceptical stance we can assume that it is, for instance, in the nature of scientific expertise to be communal. There are leaders and initiators in the various sciences but their work is recognized, criticized, expanded, carried forward, by a group who understand[s] what the initiators have done and are doing. Such a group will have an interest in protecting the standards of inquiry in the area of science they practise, in exposing pretenders to the expertise that gives a focus to their lives, and, especially if their expertise has direct practical value for the outside community, in providing certification or warranties of expertise.

. . . [T]he lay person can reason to the conclusion that there will inevitably be expert bodies with the sort of features discussed above and he can then observe the existence of what appear to be just such bodies. Various people tell him that they are members of the expert bodies and that the bodies really are expert, others tell him that their sons and daughters are being trained by such bodies in some expertise or other, and so on in a complicated web of testimony.1

Unfortunately, in the world of IT, the types of expert groups that have formed a recognized professional community of interest are often quite different in form and function than the scientific and professional communities of interest the courts have traditionally relied on to begin to consider the appropriateness of a proffered expert.

This is not just an academic or a philosophical problem. It can also impact the fact finder when one of the competing experts is not qualified and is essentially making up “facts” or inventing nonexistent standards on the stand. This issue also affects the will-

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ingness of qualified experts to step forward and offer reliable expert testimony. In fact, a number of IT experts interviewed for this book who have experience in both litigation and arbitration described their abhorrence of testifying in a case when the opposing expert lacks adequate qualifications or experience to render an opinion about a complex issue. The problem becomes both uncomfortable and ultimately unmanageable for the witness because the genuine expert’s sense of ethics prohibits him or her from going after the opposing expert during their testimony. Often for strategic reasons, the attorney has chosen not to do so during cross-examination. This creates a situation in which the judge or the jury hears diametrically opposed opinions from two people who have been presented, at least for purposes of testifying, as being approximately equal in knowledge, training, and expertise in the area in question.

This concern is echoed by Harry Hollien, a respected expert and author on forensic issues who has written lucidly about the ethics of expert testimony. Hollien points out that when courts adopt a cavalier approach to attributing the requisite expertise to a potential expert witness, it creates a major ethical and practical problem for a genuine, recognized expert to deal with on the stand. It is extremely difficult for the true expert to appear objective as a witness should he or she be required by the attorney to attack the qualifications, experience, and acceptance (by the common community of interest) of the opposing expert.

\[M\]ost experts dread those trials in which they have to explain their findings and conclusions to a court that is not aware that the witnesses for the other side are only superficially competent and actually lack the scientific or professional expertise necessary to comment on the relevant issues. Small wonder then that many scientists and practitioners simply refuse to testify or even to offer their talents on a consulting basis.\(^2\)

A Potpourri of Expert Witnesses from Other Disciplines

The legal system settles disputes that occur in everyday life. These disputes can involve individuals, governments, and organizations, both commercial and nonprofit, in every conceivable combination. The nature of the disputes can run the gamut of topics, with many resolutions hinging on highly technical evidence. In addition to the automobile mechanic expert witness scene from *My Cousin Vinny*, we present real-world examples of expert witnesses drawn from technical areas other than IT. All of these experts have achieved success as educators or consultants within their recognized areas of expertise and as forensic witnesses in the courtroom. The issues they discuss include many that are relevant to IT experts. We include details about how they contribute to and rely on

active professional communities of interest, in hopes that their insights, drawn from a wide variety of such expert bodies, might serve as road maps to IT experts and their potential communities of interest.

Mona Lisa Vito: Reluctant Expert Witness in *My Cousin Vinny*

The popular movie *My Cousin Vinny* offers the fledgling technical expert an entertaining introduction to the performing arts of the expert witness in a criminal trial. Joe Pesci plays the lead role as the attorney from out of town, Vinny Gambini. Vinny is defending his cousin and a friend who are mistakenly charged with murder. Marisa Tomei steals the show in an Oscar-winning performance as Vinny’s fiancée, Mona Lisa Vito, the reluctant expert witness whose testimony sets the wrongfully accused boys free. This film is a classic comedy of errors, but the play within the play that is most remarkable for our purposes is the battle of technical experts over the question of the identification of the getaway car. The courtroom testimony of the contending witnesses offers an extremely helpful introduction to the art of presenting expert witnesses at trial for both beginning experts and litigators.

As the trial unfolds, the viewer learns that Vinny has never tried a case before and is not even licensed to practice law. He has, however, learned a thing or two about human nature, and his street smarts and his ability to communicate with witnesses and score with jurors has succeeded in making mincemeat of the eyewitnesses for the prosecution. Although his case is badly damaged, the prosecutor has kept an ace up his sleeve and plays it in the form of his last witness—an FBI forensic expert on tire track identification. The prosecution expert is well qualified and testifies convincingly that he conducted reasonable experiments to determine that the rubber from the tires on the defendants’ car is identical in chemical composition to the rubber left on the road by the vehicle in which the killers fled from the scene of the crime. He also correctly determines through his research that the type of tires that made the tracks left at the scene are identical to the kind of tires on the defendants’ car.

The fairy-tale staging alerts us to two of the basic rules that would have precluded this scene from taking place in the real world of trials (or at least would have guaranteed that Vinny would win an appeal if his clients had been convicted). After a long history of trial by ambush, modern federal and state rules of procedure and evidence governing the disclosure of expert witnesses and their opinions were amended. The current rules would have required the prosecutor to advise Vinny well in advance of the trial that he intended to call an expert witness and, furthermore, to disclose the substance of that witness’s testimony and opinions. But here, for dramatic purposes, the scriptwriters have the judge, played by Fred Gwynne, deny Vinny’s proper protests about the surprise expert witness and his reasonable request for a continuance to find his own witness to render an opinion for the defense. With these erroneous rulings by
the judge, the stage is set for Vinny to call his temporarily estranged fiancée to the stand to testify as an expert witness for the defense.

Vinny sets up Mona Lisa’s testimony by deciding to conduct a constructive cross-examination of the defense expert. David M. Malone and Paul J. Zwier, in their book, Effective Expert Testimony, describe this technique in the following way:

*Constructive cross-examination enlists the support of the opposing expert, seeking his agreement that certain fundamental facts, principles, or limitations are correct. The appropriateness of a particular methodology that is generally accepted in the field, the unavailability of Bureau of Labor Statistics data for certain time periods, the inability to determine a nuclear particle’s mass and velocity at the same time, or his own decision not to conduct certain additional tests—these are the kinds of areas in which a reasonable expert (or an unreasonable one who nevertheless recognizes the danger of denying the truth of matters which can be proved) is likely to agree, thereby saving energy for more important battles. Constructive examination depends upon the credibility of the opposing expert; the trial lawyer wants the jury to believe [the expert witness] when he says he is right on something, or his expert is right on something. Such agreement makes the “something” equivalent to a universal truth—no one disagrees, so the jury can accept it.*

Rather than attempting to confront the damning conclusions of the prosecution’s expert, Vinny gets him to agree with what appear to be minor and uncontestable points. In this way, Vinny actually gains the support of the prosecution expert for a fact that will be essential to Vinny’s own argument. In doing so, he establishes the fact that the kind of tires on the defendants’ car, which match the tire tracks found at the scene of the crime, are indeed the most popular tires used on cars manufactured in the same year as the defendants’ car. Without attacking the prosecution expert, Vinny elicits this admission on cross-examination that expands the number of possible vehicles that could have left those tracks. This weakens the FBI expert’s implication that the car that left the tracks belonged to the defendants. After the constructive cross-examination, the jury understands that the class of cars that could have left those tracks includes hundreds of thousands of other vehicles. Vinny politely thanks the witness for his testimony.

Although in the movie the FBI expert gets off lightly as an honest government employee with limited resources, there is a darker side to this performance that can serve to highlight the problem with results-oriented expert testimony in general. Here the prosecution did not ask the expert to rule out all the other plausible theories that might account for the challenged identification of the defendants’ car as the murderer’s vehicle but simply to collect enough facts and to make enough comparisons to give the prosecution’s theory of the case some credibility after Vinny had demolished the

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so-called eyewitnesses. The expert has become the prosecutor’s best argument to the jury as to why they should still convict the defendants, because all the eyewitnesses have been impeached.

But note that this is not an objective expert’s attempt to consider all the possible explanations for the apparent similarities between the tracks the murderer’s vehicle left at the scene and the tires on the defendants’ car. As we will see, Vinny’s witness will take into account all the relevant facts and be able to conclusively demonstrate that the FBI’s tire expert was simply wrong to suggest that the defendant’s car was capable of leaving the tracks at the murder scene.

After cross-examining the FBI expert, Vinny attempts to convince his fiancée to take the stand as his expert witness. There is no one else to turn to, especially since the judge has given him five minutes to put up or shut up. Mona Lisa adamantly refuses to take the stand, and by the time she is brought kicking and screaming into the courtroom and forced to take the oath by the judge, it is clear to the audience that Vinnie has figured out a way to get two things he needs. For not only does he get the evidence he needs but also, and equally important, he gets beyond the problem of the appearance of bias due to the amorous relationship between the witness and the attorney. As the scene is presented, the judge, jury, and prosecutor can clearly see that, at the moment, Mona Lisa hates Vinny’s guts and wants no part of testifying on behalf of the defense.

This cartoon caricature of how to handle the inherent problems of witness bias helps us understand its fundamental nature in all cases involving experts. Incidentally, this situation is one that can and will be examined by opposing counsel whenever an expert has been hired by one party to give an opinion that is helpful to the hiring party or harmful to the interests of the opposing party. The slapstick staging provides an amusing illustration of how an extreme form of this constant problem can be overcome. Here in its most ridiculous pose—that of a beleaguered lawyer resorting to calling his fiancée and paralegal to take the stand as an expert witness in order to give her opinion on what may be the ultimate issue in the case—we can more easily see how less severe problems of bias can and do arise in nearly every case, if only because the witness is usually being paid by the proponent for his or her time. Steven Lubet, in his excellent book, *Expert Testimony*, puts the problem of “relationship bias” in its more typically encountered forms this way:

> An expert’s relationship with a party or counsel may also be used to imply a lack of impartiality. Some witnesses seem to work repeatedly with certain law firms (or litigants), testifying to similar conclusions in case after case. While such an ongoing relationship is not proof of actual bias, cross-examiners can be counted on to insinuate that the association must have been sustained for a reason.4

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Alternatively, Lubet suggests that “positional bias,” where it can be demonstrated to exist in an expert by the opponent, is also likely to be challenged in cross-examination and should be kept in mind by an expert who may have become identified with a particular stance or position on an area of expertise.

Another typical kind of impeachment on bias involves the fees paid to an expert. Jack Matson offers the expert the following advice on this perennial problem when an aggressive attorney attempts to impeach on cross-examination for large payments for contested opinions.

\[\ldots\] The examiner is trying to show how mercenary you were, and how much you charged for such minimal and flawed work. You are another living example of a high priced hired gun willing to say anything for a price. About all you want to do in these circumstances is maintain your composure and be dignified. Don’t be defensive!\[5\]

Once you begin to think about expert testimony like a trial lawyer, you begin to see why an attack on the various kinds of bias that may exist is considered to be one of the most fertile fields for cross-examining an expert. So, ironically, the fact that Mona Lisa Vito is not being paid at all for her testimony is also a promising area for cross-examination on the issue of bias. The reader may initially think that because Mona Lisa is not being paid for her testimony, this would count in her favor as indicating a lack of bias. However, the combination of a longstanding relationship with the defense attorney coupled with the total lack of compensation could be turned nicely by the cross-examiner into a ladder of bias questions. The point here is simply that compensation will always be an issue—either at the deposition or at trial—so experts should be prepared to explain how they came to the conclusion that some fee (or no fee) was appropriate for the work at hand.

Stanley L. Brodsky, who has 30 years of experience training health professionals in giving expert testimony, points to an even subtler form of the bias issue. This may totally escape the questioning of the cross-examining attorney, but it needs to register in the mind of every expert as he or she undertakes each assignment to testify. Brodsky calls it the “pull to affiliate.”

*Bought experts may or may not exist, depending on one’s perspective. Those who believe experts can be bought describe individuals who conform their opinions to the side that employs them. Although a few rare birds may indeed be bought, my perspective is that a subtle social-psychological process influences many witnesses toward “our” side. The courtroom drama does have an “us-versus-them” dichotomy. Just as the attorneys accept the viewpoint of their side, some expert witnesses may do the same. The affiliation process is rarely deliberate or conscious. Instead the pull, and sometimes the reality, is to shape one’s opinions in small ways to conform to*

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what is seen as the “right side.” Almost all expert witnesses would deny that their opinions are so influenced. However, the affiliation process begins early. From the time the attorney first speaks with a potential expert, the attorney probes, suggests, assures, and woos.

As often as I withdraw, I stay with cases—and so do most experts. As the cases progress, a litmus test for continued involvement occurs at the findings stage. The expert reports, usually by telephone, and the attorney decides about using the expert in court. If this decision is positive, then a series of additional stimulus demands to affiliate with this side take place. Meetings occur with the attorney. There is talk about the best way to present the expert’s findings and opinions. Discussions may take place about the likely strategy of the opposing attorneys. A meeting prior to deposition may have the attorney helping the expert prepare. It is not unusual to observe an exchange of cooperative actions and warm feelings. Under these conditions, the impartiality of the expert may be compromised. . . . These events constitute a far greater hazard to impartiality than the mythical bought witness. Their impact is gradual and beyond the immediate awareness of the expert. These influences are sufficiently powerful that they may be the single greatest threat to expert integrity. Becoming aware of these events is a first way of preventing them.6

Regardless of all the potential pitfalls involved in attempting to place Mona Lisa on the stand, Vinny has no other options. As a car buff, he has noticed something about the photographs of the tire marks that shows that the tracks could not have been left by a car with the equipment on his cousin’s car. Since he can’t testify himself, and he can’t rely on the depth of knowledge or the honesty of the government’s witness to produce the right answer on a complete cross-examination, he has to get his fiancée on the stand and qualify her as an expert witness. He knows that Mona Lisa is an accomplished mechanic and a highly qualified expert who is able, based on her knowledge, training, and experience with cars, to point out to the court what Vinny has seen in the pictures and furthermore to explain why the tire marks exonerate the defendants.

It turns out that Vinny’s method of getting his fiancée on the stand has effectively disarmed the prosecutor as to the bias issues, and his tender of Mona Lisa as an expert invites the overconfident prosecutor to make a fundamental mistake. The prosecutor acts on his obvious belief that his knowledge about cars will suffice to put this nice little lady in her proper place and make her appear in the eyes of the jury much less of an expert about cars than he is. He asks for and is granted the right to conduct what is called in the trade a voir dire examination of the tendered expert. Cocky as can be, the prosecutor decides to ask his questions designed to test Mona Lisa’s qualifications as an expert witness in front of the jury. This is a strategic decision in which the attorney attempts to display the lack of expertise of an untested expert before the jury.

in an effort to discredit the witness even before testimony occurs. Technically, the voir
dire is only supposed to test the legal sufficiency of the expert’s qualifications to give
an opinion and is often conducted outside of the presence of the jury when either
attorney requests it. But Vinny knows his expert’s qualifications and experience, and
he is not about to deprive the jury of the chance to find out just how good an expert
she is. Neither does he want to save the overconfident prosecutor from the just desserts
of his male chauvinist appetite.

Steven Lubet explains the function of voir dire as follows:

In essence, the voir dire is a mini-cross, aimed exclusively at the legal sufficiency of
the expert’s qualifications. In legal terms, the only question is whether the witness is
“qualified as an expert by knowledge, skill, experience, training, or education.” No
matter what the voir dire uncovers, the witness will usually be allowed to proceed
with her testimony so long as she meets this minimum requirement.7

Without objection the judge allows the prosecutor to question Mona Lisa with
the jury present. The prosecutor immediately attempts to challenge her qualifications
and experience by asking her profession, which she happily admits is that of an out-
of-work hairdresser. He then asks her what qualifies her as an expert in the field of
automobiles. She effortlessly recounts her family’s tradition of expertise in repairing
and maintaining autos for most of the century. Her father, like his father before him,
was a mechanic, as were her maternal grandfather, her four uncles, and her three
brothers.

Before Mona Lisa can continue, the prosecutor concedes that her family is obvi-
ously qualified, but he then wants to know what makes her think that she is also an
expert mechanic. Mona Lisa begins what quickly becomes an apparently unending
inventory of the kinds of repair jobs she has personally performed as an automobile
mechanic. The prosecutor immediately cuts her off again by asking why, even with all
that experience maintaining and repairing all kinds of cars, she feels qualified as an
expert in the specific area of tire mark identification.

For our purposes in this chapter, this is probably Vinny’s key strategic move.
Vinny has carefully carved out the general area of automobile technology as Mona
Lisa’s expertise but has not offered her as a specialized expert on tires. He needs to
establish her as a general expert about all automobiles, not as a specialized tire expert,
in order to explain to the judge and the jury the meaning of the photographs of the
tire marks in the context of her expert analysis of what sort of automobile could have
made those particular types of tracks. She is not being offered as a tire expert but as a
more general kind of expert. This more general expertise will allow her to render an
opinion about more relevant evidence in the case that will also make clear that the

opinion of the more specialized tire expert was erroneous due to ineptitude or ignorance. And if necessary this will also allow Vinny to argue that the prosecutor has attempted to mislead the jury by bringing an expert who lacked the necessary expertise to adequately address the real problem. But for Mona Lisa to be able to give her opinion, the judge and the jury must believe two things that are crucial for every technical expert to appear competent and credible to the fact finder.

The genius of this tactical move of presenting the witness as a general expert is that it gets over the two largest hurdles encountered when qualifying any technical expert witness.

1. Is this expert qualified by knowledge, experience, and training?
2. Is the expertise that this expert claims one that is generally recognized to exist by society and a socially recognized community of experts?

The staging of the voir dire by the prosecutor leaves no doubt in his mind or the minds of the audience that Mona Lisa is a genuinely qualified and experienced expert in the area of how cars are built and repaired. Remember that this fiction takes place in a rural Southern town where people’s cars are an important part of their lives. The judge and the jury all know who the good mechanics are and which families turn out the best mechanics; that’s the way someone becomes a good mechanic and gets recognized as an expert. The judge and the jury, like the prosecutor, also believe they know a little bit about cars themselves, or they have a sibling or an uncle who knows a great deal about cars and knows how to explain how they work and what to do to fix them.

To claim a family tradition of expertise in auto mechanics is even more natural to this set of fact finders than the academic and professional qualifications of the FBI expert witness when he is called to the stand and qualified as a tire expert.

It is crucial to bear in mind that Vinny has called Mona Lisa as a general expert and that he has already somewhat defused the specific tire-related expert testimony of the FBI witness with his constructive cross-examination about the popularity of the tires in question. With automobile technology, it is a simple matter to find the statistics about which tires are used on which vehicles and which treads appear on which tires. These standards and statistics are widely available and accessible to everyone with an interest. There are also reasonable assurances that manufacturing standards have been scrupulously followed by the major automobile and auto parts manufacturers. This also holds true for the performance criteria of the different technologies and vehicles that have those technologies installed in particular models. And all of this objective information is available to any expert (or for that matter, to any judge or juror) to confirm. What Vinny still needs to prove to the judge and the jury for his witness to be allowed to give her opinion is that she has become expert as a result of her inheritance of the family tradition of expertise and through her own experience and training. There are many ways to demonstrate this economically in technical areas.
where licensing and certification are not required to become a recognized expert. Once again the sexist prosecutor comes to Vinny’s aid.

Having nowhere to go with his challenge to her qualifications, since she has testified to her family tradition and her experience as a mechanic practicing with these other experts, the prosecutor next frames a question that appears to be highly technical. However, he poses it as if it were a fair test of Mona Lisa’s experience and ability to provide a technical solution to a hypothetical mechanical problem. The witness instantly recognizes that the prosecutor has asked her a trick question, and she refuses to answer it. Furthermore, she explains to the judge and the jury why it is a trick question without an answer and goes on to add sufficient facts to the question to give it some sense. She then supplies and explains her answer to the clarified question, to the humiliation of the prosecuting attorney. The lawyer sits down, and the judge and jury are obviously impressed with Mona Lisa’s control of the situation.

By her ability to listen carefully to the trick question and to refuse to play a blatantly bogus game with the lawyer, Mona Lisa has succeeded in shifting the balance of control in her favor. By taking the time to understand the question and the situation and by carefully explaining the correct question and answer to the judge and the jury, she has eliminated any doubt that she is an expert in the area about which she was called to testify. She has also set the stage for Vinny to ask her expert opinion on the ultimate question that will win the case.

After this masterful defense of her qualifications as an expert, we finally see Mona Lisa, on direct examination, handle exhibits and questions that she has never seen before. The movie audience knows full well that this would never take place in the real world, but the staging of this portion of the screenplay makes her testimony even more credible in the context of the story. It is obvious to one and all on the jury that this is in no way rehearsed or coached testimony. (This is something that jurors can worry about, and it needs to be explained by the lawyer and the expert during the course of the testimony so that the necessary preparation of expert testimony is seen as a normal process.) The staging of this piece of testimony in the movie removes that line of questions from the cross-examiner’s normal arsenal. Mona Lisa goes on to destroy the opinion of the government’s expert by pointing out that he had failed to consider all the information in the photos in light of the known capabilities of the defendants’ car and other similar-looking cars on the market.

She is able to demonstrate, by using the photographic evidence in combination with her extensive knowledge and experience with cars, that there is only one reasonable explanation for the kind of tracks that the killer’s vehicle left at the scene. In her expert opinion, the vehicle must have had both positraction and independent rear suspension in order to have left such tracks over both the pavement and curb. She then narrows the field of vehicle models that have both these features. This process of elimination leaves only two possible models. One is the Corvette, which could not possi-
bly have been mistaken for Vinny’s cousin’s car. The other is the 1963 Pontiac Tempest, which just happens to have the same wheel base and body shape as the defendants’ vehicle. This model was also available in the same color as the defendants’ vehicle. In other words, the defendants’ car could not have made the tire marks at the scene, but another kind of car, which looks a lot like theirs, could have.

Vinny then recalls the FBI expert, who turns out to be an honest man despite being an inept expert. Having been as impressed with the defense expert’s testimony as everyone else in the courtroom, the FBI expert promptly corroborates Mona Lisa’s conclusions and admits that he was mistaken in his testimony. Meanwhile, the sheriff has a change of heart and discovers that a stolen 1963 Tempest has just been recovered upstate and that the murder weapon has been recovered in that stolen vehicle. Faced with these new developments, the district attorney dismisses the charges against the boys, and Vinny and his beaming expert beat it out of town before the judge can discover Vinny’s masquerade as an attorney.

Fairy-tale staging aside, My Cousin Vinny is a classic demonstration of how two honest and highly qualified experts can give persuasive testimony about relevant issues in a case, and yet only through the advocacy system can it become clear to the fact finder that only one of the experts possesses the ability to adequately resolve the technical questions in the case. It is not unusual for an attorney and his or her expert to simply fail to consider all of the facts that have a bearing on the issues in the case. In fact, sometimes an attorney requests only a selective review of all the available facts. Experts who do not insist on accessing all the relevant and material facts risk being placed in the position of the FBI forensic expert in My Cousin Vinny. And experts, unaided by screenwriters’ scenarios, need ample time and resources to properly prepare for their testimony.

Unfortunately, the trial-by-ambush techniques first used by the prosecutor and later by Vinny may reinforce for the beginning expert other dramatic but unrealistic TV and movie portrayals of the justice system. Many people still believe that entertaining fictional accounts of courtroom events are also an accurate account of the way things are done in the courts. This fear, based on the fiction that we all consume in our daily dole of entertainment, can make potential experts reluctant to become involved in the legal system. They view the system as a ritual of conflict resolution designed to allow and abet attorneys to hide the ball or to humiliate the expert witness. In fact, as we will see in great detail in subsequent chapters of this book, the rules of procedure for both civil and criminal trials together with the reasonable exercise of judicial discretion by the courts attenuate the most objectionable of these behaviors. In particular, they require the parties to disclose nearly everything in the process of discovery and pretrial litigation.

Many things about the legal system’s tradition and philosophy allow the opposing parties to test each other’s theories and proof, including their respective expert’s qual-
ifications, methods, and opinions. However, the rules that are consistently followed by both court and counsel in all state and federal jurisdictions do not allow for the kind of dramatic surprise and comic relief in the staged litigation that makes My Cousin Vinny and other courtroom dramas so entertaining.

Bernard Ewell: Fine Art Appraiser and Salvador Dali Expert

Bernard Ewell specializes in the appraisal and authentication of questioned works attributed to the surrealist artist Salvador Dali (Figure 1-1). To testify in court, an art expert needs to conduct a comprehensive, independent investigation of a questioned piece. There are striking similarities between the techniques that the forensic art expert uses to carry out this sort of investigation and the work of an IT forensic expert. Regardless of the training, experience, and knowledge of the art expert, due to the complexity of the problem of authenticating and appraising centuries-old art, there is always the possibility that the expert will reach the wrong conclusion. This well-

known risk in the art world is readily admitted by honest experts in nearly every forensic field that must rely more on art than science.

Consider the following observation by Mark Jones, introducing the exhibit he produced and the book he edited by the same title, *Fake? The Art of Deception*:

> Fakes can teach us many things, most obviously perhaps the fallibility of experts. Not a single object has been included here merely because it deceived an untutored layman. Most have been validated thrice over, on initial purchase by an experienced collector, on publication by a leading scholar and on acquisition by a great museum. What is being asserted is not that the less well informed may sometimes make mistakes, though that is evidently true, but that even the most academically and intuitively gifted of individuals, even the most rigorously organised of institutions, can and will occasionally be wrong. And this is not, or not simply, because knowledge and experience can never be complete, but because perception itself is determined by the structure of expectations that underpins it.\(^8\)

For IT experts, such authentication and appraisal work may involve the forensic reconstruction of data in a computer, network behavior in an intrusion case, penetration testing and reconstruction of system security in connection with an allegation of inadequate security or application failures, and the identification and authentication of digital evidence and its authors or users in civil discovery disputes, spoliation litigation, or criminal prosecutions.

As with most issues that engage the IT expert, Bernard Ewell's forensic detective work requires him to examine one or more artifacts and to render an opinion on the authenticity of the questioned piece. This process often requires almost as much work attempting to ascertain the authenticity of the standards previously used for comparison with other questioned works and the provenance, or absence of provenance, for or against authenticity of the questioned work itself. The methods he uses to support this opinion include testing the objects themselves and comparing the results of those tests with the accumulated knowledge compiled by collectors, curators, museums, and the literature relating to the physical and stylistic attributes of the artist, his known works, and known or suspected fakes of those works.

Ewell's forensic expertise and his experience as a testifying expert is uncommon and therefore of great value to stakeholders in the work or other works by the artist and to the ultimate fact finders who must resolve legal disputes involving works that Dali may or may not have created. The difference in value between a fake and an authenticated and accepted original can be several million dollars. (The complex job of appraising a piece involves market and legal analysis techniques that go beyond the scope of our comparison of forensic work in the art and IT worlds.) A determination

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that a particular work is a fake can also destroy the reputations of collectors and dealers in the art market.

Ewell has testified as an expert witness for over 20 years. Perhaps the most important jury trial in which he took part was the famous case brought by the United States against Center Art Gallery, located in Hawaii, and its two principals, William Mett and Marvin Wiseman. In *The Great Dali Art Fraud and Other Deceptions,* Lee Caterall tells the story of Ewell’s involvement as an expert in that case, one of the largest art scams ever uncovered. Ewell also testified in another major civil proceeding involving the Federal Trade Commission and thousands of allegedly fake Dalis.

To understand how a successful businessman like Bernard Ewell came to enjoy being attacked by highly paid and highly motivated criminal defense attorneys in high-profile criminal trials, and by the best and the brightest from the boutique civil litigation firms of Manhattan, it helps to understand a little bit of his philosophy.

In addition to doing art detective work and fine art appraisals, Ewell also teaches other art appraisers how to testify effectively as experts in this highly subjective field. Since 1985, he has conducted training for the American Society of Appraisers as an Accredited Senior Appraiser. The lessons he has drawn from his experiences on the witness stand and in preparing for and giving lengthy depositions in cases destined to settle have made his lesson plans for passing on his skills as an expert witness easy to understand and to apply by those students who catch the testifying bug.

First, Ewell teaches that becoming an expert witness, whether as a public service or for profit, is the best way to test yourself periodically and to find out if you are as good as you need to be to provide day-to-day expert services to your clientele. As in any other teaching role, the best way to learn new things and to develop better ways of explaining the things you already know is to accept the responsibility of communicating that knowledge to others. You must also determine how you did by critiquing your own performance. In educational settings you make this determination of your performance by testing the students. In the case of forensic work, the effectiveness of your performance is indicated by a verdict and feedback from attorneys, judges, and jurors.

The bonus that comes from earning a reputation as an accomplished expert witness is that it may also give you the opportunity to do research that you need or want to do to hone your expert skills and to be paid for that research. You can explore new things and develop broader expertise or a deeper understanding of ever more specialized areas within your general area of expertise while earning a living.

If you decide to add forensic expertise to your resume, serving as a consulting or testifying expert also enables you to further bolster your standing as an expert outside of the courtroom. In the course of doing directed research for a particular case, you

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may be paid to develop new material for an article, a speech, or even a book about the substance of your research. The ability to document your methods and to give examples of acceptance of your methods by recognized peers in professional and other publications is invaluable in building your general reputation. Such publication of your work is worth even more as documentation that you have become a recognized and peer-reviewed expert in your field. Obviously, should you begin to spend increasing amounts of time as an IT forensic expert, your experiences with the attorneys and the judicial process can lead to new opportunities for publication, speaking, and general employment as well as to new and more challenging assignments in the forensic world.

Over time, with additional assignments, your résumé and reputation for demonstrated expertise will grow, provided you exercise strict quality control with regard to your selection of assignments and your performance as an expert. As we discuss in more detail in Chapter 6, it is important that you ensure that the assignments you accept are consistent with the highest principles of your professional peers, associations, and communities of interest. This consideration also comes into play should there be challenges to your qualifications, theories, or methods, as discussed in Chapter 8.

All these benefits require that you do your homework as an expert. For instance, you must be aware of the professional and ethical principles of your professional community of interest and also of the responsibilities that the law places on an expert for practices that attain or exceed the relevant standards of practice in the general field of experts. You must learn to be brutally honest with regard to your level of expertise. Furthermore, you must subject yourself to periodic reexaminations to assure that you are current in your field of practice and that you are taking appropriate measures to maintain your technical skills. Malpractice is an appropriate claim to make against people who hold themselves out to be something they are not or fail to measure up to the generally accepted standards of practice for their area of expertise. This applies whether the expertise involves determining the authenticity of fine art or the authenticity of logs in a computer network intrusion detection system.

That said, Ewell asserts that a well-trained and professional expert witness can expect to receive the benefits that he personally has garnered in his forensic practice. In addition, such an expert has the luxury of leaving the courtroom or the deposition chamber at the end of his or her testimony without the risks of liability that the parties to litigation bear, while having helped the judge or the jury understand complex facts and thereby resolve important matters in a serious legal controversy.

J. W. Lindemann: Forensic Geologist and Clandestine Grave Expert

J. W. Lindemann is a forensic geologist who has developed a fascinating practice working as part of a group that searches for clandestine graves. Like most IT profes-
sionals whom we interviewed for this book, Lindemann has found that his peers were not prepared for the number of different and demanding contexts in which the forensic services of geologists were required. In particular, an increasingly regulated and litigious society demands that forensic geologists be able to support litigation. Lindemann’s experience in applying his skills and knowledge to the solution of serious forensic problems is mostly in law enforcement contexts. Like Ewell, Lindmann finds that, despite occasional frustrations, his involvement with law enforcement as a forensic expert has been very rewarding both personally and professionally. Unlike Ewell, Lindmann joined a group of professional volunteers to advance his forensic interests. About ten years ago they incorporated a not-for-profit interdisciplinary group called NecroSearch International to assist with forensic investigations of alleged homicides.10

While this group arrangement is certainly not for everyone with an interest in forensic testimony, it may be an idea whose time has come for IT forensic experts and associated professionals who depend on a diverse network of skills, share many mutual interests, and want to solve what may at first blush seem to be very different kinds of problems. NecroSearch International has worked on over 200 forensic cases, involving the coordinated search for clandestine burials in 20 states and 6 foreign countries. In addition to the in-house associates, the organization often calls upon individuals, groups, and other resources in related fields of expertise, increasing its inventory of available experts in order to take on new and challenging cases or research projects. In addition to creating the flexible network of accomplished experts in an ever-growing number of different disciplines, Lindemann has learned how to communicate his science to people who have little or no training in his field. This experience of learning how to talk about his scientific knowledge to other scientists and law enforcement officers with no scientific training has made it much easier to communicate as a forensic expert witness.

Like other professionals, the forensic geologist faces many changing codes of practice and ethics, both written and unwritten. In fact, experts like geologists are often called in to determine whether one or more of their peers has failed to live up to those standards, resulting in an alleged crime, serious property or financial damage, or the loss of life or limb. Lindemann suggests that one of the rewards that comes from testifying in cases involving charges of negligence or criminal culpability of professional peers is the chance to set the record straight and in the process repair the potential damage to one’s chosen profession by assisting in the determination of responsibility

for intentional or unintentional lapses in professional judgment.

After years of appearing as an expert witness in criminal cases, Lindemann now believes it is almost a given that the average practicing professional will be called to the witness stand to give testimony in some form of compliance or regulatory proceeding, civil or criminal litigation, or a preliminary or ongoing investigation by any number of legally authorized authorities.

It therefore behooves the professional geologist to conduct his activities in strict adherence to professional standards, to thoroughly document his work, and to make sure his results and conclusions are based on data, information, and knowledge that fall within his field of expertise. Further, the geologist must strive to maintain both his academic and professional credentials to the very best of his ability and resources. It must be remembered that the side presenting the expert witness will present him as a knowledgeable professional, an expert in his field, and as an experienced, competent scientist/engineer. In contrast, the opposition will attempt to compromise the competence, the integrity and the professionalism of the expert witness, often focusing on mundane and irrelevant points of that witness’[s] professional credentials, performance, or testimony. It has been said that any courtroom trial is not about guilt or innocence, right or wrong, but about theater—the best performance wins the Oscar. The geologist as expert witness must then be prepared professionally, technically, and personally to give the “performance” of his career.11

Lindemann reminds interested parties that the work of the forensic scientist often is based on information that comes from highly questionable sources that may prove to be completely erroneous. In other words, without the facts there are no guarantees that proper theories, methods, and adequate skills will succeed in solving a forensic problem.

At the end of the day, a particular clandestine grave may in fact not exist. But then what guarantees that the minerals exploration geologist or the petroleum geologist finds the ore body or the reservoir at the end of a given project? However, if the grave, the ore body, or the reservoir is present, the chances of its discovery are enhanced by thorough planning, meaningful field activity, intelligent evaluation of resultant data, persistence, and a positive outlook relative to the problem at hand. The uncertainty of result, the “risk of failure” is an aspect of professional evolvement that the geologist learns to handle whatever his specific field of interest.12

Some valuable lessons from the forensic application of field sciences like geology can remind IT practitioners that investigations into the human use of complex or simple computer systems and networks are still based in space and time. Just as in the real world of forests and mountains, IT forensic experts need to be familiar with a mind-

numbing number of field settings in order to solve field problems when, for example, attempting to reconstruct a pattern of application and network behavior. If you can bear these things in mind, much like forensic geology field work, you can undertake IT forensics with a remarkably easy transition.

We dedicate much of this book to assisting technical experts in communicating their knowledge, experience, and opinions to lawyers, judges, and jurors. Lindemann, in focusing on the investigations that experts need to conduct in order to reach their conclusions and to formulate valuable opinions relevant to case issues, eloquently reminds his audience of the need to apply these same skills with other experts and nonexperts alike, who may become involved in the research and investigation of a given problem in the field.

As with all aspects of professional endeavor, communication is paramount. As a professional geologist working with other professionals without an earth science background, the idea is not to simplify your science but to clarify your science. Most professionals can understand what you say and why you say it if your explanation is clearly presented in understandable terms. You are not on site to amaze and confound your non-geologist colleagues, you are on site to get the job done! Work with your non-geologist colleagues and communicate with them.  

Whether we are considering grave site identification or network intrusion detection, the rewards of solving forensic problems go beyond the expert’s involvement in a particular investigation or litigated case. Because of the peculiar nature of judicial record keeping, regardless of whether or not the individual expert has a professional group with a corporate memory, the undertaking of a forensic assignment may pleasantly surprise the investigator by providing a better understanding of the problems encountered and the solutions attempted for future reference. Through the process of experts applying their forensic expertise to solving important problems, the record over time will reflect why some experts may have failed while others succeeded in solving the problems presented in the investigation or litigation. IT experts should keep in mind the problems that other professions have invited by their reluctance to record and subject to open criticism the errors they make. The medical profession has only recently begun to keep track of errors as a way to determine how effective its methods and its ability to predict outcomes of treatment or nontreatment really are. Unfortunately, many aspects of IT are simply written off as successful or unsuccessful hacks or fixes, without being subjected to a peer review leading to the establishment of reliable standards. Over time, IT standards will be established, and these lessons learned will feed back into the next case to the benefit of those IT professionals, their organizations, the judicial process, and society in general.

Madison Lee Goff: Forensic Entomologist and Bug Doctor

Entomology, the scientific study of insects, is a major subdiscipline of biology and zoology. In recent times, homicide crime scene investigators have come to value the contributions of entomologists in solving some of the grisliest and most challenging cases. The specialized science of forensic entomology, where insect-related evidence is collected and analyzed, has rapidly evolved into a standard operating procedure for determining time of death and in some cases the location of the body when the murder took place (i.e., when the body may have been moved before it was discovered). Of course, in the world of IT, the identification of “bugs” and their systematic study have a very different—but no less important—place.

From at least the time of Thomas Edison, U.S. engineers have used the word “bug” to refer to flaws in the systems they developed. This short word conveniently covered a multitude of possible problems. It also suggested that difficulties were small and could be easily corrected. IBM engineers who installed the ASSC Mark I at Harvard University in 1944 taught the phrase to the staff there. Grace Murray Hopper used the word with particular enthusiasm in documents relating to her work. In 1947, when technicians building the Mark II computer at Harvard discovered a moth in one of the relays, they saved it as the first actual case of a bug being found [Figure 1-2]. In the early 1950s, the terms “bug” and “debug,” as applied to computers and computer programs, began to appear not only in computer documentation but even in the popular press.¹⁴

Unlike the engineers of the early days of computing, Dr. Madison Lee Goff is interested in bugs of a different sort. For almost 20 years he has engaged in forensic entomology as it relates to the cause, time, and circumstances of death. When he first became involved in forensics, medical investigators did not regard insects as a significant source of information and seldom used such evidence in cases in which proof of the time, place, or other conditions relating to the cause of death was important.

Figure 1-2. The first computer bug. (Photo #NH 96566-KN. Washington, DC: U.S. Naval Historical Center, 1945.)

In the world of IT, it is practically a given that information is available. In fact, too much evidence is often the main problem for computer and network forensic detectives. Nevertheless, in IT forensic analysis, as with the beginnings of forensic entomology and any other new forensic frontiers of a science or technology, there is always the need to educate the public as well as the legal and forensic communities about the potential of IT forensic evidence.

Goff is an entomology professor in Hawai‘i, where he is also a consultant to the chief medical examiner. He has been a major contributor to the process of educating the public about forensic entomology. He led an aggressive public information campaign, using workshops, lectures, and memberships in various societies to deliver his message. Today, Goff admits that he and his colleagues may have been too successful in convincing the public that the entomologist has valuable forensic evidence to contribute in death investigations. In his own words:

In 1983, entomological evidence was viewed with skepticism. By the early 1990s the situation had changed and people involved in death investigations were willing to believe almost anything we told them. Entomologists who had never consulted on a single homicide case were conducting training sessions for law enforcement agencies as well as other entomologists. With a number of people having a minimal exposure to forensic entomology entering the field, it was only a matter of time before major problems cropped up.\(^\text{15}\)

Goff has found that his involvement as a forensic expert in criminal cases follows a familiar pattern. After agreeing to work on a case, he collects (or arranges to have collected) specimens from the corpse to be analyzed. An IT expert might consider this analogous to making an exact copy of the data image from the computer system or the storage device for further analysis and testing. Once Goff has done the necessary experiments and made his observations, he files away his report and the evidence in his possession and waits to be contacted about future involvement. Because these cases tend to become routine and because criminal cases, like civil cases, routinely settle before trial with a plea bargain or dismissal, he may never be asked to deliver his results to anyone but the case agent or prosecutor for the government.

Goff has always been involved in training both his peers and law enforcement and medical investigators in how to conduct forensic examinations of the insect evidence. He is committed to constantly improving his skills and to developing new cutting-edge techniques for recognizing and presenting admissible evidence related to the cause or time of death. The inevitable delays in being called to the stand are not a serious problem for two reasons. First, he has only a few cases at any given time. Second, he is constantly rethinking those cases that he does have in order to improve his tech-

nique and to develop new tools to assist him in his investigations and presentations of the evidence.

Goff’s experience may not be typical among forensics experts. Forensics experts who are not in business for themselves but are employed at state crime labs or other public organizations where the sheer volume of cases often require them to testify in court frequently may find greater challenges. For instance, many experts report some difficulty recalling the particulars of one case compared with another due to the large number of these cases assigned to each forensic examiner. Therefore, each case requires a very clear set of policies, practices, and procedures, including the preparation of routine reports, in order to allow the public expert to clearly recall the work done on a particular case up to 12 months or more before testifying in court. Consequently, the better government crime labs require their forensics experts to devote a great amount of time to training and practice. This preparation enables the experts to perform competently in those few but important cases that do end up in court and that may contribute to the establishment of new standards of practice and proof in the form of legal precedent.

Goff describes his feelings of estrangement in court as follows:

The goal of every forensic entomologist is to produce a set of carefully analyzed data that can be used in a court of law. A courtroom is about as foreign and hostile an environment for a scientist as can be imagined. I have now appeared in court many times as an expert witness, both for the defense and for the prosecution, and every time I enter the courtroom, I still feel much as if I am leaving the planet. The fact that a homicide or some other crime has occurred seems almost irrelevant to what takes place in the courtroom, crowded with the judge, the jury, the bailiffs, the sheriffs, the attorneys, and the court reporter, who frequently has to ask me how to spell the Latin names of insects.16

Goff has helped form societies, regulatory bodies, and certification procedures for forensic entomologists. Contrary to what might be characterized as a paradise for practitioners who were essentially unregulated, his own experience and observation revealed that the lack of regulation presented a nightmare for lawyers and judges who had no way to evaluate a particular entomologist’s qualifications or abilities. This remained the case until 1996, when the American Board of Forensic Entomology was formed. Goff is a Diplomate of the Board.

Goff also has advice for aspiring forensic expert witnesses that applies to more than his peers in entomology. He warns that because most potential experts have an academic background, they tend to conform to behavior usually associated more with a golden retriever than a distinguished scientific or technical expert when approached by a person of some authority, such as a prosecutor or a law enforcement agent bran-

dishing a gun and a badge. This wildly enthusiastic eagerness to please must be carefully managed by the expert if he or she wants to have effective and objective involvement as a forensic expert.

Experts who come from a scientific background, regardless of whether they remain in academia or not, can be surprised by a couple of phenomena that take place if and when the investigation gets to the litigation stage. Academics and scientists are often very uncomfortable with the rules of engagement in the adversarial legal system, in contrast to the principle of collegiality that is at least in theory associated with academia and the world of science. Furthermore, even Goff admits to being constantly amazed by the ease with which lawyers seem to move in and out of their respective roles as learned legal opponents and aggressive advocates in a particular case.

_I am often considered the opposition while I am giving testimony or during cross examination, but the situation changes as soon as a recess is called or the day is over. In the absence of the judge and jury, conversation turns to the game the night before, sports in general, and occasionally politics, movies, and other current events—people even tell lawyer jokes. These conversations often include both the defense and the prosecution’s attorneys, the suspect, and the bailiff. But when the jury returns, each reassumes correct courtroom demeanor and the trial continues. This has happened so often that I am no longer surprised when it does, but I’m still amazed._**17**

IT experts, like other forensic expert witnesses, should learn to appreciate not only the many lawyer jokes that are often told at times like these but also the stories that lawyers and judges love to tell about experts, complete with examples of preposterous or incomprehensible testimony. Both experts and attorneys today play important roles in resolving some of the most controversial and important problems in our society. Thus, it is necessary to the preservation of their respective sanity to be able to step outside the formal roles of witness and advocate and to reassert the humanity of the formal but social process of judicial dispute resolution whenever possible and appropriate.

**Approaches to Building Professional Communities of Interest**

You may be wondering just what these examples have to do with IT expertise. For heaven’s sake, IT is a far cry from automobile mechanics, art fraud, the geology of clandestine graves, and entomology! Or, you might be thinking, “There just doesn’t seem to be much need for IT experts at this time, or I would have already found myself involved.” Besides, doesn’t it really all boil down to whether or not you can stand to work with a bunch of lawyers and are willing to exhibit yourself before a judge or jury?

On the other hand, you might finish reading what has been covered so far in this chapter and come away with the idea that you would simply like to give IT forensics a try and that there is little left to be said on the subject of technical expert witnesses. What could be simpler for a qualified expert than to be shown some pictures, traipse around the countryside or collect some bugs, and, based on his or her knowledge, education, and training, to give a reasoned opinion about an issue in a lawsuit? Furthermore, the expert’s conclusions based on his or her careful analysis of the relevant facts should be obvious not only to the expert witness, the judge, and jurors but also to any other honest expert who looks at the same facts.

The technical expertise featured in My Cousin Vinny is simple enough to understand. We have grown accustomed to the technology of the motor car. But that technology, like the steam engine and the railroad before it, began as an invention and then slowly moved into mass production and widespread assimilation by mainstream society over a number of decades. There is nothing really surprising about learning that an aspiring hairdresser just happened to grow up with expert auto mechanics and mastered the subject to the point that she can provide useful testimony as an expert witness. Similar expertise is applied in hundreds of cases almost every day involving legal disputes over automotive products liability, accident reconstruction, or the alleged criminal use or abuse of motor vehicles. Indeed, we have all become experts to a degree about how automobiles function and fail to function.

The point of considering the lessons to be learned from Mona Lisa Vito, as well as the real experts cited in this chapter, is to try to determine whether their stories can instruct us about how to build fledgling IT expert witness communities or to evolve existing ones into something useful for those who do find themselves on the witness stand. Consider the following analogies drawn between cited examples from other areas and similar community structures in the IT area.

Professional Problem-Solving Associations

Lindemann found that he needed to become associated with a group of professionals who could address the diverse set of requisite skills required to perform complex investigations. Lindemann’s organization, NecroSearch International, specializes in the search for clandestine grave sites, and its member scientists and investigators work on a volunteer basis at the request of law enforcement agencies.

An example of an analogous international organization for IT professionals who feel they may have a forensic bent might be the Forum for Incident Response and Security Teams (FIRST). FIRST was chartered in 1990 as an umbrella organization under which incident response teams worldwide could exchange information and coordinate investigations. Among the charter member teams is the Computer Emergency Response Team, which was formed in response to the 1988 Morris Internet
worm incident and charged with the responsibility for handling security incidents on the Internet. FIRST has grown steadily over the past decade to its current level of more than 100 member teams. It is structured as a coalition of incident response teams drawn from academic institutions, commercial organizations, and governmental agencies. FIRST is an international organization, with members in all the major global regions. The members comprise a network of resources for incident information sharing and prevention for both the members themselves and society at large.

As most network intrusion cases occur over the Internet, the ability to analyze the artifacts of such attacks requires cooperation across the entire global network infrastructure. Furthermore, as the time during which such attacks take place is compressed, it is also very important to have a competent set of incident-handling peers, all sharing information on current attack methods and observed activity trends. Add to this the need to conduct analyses in consultation with cross-disciplinary technical experts and the appeal of consortium-structured professional organizations such as FIRST and NecroSearch International is understandable.

Note that the information sharing and discussion venues provided by FIRST to its members conform to the advice given by both Ewell and Goff regarding experts’ needs to stay current and competent in their areas of expertise. It behooves those fortunate enough to find that they enjoy and do well in forensic assignments to contribute to communities of interest and to the establishment of standards and certification for the forensic application of their expertise by others. Almost every forensic discipline sooner or later must find an efficient and equitable way to report, criticize, and correct any poor or unethical practices of expert witnesses. Few professional communities have come up with effective solutions for handling this problem.

What would the charter of an international computer forensics organization look like? The founders of FIRST have defined their mission as follows.18

• Provide members with technical information, tools, methods, assistance, and guidance.
• Coordinate proactive liaison activities and analytical support.
• Encourage the development of quality products and services.
• Improve national and international information security.
• Enhance the image, recognition, and status of the incident response and security community.

The strategic plans and goals for this voluntary (membership by invitation only) organization include those listed on the following page.19

19. FIRST.ORG, “FIRST Statement of Mission and Strategic Goals.”
• Encourage trust and cooperation.
• Implement effective, secure communications.
• Streamline operational coordination.
• Improve internal FIRST operations and organization to meet the needs of the changing environment.
• Promote the FIRST concept and approach to incident response.
• Create cooperative research and development.
• Facilitate sharing of tools, techniques, and information.
• Provide technical education and support.
• Exhibit organization and leadership.
• Investigate funding, support, and collaboration.

IT experts should constantly scan the Web and the available literature for information about new and evolving organizations, offering collaboration and training in their professional areas of interest and also in other relevant areas of interest. The fact is that both judges and jurors look to the existence and the social significance of these organizations and communities to decide how much credibility to give to the qualifications and experience of anyone claiming to be a technical expert. FIRST is just one example of these communities that are beginning to spring up and establish standards, thereby providing judicial confidence in the expertise of individuals who wish to enter the forensic fray.

Government Training Programs for Forensic Experts

Goff, the forensic entomologist, has offered advice regarding skills required by forensics experts who were subject to frequent court appearances. You may remember that such experts reported that due to their heavy caseloads, they have problems recalling the details of each individual case. Goff’s advice was to compensate for these caseload issues by providing clear sets of policies, practices, and procedures. To accomplish this, nonprofit groups of volunteer experts can collaborate on cases and train each other or provide training for others, or statewide or national professional communities of interest can establish standards, certification, and training programs. Either way, the nature of forensic presentations in every recognized discipline sooner or later requires some consensus about what state-of-the-art forensic performance entails at the state or national level.

Whether the expert handles only one case or becomes a seasoned veteran of forensic assignments with his or her own specialized and staffed systems for maintaining numerous cases, the fact remains that accepting a forensic assignment usually means the expert will face an opposing attorney, who has some level of experience in expert witness examination, and in all likelihood an opposing expert, who will quarrel with
the methods or opinions of the witness. Training in what to expect when testifying in an advocacy proceeding will prove not only helpful to the beginner but essential to anyone who wants to continue to provide an adequate performance as an expert witness in case after case as the beginner becomes habituated and his or her habits become known to opposing attorneys.

This is certainly not news for IT experts whose job descriptions include forensic duties. Raemarie Schmidt developed a training program for forensic experts of all kinds over ten years ago when she ran the Milwaukee drug identification section for the Wisconsin state crime lab. Like more traditional experts, her computer forensic evidence examiners were required to complete a lengthy training program, with actual moot court experience and periodic practice sessions, to become qualified by the lab as competent witnesses. This qualification was required before any of the computer forensic examiners were allowed to sign off as the examining expert and to give testimony in a hearing or trial. Many of the graduates of this training program have moved on to successful careers as computer evidence forensic experts in both the public and private sectors.

Schmidt continues to train computer forensic experts in law enforcement and to learn about new tools and techniques for conducting computer forensic examinations and for testifying in court about the results of those examinations. She is presently affiliated with the cybercrime section of the National White Collar Crime Center, a nonprofit organization headquartered in Richmond, Virginia, that provides support to state and local law enforcement organizations as they deal with economic and high-tech crime. Schmidt and other experienced experts provide basic and advanced training in digital forensic tools and techniques and help prepare law enforcement investigators and prosecutors for courtroom presentations of digital forensic evidence.

This program annually trains approximately 500 state and local law enforcement agents to conduct basic computer forensic examinations, but as yet it does not have a dedicated program similar to the one Schmidt put in place ten years ago in Wisconsin. Such programs as Schmidt’s current training programs offered at the National White Collar Crime Center provide a beginning for law enforcement organizations interested in the problems that accompany the ever-increasing docket of IT-related crimes. Schmidt is eager to find the time and resources needed to add more forensic training programs for law enforcement investigators and prosecutors. Such programs focus on the skills state and local government experts require in order to testify competently and convincingly about technical and scientific findings.20

20. Personal communication from Raemarie Schmidt, February 2002.
Beginning forensic examiners can quickly come to understand and apply the basic tools, practices, and procedures of computer forensics for purposes of examining data in a computer or digital forensics for application to digital media. They then need to recognize there is a very big difference between finding all the relevant evidence without contaminating or altering it and communicating those findings as well as opinions about the significance of those findings to a judge and a jury. When the resources and the mandate to prepare staff experts to perform well in the field, the lab, and the courtroom exist, the success of the parties and their legal counsel who must rely on those experts is dramatically improved. Conversely, when an expert who lacks this extensive forensic training and experience is asked to perform a forensic assignment for the first time, it may behoove that expert to consider what sort of training and experience in testifying the opposing expert may have had, in addition to his respective expertise in the relevant technical or scientific fields. Proficiency in the field and in the lab will not necessarily suffice for effectively communicating the significance of the evidence on the witness stand.

Chris Stippich was one of Schmidt’s best forensic examiners in Milwaukee. He graduated from the expert witness training program there and has gone on to train law enforcement and private corporate security professionals as experts in conducting computer forensic evidence examinations. Currently he helps to lead a private company, which provides computer evidence forensic equipment and training to corporations and government agencies. Stippich and his company, Digital Intelligence, have taken the packaging of computer forensic investigation equipment to the level of forensic network construction. Their products allow multiple forensic clients to access case and image files simultaneously without duplicating information on several forensic workstations. Stippich now designs, implements, and maintains forensic laboratory networks around the world.

Reminiscing recently at a cybercrime conference, Stippich had both good and bad news to report about the training he received in Schmidt’s program back in Milwaukee. He recalled his first appearance many years ago as a forensic expert in a jury trial, after he completed his rigorous training. With Schmidt sitting in the audience to evaluate Stippich’s first appearance as a forensic expert, he strode confidently to the witness stand. As he stepped up to take his seat, unbeknownst to him, his right suit pant pocket caught on an exposed piece of wood moulding. As Stippich moved to the seat to take the oath, he felt and heard his pant leg ripping from the edge of his pocket to his cuff. The quite audible sound announced to the expectant jurors the sudden appearance of his fully exposed right leg clad in unfashionably short socks. There was nothing for Stippich to do but to cross his still-clothed left leg over his right one.

So the bad news is that even the best forensic training program in the world will not prepare you for everything that can happen in the courtroom!22

Jury consultants and others who study the dynamics of nonverbal communication like to point out that the head and hands are the only naked parts of the body that the judge and the jurors can see during the taking of testimony from the witness stand. For that matter, this is the case in most other verbal communication situations where people are speaking at close range and that don't take place on the beach or in the sauna. So it is a very dramatic turn of events when the previously clothed leg of a male technical expert is suddenly exposed in this way. This is also why most judges become concerned and tend to frown on female experts, even those with the most attractive, athletic legs, who alight the witness stand wearing a microminiskirt.

Nevertheless, these things happen, and that's the point of sharing with you the embarrassment of a torn garment. In this case, the judge immediately asked Stippich if he would like a recess. Stippich shook off the shock and allowed himself to laugh with the judge and the jurors at the unexpected and quite humorous turn of events, then persevered and gave his testimony in an organized and effective way. Thus he won the emotional as well as the rational support of the judge and jurors. Instead of a problem, the torn pants created instant sympathy and effectively disarmed the opposing counsel from even thinking about trying to take advantage of Stippich on cross-examination due to his predicament.

Once again, the good news is that diligent preparation for what is expected, coupled with solid testing through staged moot court appearances in a dedicated training program like the one pioneered by Schmidt, yield a witness who is better able to deal with the unexpected as well as the mundane. When the unanticipated happens, this preparation can make all the difference when you actually take (or attempt to take) the stand. What may seem to be a completely negative, disturbing, or destructive event can be turned into an advantage for the well-prepared and composed expert witness.

In Forensics, No Expert Is an Island

The advice from experienced expert witnesses in other forensic scientific specialties as well as the entertaining example of Mona Lisa Vito in My Cousin Vinny offer a wide array of views that point to some of the elements the IT community must build in order to support the testimony of IT experts testifying in litigation. One of the most important areas for exploration and involvement by individual experts is the appropriate professional communities of interest for their areas of expertise. Experts may well find that such involvement is required before they can count on being qualified and approved as an expert witness.

22. Personal communication from Christopher J. Stippich, February 2002.
You may believe that the existing communities of interest for your technical area of expertise are less than adequate. Or, you may bemoan the necessity of such formal structures in order to vouch for the technical credentials of those involved. However, it appears inevitable that such formal communities will be required in order to allow the rest of society to make sense of an increasingly complex technological landscape when it needs to be traversed in the course of a highly technical lawsuit.

The story of Robinson Crusoe is one of the most potent myths about the ability of individuals to go it alone and to create entire worlds of meaning and practical application. Unfortunately, that myth of rugged or extreme individualism, so much a part of the general American psyche, has little utility for the practicing technical expert witness. In fact, when he or she sets sail from some isolated island of successful technical enterprise into the shark-infested waters of litigation, isolation from the support of a community spells doom. For some of the reasons already given, and for many more reasons that are yet to come in the following pages of this book, it is clear that without establishing membership in a recognized professional or technical community of interest, it will be very difficult for a technical expert to convince a judge and jury that his or her particular expertise and proffered testimony should be taken seriously.
Taking Testimony Seriously

Why Do So Many People Cringe at the Thought of Testifying?

For some IT professionals, participation in any of the formal, regimented rituals of life is mind-numbing, something to be avoided at all costs. For other IT experts, legal and business tasks and functions are unappealing because they violate two of the most important conditions for happiness in the technical world: first, the need for a great deal of control over the environment and conduct of one's life and work, and second, the need for a constant stream of intellectual stimulation. Were members of the IT community asked to name two things universally reviled by IT experts, they'd likely select micromanagement and boredom.

For those IT wizards who possess these aversions, the first question that might arise in the discussion of expert witness skills is “Why would I ever want to do something like that?” Why should any self-respecting IT expert ever want to get involved in the legal process? After all, the worst attorneys (who seem to be the only ones we ever see featured on the nightly news, depicted in TV shows or movies, or described in novels) are usually characterized as ranging from obnoxious to sleazy, terminally bureaucratic to heavy-handed, archaic to simply slow-paced. This implies that any involvement with the legal community is likely to produce either intense discomfort or boredom for the IT professional who is unfortunate or foolish enough to be caught in its clutches.
In this chapter, we begin the process of arguing the case for why you, as a technical expert, should look forward to your day in court. Our message is simply that it is far better for you to prepare to be a witness (expert or otherwise) as a basic part of your professional duties and skills than to continue to deny that your day is coming and then become bitter about the results when you are finally called to the stand. As you will see evidenced in a major case, *U.S. v. Microsoft*, regardless of your status and personal views of the desirability of becoming involved as a witness, you might not be able to opt out of it. The witness stand is a powerful symbol within our legal system. Potential witnesses (even when they are as important an individual and as highly acknowledged an expert as Bill Gates) do not always have the final say about whether they end up there. The power of testimony is a two-edged sword, one that can devastate those associated with the witness as easily as help to defend them in a criminal case or advance their just cause in civil litigation. Once compelled to serve as a witness, it is too late to begin rationalizing about why you don’t want to be there and the fact that you don’t know how to prepare for the experience. Unless you have taken the time to carefully prepare both yourself and your testimony, there are no guarantees that you will survive the experience with reputation, finances, and sanity all intact.

However, the reality of the litigious world in which we live does not need to terrify the potential expert witness. Much like learning to dance gracefully, to competently play a competitive sport, or to persuasively speak in public, we believe that you can develop some basic skills that will enable you to survive the experience of serving as an expert witness. With guidance from the attorneys who are involved with the witness, a beginner can also learn to master the practice to the extent that it becomes an enjoyable and profitable experience. In this book, we provide information and techniques for motivated technologists that will prepare them for this journey.

**Why Should a Technical Expert Want to Work in the Legal System?**

There are three very good reasons to acquire the skills necessary to become a good expert witness: (1) simple self-preservation, (2) the duty of any professional to help shape his or her community of interest, and (3) the very practical need of any expert to improve communication skills. Beyond these personal and professional responsibilities, experts must also attempt to affect the controls that society will inevitably impose on their own IT industry. When the industry does not develop its own acceptable standards and professional self-regulatory safeguards, outside of those imposed through the judicial process on a case-by-case basis, experts must be prepared to contribute to that process, in lieu of any other effective alternatives.
Given that our legal system is based on precedent, it’s important to encourage courts to resolve conflicts involving technology using adequate and accurate explanations of the technology. Bad legal judgments based on poor or incomplete understanding of technical systems or devices are especially problematic since they are likely to affect the development of industry standards. Bad decisions can also create confusion in understanding where the definition of best practices stands for a given forensic discipline at any given time. These ad hoc standards tend to subject the profession to legal control by default rather than to gradual improvement resulting from constant peer review and constructive criticism, followed by general acceptance of improved standards by recognized experts within the discipline. This can stall needed technological advances—even those that remedy acknowledged flaws in existing systems and technology. For similar reasons, it’s also important for information technologists to be heard in regulatory and legislative processes. These can lead to carefully crafted laws or regulations contributing to appropriate solutions to recognized problems.

Technological advances can drive broadscale, even revolutionary changes in everyday life. This often intimidates the general populace, many of whom neither work with nor understand the technologies. Although technological change in the United States has been going on constantly for nearly two hundred years, IT has sped up the velocity of that change and arguably also the pace of social changes in adopting and then adapting to these new technologies. Similar to the adoption of motor vehicles, IT has had unanticipated and profound effects on modern life, changing common perceptions of ownership, control, time, and space. As IT enables access to information that many people believe should remain private, it provokes considerable debate about privacy rights and personal information control. Its automation tends to eliminate human intervention from many mainstream processes (and the employment that human intervention represents), thereby threatening the personal security of some members of society. This introduces subsequent complications, making it difficult for society to fully understand how best to assign responsibility when IT failures result in financial or physical injuries—without killing the technological goose that lays the golden eggs.

It is predictable, even understandable, that those people most threatened by technology should seek to alter its perceived ill effects by lobbying their government representatives for additional regulation. At times, government can consider restrictions so Draconian that they can serve as roadblocks to technological progress. Similarly, many seeking to control perceived threats and the inevitable damages that accrue from new technology may attempt to deal with such problems by using the court system in both appropriate and inappropriate ways. Some file lawsuits, while others allege criminal violations by those who use the technology in a less orthodox fashion. Determining whether a lawsuit is appropriate or inappropriate often requires the
early assistance of competent experts who can help the attorneys and the courts separate the dross from the gold in claims and counterclaims. Experts help provide a layperson lawyer and his or her client with a correct and comprehensible understanding of what the technology was designed to do and what it actually did in a particular situation.

All of this is quite in keeping with the American tradition of the law playing catch-up with an evolving technology that large portions of society are embracing. The problem is that we have never had to deal with a new technology quite as pervasive as IT adopted in so short a time. Not only does IT radically change the ways we communicate and process all kinds of information; it also has a dramatic effect on the very nature of a particular kind of information that the legal system calls evidence. Given the precedent-driven nature of common law, technology-related legal actions carried forth in the absence of objective and thoughtful technical experts can create problems. They represent a very shaky foundation on which to erect a set of standards and precedents to guide future attorneys and judges in the essential discovery, production, and sharing of evidence required for the efficient and equitable litigation of cases. As problematic as it is to have too few decisions to guide us (as is the case now with regard to IT problems and solutions), once even a few bad decisions are made it can be very difficult to correct or reverse them through the legal system.

Even if you do not believe that either your own self-interest or your duty to contribute to the creation of appropriate standards requires you to get involved with giving testimony in court, a prudent IT professional should still acquire expert witness skills. There has been a steady growth over the past few years in the number of lawsuits involving IT-related services and issues raised in civil cases regarding the discovery and authenticity of electronic evidence. Though you may read this book and never anticipate volunteering to be qualified as an IT expert or even as a non-expert witness in court, you will almost certainly be called on to serve in such a capacity if you continue to work in this area. You may be asked by an employer or a party to a lawsuit to play the additional role of a witness or a consultant to in-house counsel or to another expert witness. Furthermore, the different roles IT professionals are asked to play may depend on their existing roles in managing or consulting on a technical issue that becomes involved somehow in litigation. In other words, it is very likely that during the course of your IT career you will sooner or later be called upon to serve as a witness, at least to the facts relevant to some issue in a case in controversy. Your expertise will be at issue one way or another. This may be due to a discovery that occurs on your professional turf or a disaster that occurs on your watch. Everyone needs certain core skills to be the most effective witness he or she can be. While these threshold skills will not necessarily be sufficient to qualify you as a top-flight expert witness, they will serve as the foundation on which to build solid expert witness skills that you can apply to provide effective testimony.
Everyone Is Subject to Subpoena

In Western culture, when push comes to shove and we really need to figure out what happened, our legal system has decreed that we’re all potential witnesses. On reflection, this should not seem all that unusual. We are, after all, members of an open society that has endorsed neither royalty nor a privileged aristocracy as immune from giving testimony in our courts. Most of the belief systems underlying the everyday conduct of the culture rely on testimony to convey key information to us on a daily basis. As in other life skills, your skills as a witness can vary based on personality, experience, training, and attitude. The ability to communicate, both verbally and nonverbally, and the ability to relate to those outside your inner circle of friends and associates are clearly skills that you can hone over time. What may not be as clear to those who are celebrated for their mastery of technology is the impact of neglecting the development of such skills.

An example of this point should be familiar to most readers since it was splashed in lurid detail across most of our television and computer screens in 1999 during U.S. v. Microsoft Corporation, the antitrust case against the Microsoft Corporation. In late April 1999, the U.S. government released the full transcripts of the deposition of Bill Gates, President and CEO of Microsoft. At the same time, the government released the video recordings of that deposition.

The negative reaction to the public display of the three-day deposition (which surfaced for the first time during the trial that took place several months after the deposition) was immediate and intense. Gates has been criticized as not having been at his best during the deposition, with a demeanor that has been characterized as swinging from agitated, bored, or just plain irritated to impatient and uncooperative. The legal experts retained by the media to comment on the trial were flabbergasted by Gates’s performance in the deposition; they mused about and openly questioned the quality of the Microsoft legal strategy in not better preparing Gates for his testimony.

Consider this exchange between Gates and David Boies, lead counsel for the government. Some commentators have suggested that this deposition is a textbook example of how not to conduct oneself during testimony. The questions explore Gates’s communications concerning the intentions of Microsoft to give away its browser.

Q (David Boies): Were you in 1996 trying to get financial analysts to develop a more negative and more pessimistic view about Netscape’s business prospects?

A (Bill Gates): Except through the indirect effect of them seeing how customers received our products and our product strategies, that was not a goal.

Q: If that was not a goal, sir, why did you say in substance that the Internet browser would be forever free?
A: That was a statement made so that customers could understand what our intent was in terms of that set of technologies and how it would be a part of Windows and not an extra cost item, and so people would have that information in making their decisions about working with us on Windows.

Q: Now, is it your testimony that when Microsoft told the world that its browser would be forever free, that the desire to affect financial analysts’ view of Netscape played no role in that decision?

A: I can be very clear with you. The reason we told people that it would be forever free was because that was the truth. That’s why we told them that, because it was the truth.

Q: Now, Mr. Gates, my question to you—

A: That’s the sole reason we told them.

Q: And my question to you is whether or not the truth was, in part, due to your desire to adversely affect financial analysts’ view of Netscape. Did that play any role, sir?

A: You’ve been asking me a question several times about why did we say something. We said it because we thought our customers would want to know and because it was the truth. And that explains our saying it completely.

Q: And what I’m asking you, sir—and it may be that the answer to my question is, “no, it played no role.” But if that’s your answer, I want to get it on the record. And my question—

A: Are you talking about saying it?

Q: Yes.

A: Or how we came up with our decision about how to price our products?

Q: Let’s take it each step at a time, one step at a time, so that your counsel doesn’t say I’m asking you a compound question, okay? And first let’s talk about saying it. I know you’re telling me it was the truth. In addition to it being the truth, did the fact that this would, in your view, adversely affect the view of financial analysts of Netscape play any role at all in your decision to announce that your browser would be forever free?

A: I actually think that came up in response to some questions that people asked in an event we had on December 7, 1995. So it wasn’t so much a question of our saying, okay, we’re going to go make this a headline, but rather, that there were questions that came up during that, including our future pricing plans.

Q: This was a meeting on December 7 of what year?

Q: And was it attended by people outside Microsoft?
A: It was a press event.

Q: And prior to attending that press event, had you made a decision that it would be forever free?
A: Well, if you really want to probe into that, you’ll have to get into the different ways that we made Internet technology available. In terms of what we were doing with Windows 95 and its successors, yes. In terms of some of the other ways that we offered the Internet technologies, there was some—there hadn’t been a clear decision about that.

Q: When you refer to other ways that you offer Internet technologies, would you explain for the record what you mean?
A: Oh, we created an offering that ran on the Macintosh OS that offered some but not all of the capabilities that we put into Windows and used a common branding for that. And we came up with a package that ran on a previous version of Windows, Windows 3.1, and made an offering of that. Subsequently I mean, not on that day, but subsequently.

Q: And those were charged for; is that what you’re saying?
A: I’m saying that before the December 7th event, it was clear to everyone that in the Windows 95 and its successors, that the browser technology would be free for those users. But it was unclear to people what we were going to do with the other ways that we packaged up the technologies.

Q: Would you read the question back, please?
(The following question was read: “Q: And those were charged for; is that what you’re saying?”)

The Witness: Well, they weren’t available. So if we’re talking about December 7, 1995, it’s not a meaningful question. Subsequently those products were made available to the customers without charge. But I’m saying that there was some lack of clarity inside Microsoft even up to the event itself about what we were going to do with those other ways we were providing Internet Explorer technology.

Q (Mr. Boies): Uncertainty as to whether you would charge for them; is that what you’re saying?
A: That’s right.

Q: Okay. Prior to the December 7, 1995 meeting, had a decision been made to advise the world that not only would the browser be free, but it would be forever free?
A: Well, it’s always been the case that when we put a feature into Windows, that it remains part of Windows and doesn’t become an extra cost item. So it would have been kind of a silly thing for anyone to ask, including about that particular feature. And by this time, of course, browsing is shipping with Windows 95.

Q: Exactly sort of the point I wanted to come to, Mr. Gates. When you put things into the operating system generally, you don’t announce that they’re going to be forever free, do you?

A: Yes, we do. If anybody—

Q: You do?

A: If anybody asks, that’s obviously the answer we give.

Q: Have you finished your answer?

A: Yes.

Q: Okay. Could you identify for me the products other than browsers that Microsoft has announced that they would be forever free, expressly said, “These are going to be forever free”?

A: As I said to you, I think that actually came up only in response to some questions. So it’s not proper to ask me and suggest that we announced it like it was some, you know, press release announcement or something of that nature.

Q: Well, let me come back to that aspect of it and just ask you for the present. What products has Microsoft said publicly, whether in response to a question or otherwise, that these would explicitly be forever free?

A: I’ve said that about the broad feature set that’s in Windows.

Q: When did you say that, sir?

A: I remember an analyst talking to me about that once at an analyst meeting.

Q: When was that?

A: It would have been one of our annual analysts meetings.

Q: When?

A: Not this year. Either last year or the year before.

Q: Is there a transcript of that analyst meeting?

A: Not with the conversation with that analyst, no.

Q: There are transcripts of analysts meetings, aren’t there, Mr. Gates?

A: Only of the formal Q and A, not of the—most of the Q and A, which is where people are mixing around with the press and analysts who come to the event.
Q: And this question that you say happened happened after the transcript stopped being taken; is that what you're saying?
A: That's my recollection, yes.1

So What Happened in This Deposition?

We do not intend to second-guess the strategy of Gates and his legal team. Many analyses performed by experts in the business and legal communities alike criticize either the behavior of the witness or the legal team's performance. A typical critique comes from David Bank, staff reporter at The Wall Street Journal, in his book Breaking Windows:

As a legal tactic, Gates's approach backfired. Microsoft's attorneys claim they believed the videotaped deposition would never be played in court. That's plausible, if only because they could hardly have staged the deposition more poorly. In the harshly lit Microsoft conference room, Gates projected a visual image of an evasive smart aleck. It was a win for the government. The video effectively countered Gates's popular persona as Chief Digital Seer.2

Regardless of the Microsoft legal team's strategy and its relative effectiveness in the final analysis, the transcripts of Gates's testimony emphasize the importance of a witness considering what the fact finder sees when testimony is given. What becomes evident to a spectator who is also a technologist is the mismatch between the naïve expectations of the technical witness and those of the ultimate fact finder in the formal context of a trial. Technologists may initially think this is reasonable and appropriate conduct for an antagonistic exchange between two technically savvy people. But this may not be as apparent to a fact finder who is reviewing these deposition tapes at a later date to determine what actually happened and to decide an important legal case. So, what could conceivably be considered acceptable, though rather cantankerous, technical discussions by an acknowledged technical expert with an attorney, about things they both presumably know a great deal about, can still place the witness in a bad light with a judge or jury. The sort of demeanor that is necessary to present and preserve personal and professional credibility in formal legal proceedings turns out to be oceans apart from just getting the best of another techie or dodging a difficult ques-

1. All quotations of Gates’s deposition testimony in this chapter are taken from the U.S. Department of Justice Antitrust Division Web site, accessed in July 2002 at http://www.usdoj.gov/atr/cases/ms_gates2.htm.
tion posed by an astute attorney. In this particular case, such decorum was even more important, given that Gates’s opponent had a stacked deck comprised of hundreds of prejudicial e-mails to and from the witness, already thoroughly analyzed by a team of lawyers and now in the mind and hands of a highly skilled cross-examiner.

It was no secret that the government and Boies had powerful statements in the form of e-mails before the deposition began. The record of the decisions by the witness as to how to react to such locked and loaded questions, obviously based on Gates’s and others’ multiple prior statements, allows future witnesses the luxury of benefiting from Gates’s discomfort. These transcripts can provide hours of free training in considering how you would have handled these kinds of questions in a deposition or trial.

The point of this chapter is not to criticize Gates or his lawyers for what happened in the Microsoft trial but to learn from the record of that performance. Fortunately, these videos of one of the most important depositions in the world of IT litigation are all available for viewing, through the interlibrary loan services of state depository libraries for public government documents.

Every Transcript Tells a Story

During the widely covered courtroom proceedings associated with *U.S. v. Microsoft*, most trial observers realized that Bill Gates was testifying as a witness to facts—and as something like an interested party witness. While Gates was clearly not the corporate party to the lawsuit, he was at least the personification of Microsoft in the popular mind, and his testimony was probably the most important testimony in the entire case. Gates’s special status as a witness, whether regarded as a fact, expert, or symbolic party witness, was especially apparent given his testimony regarding e-mail communications and meetings with Microsoft officials during which competitive strategies were discussed. However, few commentators acknowledged that, at times, Gates also could have been perceived by the fact finder, who in this case was a federal judge rather than a jury, as testifying (or at least as having been characterized by the government examiners from time to time) as an expert. After all, Gates was acknowledged for his technical acumen and was certainly able to address and explain technical details of Microsoft’s software products to the court.

When perusing all the examples of testimony contained in this book (and in the online and videotape versions available for sale or library loan), keep in mind that when someone is called to the stand, that witness may be qualified as an expert but used only to testify about what he or she saw, heard, or did. In this role, the witness’s expertise may be largely irrelevant to his or her role as a witness in a particular hearing or trial. In the example cited here, Gates is a special kind of witness, offering testimony that can be considered by the fact finder as going well beyond his knowledge of the facts and touching on his presumed expertise. He is also testifying in a context that
places him in a very similar position to a party witness in the case, which heightens the importance of his performance to the fact finder. Gates is, in the eyes of the fact finder, at least the most influential person in deciding on and recalling in his testimony the acts of Microsoft, the corporate party, which were alleged to have given rise to the claims made by the United States. For such witnesses, certain expectations and presumptions by the fact finder naturally come into play as to how to view and consider the testimony that the witness chooses to give.

This is high-risk testimony for anyone placed in such a role, especially with the well-known expertise and depth of involvement that this witness is assumed to have had in the technologies his company produced. Nevertheless, any witness, whether a routine fact witness or the most important representative of a party involved in high-profile, high-stakes litigation, arrives at the witness stand in possession of his or her skills and experiences. This accompanying baggage of expertise or the lack thereof can be injected into the case by either or both parties. More importantly, perhaps, in the case in point is the assumption the fact finder is likely to make about the knowledge and expertise that such a witness has that can help the fact finder determine all the facts in the case. It therefore behooves the attorneys and the witness to consider carefully how this potential expertise may be used or abused and what the fact finder can be anticipated to make of it. In the Microsoft case, the reasonable expectations of the fact finder as to how such a witness should behave in the course of testimony apparently came into play, to the dismay of the defendant company. The judge’s determination of the credibility of this key witness, as well as other witnesses for the company, and the judge’s decision in deciding the outcome of the case tried before him may have been affected by Gates’s behavior during the three days of deposition testimony.

Quibbling with Counsel Can Be Counterproductive

On further review of the transcript, several commentators suggested that Gates was less helpful than he might have been to the questioners in his deposition, weaving and dodging what appear to be the simplest questions asked him by the government’s counsel.

Q (Mr. Boies): Let me show you a document that has been marked as Exhibit 386. The second item here purports to be a message from you to a number of people dated April 6, 1995. Do you see that?

A (Gates): Yes.

(The document referred to was marked by the court reporter as Government Exhibit 386 for identification. . . .)
Commentary: Note that this is one of many instances during the deposition when the government’s attorneys confronted the witness with a copy of an e-mail and introduced it into the record so that it would be clear to the fact finder what was being discussed. This forces the witness to admit or deny that this e-mail is indeed his prior statement, regardless of what interpretation he attempts to give its text. This is also an example of the power of e-mail and other recorded statements to shape and control the examination of a witness and to limit or change the inclinations of witnesses to explain away suggestions of counsel in the absence of such prior statements.

Attorneys also recognize that this power can serve as an impediment to an expert in communicating with attorneys appropriately, effectively, and efficiently during the assignment. As they further recognize that e-mail exchanges have replaced telephone conversations and that the rules of procedure dictate what attorney-expert communications must be disclosed, they often enter agreements not to subpoena e-mail communications between attorneys and their experts during the expert’s assignments.

Let’s return to Gates’s deposition.

Q (Mr. Boies): Did you send this message on or about April 6, 1995?
A: I don’t remember sending it, but I don’t have any reason to doubt that I did.

Q: Now, attached to this message, as it was produced to us, I believe, by Microsoft, is a two-page document headed “Netscape as Netware.” Do you see that?
A: I see a three-page document, yes.

Q: Yes, three pages. Pages 3558 through 3560. Have you seen this before?
A: I don’t remember seeing it before.

Q: Now, the title of this three-page attachment is “Netscape as Netware” and there is a footnote that says, “The analogy here is that the major sin that Microsoft made with Netware was to let Novell offer a better (actually smaller and faster with simpler protocol) client for networking. They got to critical mass and can now evolve both client and server together.” Do you see that?
A: Uh-huh. Yes.

Q: In or about April of 1995, was Microsoft concerned with Netscape getting to what is referred to here as critical mass?
A: I don’t know what Paul meant in using that word.

Q: Do you have any understanding at all about what Mr. Maritz meant when he referred to a competitor getting “to critical mass”?
A: He seems to be using that phrase with respect to Netware or Novell, but I’m not sure what he means by it.
Q: He is also using it with respect to Netscape in the analogy, is that not so?
A: It's not clear that the term “critical mass” is part of the analogy, is it? It's not to me.
Q: Okay. This document is about Netscape, it's not about Novell; correct, sir?
A: I didn't write the document. The document appears to refer to “Netscape as Netware” as its title, so Novell is talked about in this document and a lot of things seem to be talked about here. Do you want me to read it?
Q: If you have to, to answer any of my questions. Netware is something from Novell; correct, sir?
A: Fact.
Q: What?
A: Fact.
Q: Does that mean yes?
A: Yes.
Q: And what Mr. Maritz here is doing is analogizing Netscape to Netware; correct?
A: It's kind of confusing because Netscape is the name of a company and Netware is the name of a product and so I'm not sure what he is doing. Usually you think of analogizing two products to each other or two companies to each other, but he appears to be analogizing a company to a product, which is a very strange thing.
Q: Well, sir, in April of 1995, insofar as Microsoft was concerned, was Netscape primarily a browser company?
A: No.
Q: It was not?
A: No.
Q: All right, sir. In this document do you understand what Mr. Maritz is saying is that Microsoft should not make the same mistake with Netscape's browser as it did with Novell's Netware?
A: I'd have to read the document. Do you want me to?
Boies continues the questioning.
Q: And the question is, do you understand that what this document is saying is that Microsoft should not make the same mistake with Netscape's browser as it did with Novell's Netware? And you can read any portion that you want, but I am particularly interested the heading which says “Netscape as Netware”
and the footnote right off that heading, “The analogy here is that the major sin that Microsoft made with Netware was to let Novell offer a better (actually smaller and faster, with simpler protocol) client for networking. They got to critical mass and can now evolve both client and server together.”

A: Are you asking me a question about the whole document?
Q: No, I didn’t think I was. I thought it was possible for you to answer the question by looking at the title and first footnote.
A: I thought you were asking me what the document is about.
Q: I think it’s possible to answer the question by looking at the heading and that footnote. My question is whether, as you understand it, what Mr. Maritz is saying here is that Microsoft should not make the same mistake with Netscape’s browser as it did with Novell’s Netware?
A: Does it say “mistake” somewhere?
Q: All I’m asking you is whether you interpret this that way.
A: Does it say “mistake” somewhere?
Q: Mr. Gates, we have had a conversation about how I ask the questions and you give the answers. I think—
A: I don’t see where it says “mistake.”
Q: It doesn’t say “mistake.” It says “major sin.” If you think major sin is something different than mistake, you can answer the question no, that’s not what you think Mr. Maritz means. My question is clear. You can answer it yes, no, or you can’t tell.
A: What is the question?
Q: My question is whether—as you understand what Mr. Maritz is saying here, is he saying that Microsoft should not make the same mistake with Netscape’s browser as it did with Novell’s Netware?
A: No, I think he is saying something else.
Q: Okay. Do you think that when Mr. Maritz uses the term “major sin” that Microsoft made, he is referring to what he thinks is a mistake?
A: Probably.

One might argue that Gates was, in these depositions, fulfilling his responsibility to answer the questions posed by the opposing counsel and furthermore to answer them in as truthful a fashion as required without volunteering any information. One might further posit that he answers these questions while complying with the most minimal requirements of testifying. Unfortunately, he may have neglected one of the
most important considerations for an effective witness—appearing credible in the eyes of the court. It is typical for attorneys to advise almost any witness, whether an expert or not, to just answer the questions and in doing so to avoid volunteering information beyond that necessary for an adequate answer to what is being asked. Before depositions were routinely videotaped, this served as standard operating procedure. Everyone knew that if the case did not settle, as most cases do, the witness would testify at trial anyway. Furthermore, and perhaps more importantly, concise answers were advisable because reading lengthy depositions was boring for the jury. Videotaping depositions changes this. When a deposition is videotaped and can be introduced as substantive evidence at the trial in lieu of calling the witness to the stand, the witness must balance the original desire for terse answers with the desire to enhance his or her credibility.

Fact finders (in this case the judge) take many factors into account when considering the testimony of witnesses. The most crucial of these is credibility. A necessary part of establishing and maintaining credibility is acting with a demeanor proper to a witness who has a great deal of relevant information to bring to bear on the issues in a given case. For whatever reasons (strategic or otherwise), Gates is generally considered by his critics to have missed getting the highest marks in demeanor, which may have undermined the credibility of his deposition.

When Bad Strategy Happens to Competent Technologists

As the deposition continued, Gates’s testimony descended into increasing murkiness.

Q (Mr. Boies): The November 27, 1996, Nehru e-mail that you sent around is headed “Netscape Revenues”; correct, sir? And it is a discussion of an analysis of Netscape’s revenues?

A (Gates): I didn’t send it around. Amar sent it around. I enclosed it.

Q: I thought we established that you then sent it around.

A: I enclosed it, yes.

Q: When you say you enclosed it, that means it’s enclosed with what you have written so that it goes around to everybody that your e-mail is directed to; correct?

A: Well, Amar had already sent it to quite a large superset of the people I copied on my e-mail, so he sent it to them.

Q: He sent it to them and then you sent it to everybody that is on the addressee or copy list of your e-mail; correct?

A: I enclosed it to those people who had already all gotten it from Amar.
Q: And by enclosing it means you sent it around?
A: That’s not the word I would use, but it was enclosed in the e-mail I sent to those people who had already received it directly from Amar.

Q: So when people got your e-mail—all I’m trying to do is—I don’t think this is obscure. All I’m trying to do is establish that when you sent your e-mail to the five people that you sent it to, with your e-mail they got Mr. Nehru’s e-mail?
A: Which they had already gotten.

Q: And they got it again?
A: As an enclosure, yes.

Q: As an enclosure to your e-mail?
A: Right.

Q: And that e-mail from Mr. Nehru that you enclosed with your e-mail is a discussion of Netscape’s revenues; correct, sir?
A: That’s the subject line of his e-mail.

Q: Not only is it the subject line, that’s what the substance of the e-mail is?
A: Do you want me to look at it?

Q: If you need to to answer the question.
A: It appears to be a discussion of Netscape’s revenue, or what he was able to find out about it at a 70 percent confidence.

Q: And the first line of your memo that you sent to the five people indicated here, including Mr. Maritz and Mr. Ballmer, is, “What kind of data do we have on how much software companies pay Netscape?” correct, sir?
A: Yes.

Q: And did they furnish you with that information?
A: I don’t think so.

Q: You say in the next line, “In particular, I am curious about their deals with Corel, Lotus and Intuit.” Do you see that?
A: Uh-huh.

Q: You’ve got to say yes or no for the—
A: Yes.

Q: Did you ever receive information about what revenues Netscape was getting from any of those companies?
A: I’m quite sure I didn’t.

Q: Netscape was getting revenues from Intuit. You knew that in December of ’96; correct, sir?
A: I still don’t know that.
Q: You still don’t know that? You tried to find that out in December of 1996; correct?
A: I did not myself try and find that out.
Q: You tried to find it out by raising it with people who worked for Microsoft, didn’t you? That’s what this message is?
A: It says I’m curious about it.
Q: Well, the first line says, “What kind of data do we have about how much software companies pay Netscape? In particular I am curious about their deals with Corel, Lotus and Intuit.” That’s what you wrote to Mr. Nehru, Mr. Silverberg, Mr. Chase, Mr. Ballmer and Mr. Maritz; correct, sir?
A: Right, because Amar’s mail didn’t seem to have any data about that.
Q: And is it your testimony that you never got any data about that?
A: That’s right. I don’t remember getting any data. I’m quite sure that I didn’t.
Q: Did you follow up to try to get an answer to those questions?
A: No.
Q: After December of 1996, Microsoft entered into an agreement with Intuit that would limit how much money Intuit paid Netscape; correct, sir?
A: I’m not aware of that.
Q: Are you aware of an agreement that Intuit entered into with Microsoft?
A: I know there was some kind of an agreement. I wasn’t part of negotiating it, nor do I know what was in it.

When reading this portion of the transcript of the deposition and when viewing the videotapes, one can almost sense the frustrations building in the witness, who at various points appears not to want to be testifying. The novice might assume that Boies is also frustrated by Gates’s vague and evasive answers. However, experienced experts and legal strategists can recognize when the playing field of a deposition is under their control. The extraordinary number of prior e-mail statements that Boies could use to control the ability of Gates to answer and explain his answers represented a formidable advantage. Regardless, it is clear at this point in the deposition that any witness would be in for a rough time. Almost any strategy that attempts to get around the massive amount of impeachment material is likely to make it look like the witness is attempting to frustrate the legitimate efforts of the examining attorney to establish the facts that are most relevant to the lawsuit.

Furthermore, Boies is widely acknowledged in legal circles as an expert linguist and a consummate examiner of witnesses. We get the idea that he was delighted with
what he was eliciting from the witness over the three days of the deposition. Therefore, he was content to appear in the video and written transcript to be fairly but futilely attempting to get from the witness a straight answer that contained all the information that was available as to a particular issue. From the government’s perspective, Boies was in a win-win situation. After all, he had already obtained most of the essential evidence in the form of admissible prior statements of the witness or others discussing these issues. Gates’s only real hope was to come across as a knowledgeable and helpful witness while explaining these e-mail messages, in order to score any points at all with the fact finder.

On the other hand, in fairness to the witness, the last exchange is also an example of testimony that, in the absence of the cumulative effect of dozens of other exchanges that put Gates at a distinct disadvantage, might almost as easily be scored by the fact finder in favor of the witness. Such an isolated exchange as the one quoted immediately above could reasonably be interpreted as nitpicking questioning by the lawyer, rather than as a failure by the witness to be responsive or cooperative and therefore completely credible. It is important for technical experts to pick their fights carefully and not to assume that if they consistently react defensively to all lines of questions, the fact finder will continue to empathize with the witness. After enough of these defensive answers, the most open-minded fact finder may conclude that the witness is simply refusing to explain what he or she knows, whether the questions are reasonable or not.

Some legal observers have wondered why the Microsoft counsel did not call more time-outs. From time to time the Microsoft counsel objected and in other ways attempted to smooth over a situation that was, in retrospect, not helping to make the witness appear credible. This loss of control over the impressions made during the deposition had an impact on the future trial strategy. Some commentators have suggested that after viewing the videos, the existence of the taped deposition may have convinced the legal team members of their inability to effectively rehabilitate the witness once the deposition was introduced into evidence at the trial. This may have persuaded the Microsoft counsel not to present Gates as either a factual witness or as an objective and wise expert—his bias and interest in the outcome of the case notwithstanding.

Although it may appear to the reader that Boies is being unnecessarily picky in his repeated questioning of Gates on details of the e-mail messages, he is expertly and dramatically drawing the attention of the court to the witness’s antagonistic and picky behavior, which could be construed as that of someone failing to adequately respond to a legitimate line of questioning.

David Bank has a less generous interpretation of Gates’s intent:

Gates tried to stall Boies. While he otherwise had crisp recall of the pros and cons of every strategy debate since Microsoft’s inception, he, in his deposition, claimed not to
remember whether he did or did not write or receive any of the dozens of e-mails put before him. . . .

In what turned out to be his only chance to influence the trial, Gates had opted for obfuscation rather than clarity. His evasiveness and forgetfulness in the deposition had disqualified him as a witness in the courtroom. The forceful defense he might have later chosen to make would be fatally undermined by his lack of credibility. So Gates effectively gave up his chance to defend Microsoft's strategy as simply the best adapted to the new form of competition in high-technology markets. . . .

A Learning Experience for Both Litigators and Witnesses

Lawyers have not missed the opportunity to use Gates's performance to make a number of points about the art of giving and taking depositions for the education of trial attorneys. Such depositions are especially well suited for instructional purposes when they are videotaped, as this one was, and then dramatically introduced in relevant portions during the presentation of the case and the examination of other witnesses at the trial. Former Federal Judge Herbert J. Stern and George Washington University Law School Professor Stephen A. Saltzburg have devoted an entire chapter to the analysis of portions of the Gates deposition in the fourth volume of their series for attorneys, *Trying Cases to Win*.4

Along with Bank, Stern and Saltzburg also have pointed out that, regardless of the reasons that prompted Gates to testify as he did, the resulting performance made it extremely difficult for him to take the stand after the deposition had been introduced by the plaintiff in the trial before the judge. They also discuss why it makes good sense to treat the videotaped deposition as if it were itself the trial. According to Stern and Saltzburg, the strategy of having as knowledgeable and important a witness as Bill Gates (the personification of the defendant in the lawsuit) appears to deny the plain meaning and significance of one evidentiary document after another ultimately harms the case for the defendant. It erodes the credibility of one of the main witnesses and may also enhance the importance of the documents to the fact finder, in this case, the judge. These are heavy potential losses to incur during the discovery phase of litigation. Such losses can turn out to be powerful and persuasive admissible trial testimony from which the legal team cannot recover during the actual trial.

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What Fact Finders Say about the Importance of Testimony

You may wonder what impact Gates’s demonstrated difficulties in deposition had on the outcome of the case. In other words, what real damage could testimony, perceived as Gates’s performance was generally perceived, actually incur? This is an unusual case because shortly after the trial the judge supplied a journalist with significant evidence that supports the conclusion that the fact finder did score points against the defendant and for the plaintiff, based on his analysis of the witness’s performance. Ken Auletta, a reporter for The New Yorker, interviewed Judge Robert Penfield Jackson (who presided over the Microsoft case) many times during the trial. Ultimately, Jackson’s comments on the trial were published in an article that appeared in The New Yorker in January 2001. Jackson’s remarks quoted in the article led to a remanding of his judgment against Microsoft on appeal and to further proceedings. Furthermore, the Court of Appeals returned the case to the lower court and assigned a new judge to reconsider it.

In his article (and in his subsequent book on the Microsoft case), Auletta quoted Jackson as saying that Jackson became irritated with what he called Microsoft’s “obstinate” displayed, for example, by Gates during his videotaped deposition. Jackson was also disturbed by the apparent contradictions between the text of some Microsoft e-mails presented as evidence and the testimony of its witnesses.

Another exchange, this time between Gates and Stephen Houck, illustrates a key problem.

**Q (Stephen Houck):** Do you understand that in this e-mail here Mr. Siegelman is opposing a proposal to give MCI a position on the Windows 95 desktop as an Internet service provider?

**A (Gates):** I don’t remember anything about MCI. This talks about how we’ll have a Mosaic client in Windows 95. I don’t see anything in here about the desktop.

**Q:** It references in this e-mail the Windows box. What do you understand the Windows box to mean?

**A:** Well, the Windows box is certainly not the Windows desktop. The Windows box is a piece of cardboard.

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Jackson later asserted in remarks to Auletta that Gates’s deposition was a critical mistake because it essentially supported the prosecution’s contention that Microsoft was arrogant and unfair. The judge asserted that after observing Gates’s testimony, he had no choice but to rule for the prosecution, returning a judgment that ordered a split of Microsoft into two separate companies.

Gates himself later came close to admitting his mistake in the approach he took as a witness in the case. After Jackson’s findings and his order to break up the company, Gates offhandedly acknowledged that perhaps he should have chosen to testify in Microsoft’s defense. “If we look back, I think it’s clear that the whole story of personal computing—how the great things that have been done there and how we created an industry structure that’s far more competitive than the computer industry before we came along—that story didn’t get out,” Gates said on Good Morning America. “And I do wonder if I’d taken the time to go back personally and testify, if we might have done a better job in getting that across.”

When Auletta was asked to identify the most critical flaw in Microsoft’s legal team’s strategy, he responded, “[The Microsoft legal defense team] ignored things like credibility, intent. They handled [the trial] like an engineer would. And they are paying for it.”

Testifying Effectively Is Not the Same as Solving Engineering Problems

Auletta’s analysis of the flaws in Microsoft’s legal strategy is of special interest to those who might serve as expert witnesses. Technologists often want to believe that the law is logical and that they can therefore understand the tenets of the law and how it applies to most situations. This view might lead them to believe that they can afford to ignore the illogical details of the legal ritual that has evolved over centuries. This is a disaster in the making.

We live in an age when the massive effect of technology on everyday life has accorded those who demonstrate mastery of technology the status of court magicians. Understanding technology involves a great deal of academic effort and certain analytical talents, attributes that do not come easily to everyone. Technologists are understandably proud of their skills and their accomplishments won by using those skills. It’s only natural to believe that the systematic analytic process learned in the course of a technical education can be generalized to dealing with all the challenges of life.

However, this technical approach does not satisfy some of the key requirements of the adversarial legal system, which relies in the end on the understanding by judges and jurors of the facts that are crucial to reaching a decision. In every case the facts are developed either in whole or in part by the testimony of lay and expert witnesses. It is often the credibility of those witnesses that makes all the difference.

Testimony—Take Two

In April 2002, as this book went to press, Bill Gates returned to the witness stand in *U.S. v. Microsoft*, this time concerning the claims of nine states and the District of Columbia. This set of claims asserted that the settlement reached between the Department of Justice and Microsoft was insufficient to serve the best interests of the consumers in their respective jurisdictions.

The media and press celebrated a “different Bill Gates,” one who was well prepared and appropriately deferential to the judge and the plaintiff counsel. According to press accounts, Gates was initially nervous but soon regained his composure, delivering a clear message to the judge that the punitive measures proposed by the plaintiffs would inflict significant damage on both Microsoft and the U.S. economy as a whole.

Consider and contrast this description of Gates’s assuming the mantle of the prepared and composed expert with his previous performance in the original deposition:

*On Monday, Gates began his testimony with an elaborate PowerPoint presentation and painstaking definition of technical terms. He said that arbitrarily “removing code” from Windows would have disastrous consequences because software would lose application program interfaces—he called it “published ways of calling on functions”—and cease to work.*

In another turnabout from his previous witness persona, Gates was clear and candid when asked by the states’ attorney about a previous claim of improper activity:

“Cloning is a strategy that Microsoft has employed, isn’t it?” asked [states’ attorney Steven] Kuney.

“We have done it,” Gates responded, adding that he believes cloning is appropriate if a company does it without improperly obtaining another firm’s source code.

Consider the contrast between this succinct exchange and Gates’s endless parrying with Boies during the deposition (and consider the difference made to the court). Clearly Gates learned from his first experience as a witness in the deposition. In
reflecting those lessons learned in his return visit to the court, he demonstrated that with experience and preparation, an expert can indeed learn new tricks about the art of testifying!

If Credibility Is Always the Answer, What Are the Questions?

The legal system has slowly evolved, reflecting the influences and experiences of Western culture through many generations and regenerations of theories and practices of conflict resolution. One point that may be difficult for technologists to accept, given that so much of the IT revolution is driven by the need for speed, is that the law is "designed" to function slowly. This is to accommodate the "one step forward, two steps back" nature of technological and societal progress without making social policy that either cripples further advance or creates too many unacceptable risks for society in the adoption of new technologies. Furthermore, the law ultimately attempts to deal with the most difficult scenarios that arise when scientific crispness meets human messiness—the addition of humans to even the most elegant analytical constructs can result in wildly unpredictable results. Because it deals with human frailties, the law tends to focus its attention in the process of litigation on human attributes of trust and believability, and not solely or even primarily on the absolute properties of correctness.

Thus some of the things that matter most when participating in the legal rituals of litigation and dispute resolution are determined by legal and philosophical concepts that have been around at least since the time of Cicero.

- Is the testimony relevant?
- Is the witness believable?
- Do other similarly qualified and credible witnesses agree with these conclusions?
- Is the witness’s testimony comprehensible?
- Is there admissible evidence to show that the testimony is factual?

Contrast that set of criteria to the questions asked when testing a scientific or technical argument.

- Is the argument logical?
- Is it based on a provable hypothesis?
- Has it been rigorously tested?
- Does it follow from established scientific fact?
- Has it been subjected to published peer review and critique?

Although one might argue that the goal of the legal process is to derive the truth—presumably the same goal as an unbiased scientific or technical inquiry into
causation or proof—there are differences in the techniques applied for the process of considering the issues and for reaching the final judgment about the results of the inquiry. In particular, the treatment of context is quite different. In technical inquiry, in order to use mathematical models of process, researchers and design engineers often try to eliminate or else dampen the effect of context. In legal process, given the importance of bias, motive, and interest to the credibility of witness testimony, establishing the full context is critical to establishing all the relevant facts of a matter in litigation. This context is established through an objective assessment of all the evidence as subjected to rhetorical interpretations by the advocates. In the end, the fact finder applies his or her common sense to those arguments and the evidence and seeks to reach a fair and final verdict.