

FORENSIC SCIENCE(S) IN THE COURTROOM

SYMPOSIUM

Judge Joseph R. Slight, III: Good afternoon. I am former Judge Slight, and I have to warn you I have found that apparently I am not as smart or as funny as I used to be. [laughter] And from that I conclude that either lawyers are, as a breed, really good suck-ups, or I've had some sort of medical event that I'm not aware of. But in any event, I will do my best to try to regain some of the wisdom I once had. I am grasping the not terribly sanitary remote. Thank you. I am going to try to get through these slides as quickly as I can. There is a lot to cover. I think I have about twenty minutes, which is why [Professor] Jules [Epstein] is sitting here already telling me that I need to move it along, which I will do. [laughter]

It's always good to start with a historical perspective, and to do that, I always, if I can, turn to one of my judicial heroes. My kids think it's amusing that I have judicial heroes, but I do. Judge Learned Hand, who in a really, really good article, and for anyone who is about ready to launch into a substitute *Daubert*¹ or *Frye*² analysis, I definitely commend this article to your reading. I don't have a cite here, but I will give it to you. 15 Harvard Law Review at page 40, and it's written by the judge in 1901.³ Even then, Judge Hand is appreciating the fact that experts have a role in the courtroom, and it's just a matter of finding out what that role should be and how best to control it.

We changed in our perspectives, however. One might say we're more cynical now, than we were back in Judge Hand's day. Judge Hand says, "The whole object of the expert witness is to tell the jury[] . . . [the] general truths derived from his specialized experience."⁴ [A] Professor at the University of Texas Law School in 199[3], commenting on the *Daubert* decision or the lead-up to it, his observation is "[a]n expert is someone who wasn't there when it happened, but who for a fee will gladly imagine what it must have been like[]"⁵ – sorry to the experts. [laughter] But yeah, we are more cynical now. Not only within the legal profession, but I think generally we are more cynical about expert testimony. The notion of the paid advocate. When we hear that experts are going to be a feature in litigation, civil or criminal, our radar goes up. We start to think about "is this reliable?" Are we giving the jury the tools

1. *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579 (1993).

2. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

3. Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40 (1901).

4. *Id.* at 54.

5. *The use and misuse of expert evidence in the courts*, 77 JUDICATURE 68, 69 (1993) (quoting Professor Michael Tigar of the University of Texas School of Law in a printed transcript of a meeting).

they need to search for the truth, or are we misleading them with testimony that, by its nature, commands respect and is quite persuasive? So, we have to keep that in mind that over time our perspectives have changed.

Back in the day, Judge Hand recognized three areas where experts, at least then, were most prominent. [First,] [a]s special jurors. There actually were instances where experts would be convened⁶ to hear a cause that involved a particular technical area of either science or industry; and those experts would actually decide the case, because the case turned on knowledge that the lay person didn't have. I think it's safe to say that the use of the technical or expert jury really has gone out of favor. I am not aware of that happening, at least in this country, really, any longer.

[Second,] [c]ourt-appointed experts.⁷ I think you are going to see an up-tick in this. Certainly on the civil side in the electronic discovery disputes when the two sides come in and are talking about the burdens and expense of producing digitally stored information in the courts. Most judges don't really have much idea about technology or what's involved in storing data. It's not uncommon for the court to say, "Your two experts are on opposite sides of this issue. I'm getting my own expert to tell me what to do." Less so, probably in matters of substance, obviously e-discovery issues are more procedural than substantive, but even still in substantive questions, you're going to find an inclination on the part of the court to seek out its own independent expert, and I'll talk a little bit about that in a moment.

[Lastly,] [o]bviously, the more familiar role is the adversarial expert engaged by a party or naturally aligned with a party, as in the case of a forensic investigator within a criminal lab or within a law enforcement agency.⁸

Having contrasted the views of expert witnesses from 100 years ago to today, I can tell you that the instincts that judges have when it comes to evaluating expert testimony really have not changed over the years. So you go back to [1619]. You have a case where the legitimacy of a child after a father's death—he's seeking the father's title.⁹ He's seeking to inherit from the father. The question is, was this child actually legitimate or illegitimate, and there were experts tendered. The court, wisely, said "wait-wait-wait. Before we let this expert testify in front of the jury, I want to hear what he has to say, first." There's your first *Daubert* hearing in [1619]. Ultimately, the judge allowed the expert to testify, and the outcome was favorable for the child.¹⁰

This is a fascinating case, and it's fascinating for a number of reasons, but it also happens to highlight an issue relevant to expert testimony. The objection was that the expert was going to testify that the defendant was insane. He happened to represent himself, which maybe is evidence of insanity, who knows. I've seen some defendants do a really stellar job representing themselves, which Mr. Hillis, if he's here, as standby counsel, got to watch and

6. Hand, *supra* note 3, at 40.

7. *Id.* at 42.

8. *Id.* at 40.

9. *Id.* at 45.

10. *Id.* at 45-46.

maybe learn something, I don't know. [laughter] But in any event, this fellow, Lord Ferrers was accused of murder and his defense was insanity.¹¹ His expert, who was a physician or a surgeon, was going to testify, in fact, that he was insane and the crown objected.¹²

Lord Mansfield, who is a legendary English Judge, Chief Justice of the High Court, said, "Well okay, I hear what you're saying. He's kind of getting to the ultimate issue and you're asking him things that don't really have a factual foundation, but if you ask in hypotheticals, based on the facts that have been developed in the record, then how can you object?"¹³ Because there's your foundation." The beginning of the hypothetical questioning—for years and years that was the way to elicit expert testimony. Allow me to ask you sort of a hypothetical. Judges aren't quite as upset or sensitive to the manner in which expert testimony is elicited today as they were thirty to forty years ago. But here's Lord Mansfield saying this is the way you get expert testimony in front of the jury. Use the foundation created in the facts, and then ask the expert to apply hypotheticals.

Lord Ellenborough, another legendary English judge, he's the first guy who said this is adversarial.¹⁴ *Daubert* says cross-examination still exists, but you want to balance every expert who has been tendered. Use your skills, trial lawyers, and cross-examine the guy. Who knows, you actually might find that having an expert who is going out on a limb helps your case, because you discredit him and, in turn, the other side's case through cross-examination. Lord Ellenborough says, "Look, if you think that the guy is not really on solid ground, then ask him some good questions on cross-examination." And the optimal idea was he has never seen this ship, so how can he say it wasn't seaworthy, and therefore shouldn't cover under the policy? And Lord Ellenborough says, "Well, that's a good question for cross-examination."

Okay, so let me advance to current time. I am moving through this pretty quickly. These are Delaware cases. A lot of you are not from Delaware. Every jurisdiction has these cases, so I am not trying to teach you Delaware law. I just want to use a few cases to illustrate a few points that I think are interesting and points that maybe have some use in our discussion.

First off, let me just highlight a case that I presided over. Not a criminal case. Asbestos litigation. I don't know what I did wrong, but somewhere around 2005, I think I really angered our president judge, and he assigned me to the asbestos docket. [laughter] Which might be one of the reasons I am standing here as a former judge, [laughter] but that's a story for another day.

So I had a week-long *Daubert* hearing to determine if asbestos released from automobile breaks and caused mesothelioma. And in my seventy-page *Daubert* decision,¹⁵ I felt as if I needed to qualify the opinion that I was about ready to give as to whether this testimony was relevant and reliable. And in doing so, I

11. Hand, *supra* note 3, at 47.

12. *Id.* at 48.

13. *Id.*

14. *Id.* at 49.

15. *In re Asbestos Litig.*, 911 A.2d 1176 (Del. Super. Ct. 2006).

wanted to observe that I, by training, am a lawyer, and I ended up in law school because I decided to study political science in college, and then I didn't have really anything to do with that degree, so I decided to go to law school.¹⁶ On either side of this issue were epidemiologists and scientists of the highest credentials that you could imagine, including a former surgeon general.¹⁷ Diametrically opposite opinions.

And that, really, is the fascinating thing about expert testimony, isn't it? I mean you can have a controversy, criminal or civil, where really well-qualified experts on either side of the bead just fundamentally disagree. And they're going to have that debate in court, and you're going to, because you are a lawyer, you're going to walk them through your side of it. And it's an extraordinary process and really something that makes folks scratch their heads when they see it as outsiders.

So anyways, I'm saying, I will do the best I can with what I got. So how did I do? According to the Supreme Court, I emasculated the concept of a gatekeeper's role.¹⁸ [laughter] Let me tell you. I never ever, ever set out to emasculate anything, [laughter] but let me just go on the record saying that. The good news is this was the dissenting opinion, so I think I did all right ultimately.

So here's a very fascinating case. We have been talking about a lot of different forensic sciences. This is a case where the state proffered an expert to testify regarding tire print and shoe print analyses.¹⁹ The expert, however, was a fingerprint guy. That was his real training. He testified numerous times regarding fingerprint analyses. Not so many times regarding shoe print and tire print analyses.²⁰ And yet, after a sidebar, one of your examinations of the expert, the trial judge allowed the expert to testify,²¹ and ultimately the Supreme Court affirmed.²² I commend this case to your reading, because apparently one impression evidence forensic scientist is as good as the next. So it's all sort of impression evidence, and therefore if you know how to analyze fingerprints adequately that have been lifted, that same methodology applies to tire and shoe print analysis. That's what they said, so . . . See, now I can poke a little fun at our Supreme Court. [laughter]

But in any event, let me just say this. This issue came up during trial, literally as a whisper to the judge: "By the way Your Honor, we think that this witness isn't qualified to give this opinion under *Daubert*. Moreover, we don't think his methodology is reliable or that his testimony will be relevant." The jury is in the box. [laughter] So there you have the *Daubert* motion that has been made in the midst of trial with the jury sitting in the box. And what's the trial judge supposed to do with that? Well, what the trial judge did in this case

16. See *In re Asbestos Litig.*, 911 A.2d at 1210.

17. *Id.* at 1183-84, 1188, 1193.

18. *Gen. Motors Corp. v. Grenier*, 981 A.2d 531, 547 (Del. 2009) (Steele, C.J., dissenting).

19. *Rodriguez v. State*, 30 A.3d 764, 766 (Del. 2011).

20. *Id.* ("Ninety percent of [the expert's] cases involved testimony on fingerprints.").

21. *Id.* at 767.

22. *Id.* at 770.

was ask a few questions of the expert and say, "Yeah, it sounds good enough to me. I'm not keeping the jury waiting, Mr. Defense Lawyer, when you raised the *Daubert* motion at sidebar."

Practice pointer number one: don't raise the *Daubert* motion at sidebar. Or the *Frye* motion, or whatever your standard is. You've really got to think ahead when you know that expert testimony is going to be a feature of your case. And you will know that in advance, hopefully, and we'll get to that in just a second. All right. So motions are better than objecting on the fly. That is a fact.

So here's a case, *State v. Hammons*,²³ where there was a *Daubert* hearing. It was a thorough hearing and a thorough opinion. A few things to keep in mind about this. This is really the first opportunity that a Delaware court, at least, had to consider the question of whether mitochondrial DNA analysis was sufficiently far along in its development to be presented in court, and the trial judge gave a thorough discussion of that question. New science. That always challenges trial judges, and I commend this case to your reading because it shows that with a properly developed record, the trial judge, whether you agree or disagree, at least can give you a thoughtful analysis of the question. And so [in] 2002, the evidence ultimately was deemed sufficient and viable and admitted.²⁴

Here is a case on profiling.²⁵ We heard earlier that maybe profiling can help in the investigation stage, but should it really make its way into the courtroom? The answer in this case was no. The profiler was going out on a limb in extraordinary ways saying because, for instance, the crime occurred at home versus in a public place, the perpetrator must have known and been close to the victim,²⁶ which I - I don't see the connection there. But in any event, again, evidence that judges are mindful that as investigators you might have folks helping you out to develop theories of a case, but that doesn't mean that those folks should be testifying in court.

I highlight the *Stevens* case only because one of my colleagues noted that *Daubert* motions and *Daubert* challenges really had become cottage industry,²⁷ and yet, in a Delaware study, the National Center for State Courts studied the use of *Daubert* challenges in our superior court and ultimately concluded that they really were not imposing burden on the court, and the court was rarely holding "*Daubert* hearings."²⁸

23. *State v. Hammons*, No. 9809019760, 2002 WL 484645 (Del. Super. Ct. Mar. 28, 2002).

24. *Id.* at *10.

25. *State v. Wright*, ID No. 0801010328, 2009 WL 3111047 (Del. Super. Ct. Sept. 14, 2009).

26. *Id.* at *7.

27. *Stevens v. State Farm Auto. Ins. Co.*, Civ. Act. No. 09C-07-148-JOH, 2010 WL 5825339, at *2 (Del. Super. Ct. Dec. 29, 2010) (Herlihy, J.).

28. Nicole L. Waters, Ph.D. & Jessica P. Hodge, M.S., *The Effects of the Daubert Trilogy in Delaware Superior Court*, NAT'L CTR. FOR STATE COURTS 1, 21, <http://cdm16501.contentdm.oclc.org/cdm/ref/collection/civil/id/81>.

Let's step back for a moment and understand that under *Daubert*, a *Daubert* hearing can be conducted without a hearing. If there are sufficient facts developed in the record, expert reports, depositions of experts in civil cases, the court is, under *Daubert* in most state progeny, entitled to rule on admissibility based on that record without actually having the expert in court.

Here's something I learned when I was engaged, recently, to be an expert in the English courts. After I had written my first draft, my engaging counsel sent along this protocol that ultimately informed me that I could be penalized if I wasted the court's time in so many words, which caused me to go back and completely re-write my report with that in mind. [laughter] But yeah, here's how the English courts have addressed the quick question of reliability and trying to raise the bar a little bit for experts.

We talked a little bit about CSI. That has come up frequently. It actually is now entering into jurisprudence, the question being if a prosecutor tells jurors, "Look, this isn't CSI. This isn't TV, so don't expect us to be presenting all this crazy evidence"—is that in some way diminishing the state's burden to prove guilt beyond a reasonable doubt? And there are some decisions that have addressed that question.²⁹ I think the usual holding is that if it's done without going over the top, the answer is no. It is appropriate for the state to explain the absence of evidence, but you cannot do it in a manner that suggests that the state does not have the burden of presenting sufficient evidence to prove guilt beyond a reasonable doubt. It is a very fine line, and I've seen it crossed in court with prosecutors going a little too far, trying to lower expectations of the jurors. But it is a real phenomenon, and it is something that you're going to have to address.

Very quickly want to talk to you about timing. For the law enforcement folks in the room, when you are getting data, information, test results, get it to your prosecutor right away, because delays in that regard are going to be held against the government. Here's a case where the government submitted some fingerprint evidence for testing.³⁰ The first test came back inconclusive. They decided to send it to another lab for maybe more sophisticated testing. Results came back. The local police, i.e., Wilmington police, sat on it. I didn't mean to out them, but that's what happened. [laughter] [They] eventually sent it to the AUSA who sat on it for a day or two and then ultimately produced it a couple of days—about a week before trial. And, you know, it was good evidence. Good, solid evidence and probably evidence the government was relying upon in a gun case, and the judge excluded it.³¹

That is all I have. If you have any questions for me, I will hold off until the end. Sorry for the rocket presentation, but there it is. [applause] Thank you very much.

29. *E.g.*, *Foster v. State*, 961 A.2d 526, 529 (Del. 2008); *Mathis v. State*, 907 A.2d 145, 2006 WL 2434741, at *4 (Del. 2006) (TABLE); *State v. Cooke*, 914 A.2d 1078, 1082-88 (Del. Super. Ct. 2007).

30. *United States v. Reid*, 487 F. Supp. 2d 463 (D. Del. 2007).

31. *Reid v. United States*, Crim. No. 06-08-SLR (D. Del. 2013), *available at* <http://www.ded.uscourts.gov/sites/default/files/opinions/slr/2013/june/06-08.pdf>.

Professor Jules Epstein: Now we will start the next topic. I will let the folks introduce themselves. Too few offices have forensic units. It may be easier if you're a prosecutor because you can pick up the phone and call the police lab. But even you all on the prosecution side may need it. We are very lucky that here in Delaware, the State Public Defender's Office has a forensic unit, team, whatever you're going to call it. And I am going to let them tell you about it and what they do, and it may be a model that you want to explore.

Lisa M. Schwind, Esq.: Hi. I do this presentation, typically, for an hour, but I have fifteen minutes and my colleague, Gerry, told me, "Oh no, don't do PowerPoint," so I am the only person here without PowerPoint. So I will give you just my topics, highlights.

First of all, a little history so that you know if you're not from Delaware, there are a few people here from Delaware. Maybe they don't come to this because we have the forensics unit, and so they depend on us. We are a statewide public defender's office system, so we are state employees. We're state funded. We're probably funded better than a lot of other public defender's offices. We are a death penalty state. That's important to know that information . . . in hearing what I have to say and how we structured our program.

Is there anyone here from a public defender's or indigent defense firm that has a forensics unit? No? Okay. Good. Well maybe I can sell this to you then.

We started thinking about this in 1998. I was—had been working in the public defender's office for about ten years. And we—all the movement toward innocence projects was coming, and so the idea was to prevent wrongful convictions and also to save money and time. So if you're thinking about this, those are ideas to sell it.

So we filed the first grant under Byrne Grant,³² in 1999. In 2000 was the passage of our Delaware Innocence Project legislation and coincided with the start of our project, which also became the Innocence Project for Delaware in my unit. Me, actually, but then I gave the work out. And we also based some of our ideas on—Barry Scheck had published something in the *Champion* magazine, one of the magazines for criminal defense attorneys, that there

32. Editor's note: The Edward Byrne Memorial Justice Assistance Grant ("JAG") "provides states, tribes, and local governments with critical funding necessary to support a range of program areas including law enforcement, prosecution and courts, crime prevention and education, corrections and community corrections, drug treatment and enforcement, planning, evaluation, technology improvement, and crime victim and witness initiatives." *Justice Assistance Grant (JAG) Program*, BUREAU OF JUSTICE ASSISTANCE, https://www.bja.gov/ProgramDetails.aspx?Program_ID=59 (last visited Dec. 16, 2013). The program is authorized under the Violence Against Women and Department of Justice Reauthorization Act of 2005, Pub. L. No. 109-162, Subtitle B, ch. 1, 119 Stat. 2960, 3094 (2005) (codified at 42 U.S.C. §§ 3750-58).

should be a forensically trained attorney in every office, so we hung our hat on that idea, too.³³

So we started the unit in 2000 with grant money with just me, and I am a registered nurse as well as being an attorney. I was one of those people who counted myself as a scientist. And so I started out very naively thinking we could train all our attorneys in DNA and we would just be hunky-dory. But it didn't really work out that way. They retained some of the material but not all of it, and so we decided we would go forward in 2003, getting a grant for a second forensic nurse position for our lower two counties, you know we only have three.

And then Gerry was hired and joined my unit and was part-time in my unit, as he came in with a master's in forensic science, and he was an attorney as well. And he since has moved on and is still available for consults with our office. So now we are comprised of myself and another forensic nurse.

For people who might not know what forensic nurses—I know one of the speakers had started to talk about something about some of the forms of forensic nurses, the sexual assault nurse examiner. For our office, we wanted a minimum of a bachelor's degree because, at the time, that's all I had. Now I have a master's degree. But we have only ever hired other people, other nurses with master's degrees, and then I went on and got my master's degree because I felt funny about that, because I only wanted to hire people with master's but I didn't have it myself. Gerry had one.

And the Adult and Pediatric Sexual Assault Nurse Examiners course. Part of the other reason we started was we were going to hire experts for the nursing, and we couldn't find anybody who would talk to defense. I still had a license, so we said I will go take the classes myself.

Knowledge of DNA technology and knowledge of the criminal justice process and some trauma training. In the civil sector, legal nurse consultants have been around for about twenty-five years, but the criminal world is really slow in catching on and using them. This law school has a division . . . for legal nurse consultants and actually [has] a forensic component for that. So they're graduating students from this school. It's actually in the other building.

And the other thing is, while I am still a nurse, the NAS report³⁴—as wonderful as it is to use as a reference as to what should be done—there is no mention of medical people. And especially for the forensic nurses—forensic nurses are doing the collection, the very first start of the evidence collection, in almost every jurisdiction in the United States in rape cases. So if they screw up, your whole thing is screwed up.

And some of those nurses—you know juries look at—surveys show nurses are one of the top trusting people. People just trust nurses. They like nurses.

33. Barry Scheck et al., *Freeing the Innocent*, CHAMPION, Mar. 2000, at 18, 22 (“Every public defender's office should have at least one lawyer who acts as a full-time forensic science specialist, helping other lawyers on their cases.”).

34. *Strengthening Forensic Science in the United States: A Path Forward*, COMM'N ON IDENTIFYING THE NEEDS OF THE FORENSIC SCI. CMTY., NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS. (Aug. 2009), <https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf>.

But they don't like lawyers, but the nurse part And so they're very trustworthy. So when the nurse takes the stand, everybody believes what he or she has to say. So you really need to be careful about that and remember that the start of the evidence collection is down on that chain, and you can have somebody—you can be a registered nurse with as little as two years education and a forty-hour course in sexual assault training and do the evidence collection for a rape case and testify and say that it is consistent with a rape. That's really powerful. So we make sure that we can keep that level.

Now, how our cases work is that we get automatic referrals in from our investigatory team, our interview team. They come in on all the Class A felonies, and so I automatically get all of them, and then I assign them. Then we also get some other cases that are in the categories. Then we get attorneys for other cases' referrals.

The bulk of what we do are review of medical and autopsy records and photos for victims. Medical records for our clients. That might be for self-defense claims, mitigation; sometimes they don't know why they've given them to me. Police reports. Forensic reports generated by the state's experts, that's a bulk. Routine toxicology questions. The question of the week last week had to do with prescribed medications. Were they under the influence? So really quickly we can give them an answer looking at some tables we look at, what the levels are. And not have to hire out for that sort of thing.

We do a lot of screening for neurological problems. The big topic of the year is fetal alcohol spectrum disorder. If you are doing criminal work, especially death penalty work, that should be one of your top priorities. It is screening for that disorder and reviewing records for that, and lead poisoning to see whether or not your defendant suffered from that.

So we look at—when we do our evaluations, we're looking at what is the fact scenario? What evidence wasn't collected and wasn't sent to the lab? So we are going to look at what's listed by the police, what's in the crime scene videos or photographs that might be there. Why didn't they send that? Do the criminal charges match the victim's injuries? So, the level, is it comparable to an assault I, II, or III?

And self-mutilation. That can be an issue. Consent, of course, is always an issue in sexual assault cases, sometimes in other cases. Other medical problems that the victim may have had which can impact the injuries so far as blood clotting. Medications that they are taking that could influence what your injury is going to look like. So if you have somebody who takes an aspirin every day, and you see that in the medical record, the bruise is going to look totally different than someone who doesn't take that medication. So somebody needs to know that information and you may need to get an expert.

We look at a lot of records for death penalty mitigation from prenatal records all the way through to the prison health records, searching for history of brain injury, environmental toxin exposure, things like that.

We're going to help locate the appropriate expert or lab and utilize—because we have been doing this a long time—utilize professional contacts that we have. Act as a liaison between the attorney and the expert. That can

save a lot of money. I know we had one expert that was a lot of money, was going to come down to \$200 every fifteen minutes, so we—for a phone interview—so we had a nurse sit there to ask the questions so the attorney wouldn't waste time asking all of the very obvious, stupid questions. Because every question was costing our office money. We have reviewed the court process with the expert if they are not a particularly experienced expert.

Now, some of the examples of cases—I went through and tried to come up with some that I felt were the most interesting. We had a case recently. Pre-trial I found tampering with the medical record from a hospital, and that same case had You know you get the DNA results—well we, for many of our cases, have a whole huge package of what we call the DNA specific discovery. And in that, there was a slide—look at the copy of this—the actual slides with the sperm on them, and there was one little thing, it's called the Christmas tree stain, and there was an arrow and it said "possible sperm." But when I looked at the report, it said "positive for sperm." Positive for sperm versus possible sperm. Now, it came back with a DNA profile, but the profile could have been from saliva or some other biological substance, not sperm. So that made a big difference. It was a charge rape I and came down to a sexual assault second degree with a sixty day sentence, thirty of which was already served.

Then we had one that was a conclusion. It was a trauma from a sexual assault. The trauma from a sexual assault is going to heighten your penalty up in most jurisdictions, and it does in Delaware. And the reality was the trauma (it was on the cervix) on the female was an erosion, some sort of cervical erosion from giving birth to five babies in five years. Now it wasn't one baby a year; there was a set of twins in there, but that's a lot of trauma on a woman's body. So it was not an injury from the sexual assault. It was a natural process that was from giving all these births.

We had one that was one of the early cases that was very spectacular, that I usually show in my PowerPoint—was a charge of attempted murder. And in reality, it was self-inflicted injuries. When we went through the photographs, the young lady had never cut her face; she wanted to preserve her face. She was right-handed, and all of the injuries were consistent with being where she could reach with a knife or a razor on her—from her right hand. And she had gotten all kinds of infection pathogens into these injuries, but it was significant nothing on her face, and nothing on her chest. Everything was on her limbs and her behind. And if somebody is coming after you with a weapon, where are they going to hit? They are going to hit the biggest part of your body. And [with] a girl, a lot of times they are going to want to hit your face just to hurt you worse, psychologically.

Then we had another case, a significant one that got first in the newspaper above the fold. It was a robbery of a purse snatching, and the eye-witness was a police officer off duty from another jurisdiction, and they wrongfully identified our client. It was a baseball hat left at the scene. Now this was about 2002, but people—actually a little later than that—people should have known about DNA on baseball caps, and it was sent to the hair microscopy lab, and the hair microscopy lab said there wasn't any hair, and it went back

and forth a few times. We said, “Look, just test—test it for DNA.” So they did, and sure enough it didn't match our client. So he was let go.

We had another interesting case that was another attempted murder allegation with poisoning from the chemical boron. Boric acid is sometimes used as an eyewash. You can have it in your body in small amounts. It's also used for—people used to use it a lot for roaches in your kitchen cabinets, and people would put that boric acid in there. Well, the woman had poisoned somebody with it, and we found out that they had used the wrong test tube, so the sample was all contaminated. You can't use a regular glass test tube because glass test tubes have boron.

And one more that we had that was interesting was a nurse testifying as to the age of a bruise. You can't testify as to the age of a bruise. It's impossible to age a bruise. That nurse actually no longer practices in this state. So she's gone.

There are a variety of units that practice and have forensics units. Maryland Public Defender's Office has one. They have attorneys. L.A. County has attorneys. Minnesota has attorneys who travel around the state, but none of them that I know of are using full-time nurses. So it's a little bit more cost effective and we argue that people should consider doing that. I think my colleague, Gerry, is going to talk a little bit.

Gerard Spadaccini, Esq.: One of the things Jules asked is, “How well does it function?” And I think me telling you that the forensic unit does a great job and functions real well is kind of like before the NAS report—you know what they asked the forensic unit. They were going to say it was great. I think that it's a blessing and a curse to have the unit. It's an available resource. It's great to have. It gives good—it's another set of eyes looking at cases, and it's a sounding board for the attorneys that are representing somebody. But the curse part of it is often times the attorneys don't really go all out in learning some of the basic stuff that they need to know.

Now I know everybody is going to get back on Monday, and people are going to be like, “Where were you on Friday? You weren't in court, or you weren't around,” and some people will talk a little bit about the CLE. One of the take-home things you could get from this is that there is plenty of resources available if you don't have a unit. There are some of the websites that have been mentioned. I wrote a couple of things down when individuals were talking, and when Carl was talking. NIJ [National Institute of Justice] has a great online resource to train yourself,³⁵ basically, on firearm and tool marks. You just go in and it's like little fourteen modules and you can do it on your own time if your office doesn't have the ability to send you out to learn these things. NIJ, that's on NIJ. The DNA.gov³⁶ was already mentioned. So there are things that are available.

35. *Forensics Training*, NAT'L INST. OF JUSTICE, <http://www.nij.gov/training/Pages/forensics.aspx?type=training&tags=Forensics> (last modified Sept. 30, 2013).

36. *Advancing Criminal Justice Through DNA Technology*, DNA INITIATIVE, <http://www.dna.gov/> (last visited Dec. 16, 2013).

There are a lot of people here getting their Capital Council CLEs. And I am just going to give you one example of where something kind of worked out. And Judge Slight brought it up, and it was the *Cooke* case.³⁷ One of the quotes up there was from the *Cooke* case. We both were involved, somewhat, in the first *Cooke* case. That's when our office represented James Cooke. And somebody with a background in forensics would say—I said—it was like a cornucopia of forensic issues. There were so many forensic issues in that case. There was fabric impression, video footwear, voice comparison, tool mark, handwriting, DNA, hair, fingerprint, trace evidence, and one of the things that we did do is file *Daubert* motions on all of these. We assisted the two attorneys that were assigned the case.

And interestingly enough, and I will end with this, one of the things that came out of the *Daubert* hearing and the handwriting was that it spurred one of the attorneys during the hearing to say, “Well, wait a minute, based on the testimony in the *Daubert* hearing, the exemplars that were taken from James Cooke, I think thirty-six of them, were excluded.” Now, we will take our little wins wherever we can get them, and that's about the best we could do, and then a lot of evidence came in, but thirty-six exemplars were kept out because we filed a motion to try and keep out all the handwriting evidence.³⁸ So it's—I think it does work out.

I think another set of eyes looking at things allows the attorneys, especially in capital cases, to focus on the legal things, to focus on the visits to the client in prison, and gives them just more resources to do a better job for the client.

Professor Jules Epstein: We are going to have a break before our last session, so that if you get a chance, and you are in an institutional office, and you want to talk to Gerry or Lisa or just get their contact information for afterwards, please do so. Give me two seconds here, friends. Okay. So here's what is going to be the last talk in the session.

All right, so I think this is going to dovetail with what the judge said. I think courts are the worst place to try and improve forensic science. So bear with me. I am going to give you a little bit of history. This is one of the greatest judges ever—no offense, besides you [laughter], okay?—to exist on this planet, the Honorable Louis Pollak of the Eastern District of Pennsylvania. Some of you know him, or knew him, and in 200[2], Judge Pollak wrote an opinion, and I was involved in the case. I went up to him afterwards and I said, “You know what you wrote was the Brandenburg concerto of *Daubert* opinions.” A brilliant opinion where he limited the admissibility of fingerprint evidence,³⁹ then reversed himself six weeks later in another pretty brilliant opinion⁴⁰ that said “I was wrong,” . . . and said “it does meet *Daubert*.” And he wasn't outlandish in either one.

37. *State v. Cooke*, 914 A.2d 1078 (Del. Super. Ct. 2007).

38. *Id.* at 1110.

39. *United States v. Llera Plaza*, 179 F. Supp. 2d 492, 516 (E.D. Pa. 2002), *vacated*, 188 F. Supp. 2d 549 (E.D. Pa. 2002).

40. *United States v. Llera Plaza*, 188 F. Supp. 2d 549, 575-76 (E.D. Pa. 2002).

So my first point there is maybe the *Daubert* test isn't—you didn't have much to emasculate, you know, because it's not such a good test. So this is a case, and we've got the world's best experts come in, and then some not so best experts, but [crosstalk] at the time great experts. So it's a problem.

So the NAS report⁴¹ came along, and I hate to do this, but I am going to embarrass you. Who here among the prosecutors and defense lawyers has at least gone online and read the executive summary of the NAS report? Shame on us. Okay. The report came out in February 2009. The National Academy of Sciences was developed, brought into existence by Abraham Lincoln, because he wanted some national entity that could have the best minds of the country come together, and this report said a lot about forensic science. That it's good, but maybe some of its conclusions are over-stated. Maybe they don't have data behind it. And then, boy, did they trash lawyers and judges and said we have been utterly ineffective in testing science in the courtroom or holding forensic discipline to a science standard.⁴²

So what my first fear to you is—don't blame the courts. Blame the test. Why? Okay. That's Turkish taffy. That was the best that I could do. *Frye* is general acceptance, right? We all know about general acceptance. By whom? The community. Okay. Well if I wanted to decide if astrology met the *Frye* test, who's my community? If I said astrologers, it meets the test. If I said astrologers and astronomers, it doesn't. The *Frye* test is incredibly malleable because if the judge wants to let the evidence in, she makes it a small community. If you want to keep it out, you make it a big community. It's not a great test.⁴³ We could also ask how general is general acceptance, lot of issues?

Well what about *Daubert*? Oh the gatekeeper, error rates, and all this stuff. Well if you read *Daubert* carefully, it says all that we're really asking of judges is that they determine that the expert testimony has evidentiary reliability.⁴⁴ Well what is evidentiary? I have scientific reliability—it's supposed to give us the same results again, and again, and again. That's not what evidentiary reliability is. Evidentiary reliability actually means does it pass the smell test? Is it good enough to let a juror hear to decide if it might be correct? It's actually a fairly low threshold, although didn't the judges have incredible discretion? If they could make it stringent or not? So my first point here is if you are going to go to court and fight under one of these tests and you're trying to tone down the evidence or say, “Well fingerprint examiners should be able to say X, but not

41. *Strengthening Forensic Science in the United States: A Path Forward*, *supra* note 34.

42. See generally *id.* at 85-110 (discussing the current system of admission of forensic science evidence in litigation).

43. Editor's note: For further reading on this criticism of the *Frye* test, see, for example, Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later*, 80 COLUM. L. REV. 1197, 1208-23 (1980) (discussing the various difficulties of the test's application).

44. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 (1993) (“In short, the requirement that an expert's testimony pertain to ‘scientific knowledge’ establishes a standard of evidentiary reliability.”).

to the exclusion in full from the rest of the world,” you've got a test problem. Because the tests aren't that stringent.

Nonetheless, I thought okay—the NAS report is kind of long. It totally trashes the courts. That portion was written by a federal appellate judge, Judge Harry Edwards, and I figure okay—I get who the judge is. Look at the message. Okay, well do not ask me to speak French. Cedric would you pronounce this?

Audience (Cedric): Plus ça change, plus c'est la même chose.

Professor Jules Epstein: That's exactly what I was going to say. “The more things change, the more they stay the same.” Okay? Notwithstanding the NAS report, almost every single court confronted with the NAS report has said we are still going to let this stuff in the same as we did before the report. These are just a couple of cases. Here's one where the expert came and said, “We're 100% accurate.” Judge said, “Well that may not be true, but good enough, we're going to let you testify.”⁴⁵ Okay?

So if the courts don't By the way, this is a test, and it'll tell how old you are. Who drew this cartoon?

Audience: Rube Goldberg.

Professor Jules Epstein: Rube Goldberg, excellent. If the rest of you don't know that, besides all the other great resources I gave you here today, Google Rube Goldberg. Who's Rube Goldberg? He was this crazy cartoonist and he was into like machinery. He said, “I'll make these incredibly complicated machines of like how to get the toothpaste onto my toothbrush,” okay. So we need alternative mechanisms if *Frye* and *Daubert* aren't that good. By the way, there were some other reasons *Frye* and *Daubert* aren't that good.

You need a judge who understands science. Who's got the tolerance to hear it. We've got to have a resourced office. We have to have the money for experts. And we have to even know the scientific questions to ask. Other than that, it's a perfect system. [laughter] Okay?

So, alternative mechanism number one is Epstein's theory that none of this works until there is a crisis. Okay? Brandon Mayfield was a crisis in the latent prints community,⁴⁶ and it was after Mayfield that the IAI [International

45. *United States v. Watkins*, 450 F. App'x 511, 515 (6th Cir. 2011) (“*Watkins*'s other problem is that, assuming arguendo that the ACE–V method is not error-free, the fact that the fingerprint examiner testified that it was 100% accurate does not by itself mean that the district court erred in determining that the ACE–V method was scientifically valid.”).

46. Editor's note: Brandon Mayfield was an Oregon attorney arrested in May 2004 for being identified as a material witness in the March 2004 commuter train bombings in Madrid, Spain. The Federal Bureau of Investigation identified Mayfield based on fingerprints on a bag of detonators. Approximately two weeks after Mayfield's arrest, the Spanish National Police informed the FBI that they had identified a different man as the witness. After the misidentification was discovered, Brandon Mayfield was released from custody. *A Review of the*

Association for Identification] after some later development said, “We can't go into court and say anymore we have 100% perfection rate and that we never make errors, and that we can identify people through the exclusion of all others.” So my own concern is really, you need a crisis. This is kind of hard to read, but it took twenty years or so after people started criticizing the FBI for hair analysis until the culture change. And what happened in the interim? The crisis. DNA exoneration, time after time. Your hair analysis was wrong. So I'm convinced it's only when things get really bad that we start to get a little bit of good.

Okay. To me, one of the other mechanisms is when there is finally some really good science. Okay? Bullet lead evidence. The FBI used to come in the court and say, “Well, we have the crime scene bullet, and we've got the bullet from Jules' client's house, and we have done the metallurgical comparison of them, and they're the same, and therefore it must have come from the box in Jules' house.” Well they were putting probabilities on this with no data. Well then finally the NAS issued a report that said you don't have any data to back that up.⁴⁷ That was a way to stop it.

Shaken baby. What happened with shaken baby cases? There was a lot of new science with biomechanical, medical—whatever that combined science is. Hair examination we've talked about. So sometimes you get a change if there is really good science, but that's not the course.

Okay, some states have developed forensics commissions. Texas has a commission. New York State has a commission. Why? They are all responding to crises. So they may be a model, although most of those commissions are set up primarily to respond to issues of fraud. You know what we call dry labbing. We learned that the drug lab examiner in Boston, right, in Massachusetts, was saying, “Oh yeah, this is drugs, this is drugs,” and hadn't been doing the test.⁴⁸ So they're really more about fraud, and when

FBI's *Handling of the Brandon Mayfield Case*, U.S. DEPT OF JUSTICE, OFFICE OF THE INSPECTOR GEN. (Jan. 2006), <http://www.justice.gov/oig/special/s0601/exec.pdf>.

47. See FORENSIC ANALYSIS: WEIGHING BULLET LEAD EVIDENCE, NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS. 109-113 (2004).

48. Editor's note: Annie Dookhan, a drug analyst in Boston, pled guilty to “27 counts of misleading investigators, filing false reports, and tampering with evidence.” Milton J. Valencia & John R. Ellement, *Dookhan sentenced after her guilty plea: Chemist gets 3-5 years in jail for fraud in drug cases*, BOSTON GLOBE, Nov. 23, 2013, at A1. On March 5, 2014, the Supreme Judicial Court of Massachusetts issued a unanimous opinion related to the case. *Commonwealth v. Scott*, 467 Mass. 336 (Mass. 2014). In *Scott*, the court held that if a defendant who previously entered a guilty plea can show that Dookhan was the primary or secondary chemist testing the alleged drugs in his or her case, the defendant is entitled to a conclusive presumption that government misconduct occurred in his or her particular case. *Id.* at 352. Instead of allowing Scott to withdraw his guilty plea, the court remanded the case to the trial court so the defendant could have the opportunity to “demonstrate a reasonable probability that he would not have pleaded guilty had he known of Dookhan's misconduct.” *Id.* at 355.

Additionally, on February 28, 2014, Delaware Chief Medical Examiner Richard T. Callery was suspended with pay after evidence in several criminal investigations went missing. Jonathan Starkey & Sean O'Sullivan, *Medical examiner suspended*, NEWS JOURNAL, Mar. 1, 2014, at A1. The problem was discovered on January 14, 2014, at a trial in Kent County, Delaware. *Id.* While testifying at trial, a police officer opened a sealed evidence envelope in front of the jury; the

they get down to the nitty gritty as in Texas, the commission was looking into arson—fire science.⁴⁹ The governor said, “I take that charge away from you.” So they were a limited tool in terms of efficacy.

Individual judges, I will give them their due. Okay? Once in a while you will get a judge who is going to be into science. Who is going to have read the NAS report, which Nancy Gertner did, and they're going to say, “We're going to change business in my courtroom.” Judge Nancy Gertner, after the NAS report, she was, at the time, a Federal District Court Judge in Boston. She is now a professor at Harvard. She issued a protocol in her courtroom—because she didn't think that the lawyers would figure it out—that said in every forensic science case we are going to have pattern and repression evidence.⁵⁰ Here's what you've got to do, and here's the time schedule. Okay? Is that the activist judiciary?

A little bit more interesting is *Commonwealth v. Pyton Heang*,⁵¹ in Massachusetts. The Massachusetts Supreme Court wrote out about a six-step protocol for all ballistics evidence in the future.⁵² Okay. They said we're going to do a systems fix, but those are few and far between. So that's another problem with trying to fix forensic science.

Technical working groups. And I am going to ask Anjali to give us a comment about that in a minute. So, trying to get ahead of the curve. The National Institute of Standards and Technology, after the NAS report, said “I'll tell you what we are going to do.” We have got all the pointy-headed academics who think that there are things to criticize about latent prints. Then we've got over here all the latent print examiners who think we're God's

envelope contained thirteen pink pills instead of the sixty-four blue pills sent to the Office for testing. Jonathan Starkey & Sean O'Sullivan, *Medical examiner suspended*, NEWS JOURNAL, Mar. 1, 2014, at A1. At the time of publication, investigators have identified at least twenty-one cases with missing or tampered-with evidence dating to 2010. *Id.* The investigation remains ongoing.

49. Editor's note: In 2004, Cameron Todd Willingham was executed for the murder of his three children by arson:

In 2005, Texas established a government commission to investigate allegations of error and misconduct by forensic scientists. The first cases that are being reviewed by the commission are those of Willingham and [another man]. In mid-August, the noted fire scientist Craig Beyler, who was hired by the commission, completed his investigation. In a scathing report, he concluded that investigators in the Willingham case had no scientific basis for claiming that the fire was arson, ignored evidence that contradicted their theory, had no comprehension of flashover and fire dynamics, relied on discredited folklore, and failed to eliminate potential accidental or alternative causes of the fire.

David Grann, *Trial by Fire: Did Texas execute an innocent man?*, THE NEW YORKER (Sept. 7, 2009), available at http://www.newyorker.com/reporting/2009/09/07/090907fa_fact_grann.

50. Procedural Order: Trace Evidence, No. 1:08-cr-10104-NG (D. Mass Mar. 2010) (Gertner, J.), available at <http://www.mad.uscourts.gov/boston/pdf/ProcOrderTraceEvidenceUPDATE.pdf>. Editor's note: For further reading regarding Judge Gertner's views on the subject, see Judge Nancy Gertner, *Commentary on the Need for a Research Culture in the Forensic Sciences*, 58 UCLA L. REV. 789 (2011).

51. 942 N.E.2d 927 (Mass. 2011).

52. *Id.* at 944-47.

answer to science, Cedric excepted because he is somewhere straddling the two. Then you have the foreigners, right? The science people, like Cedric or Champeau. And then we have people who have nothing to do with law. We have engineers and psychologists and people who do systems analysis. Put us in a room and sort of lock the door—and they said you have three years, and we would have these periodic meetings. And I am not sure it would have worked if there hadn't been a Brandon Mayfield crisis precipitating it. But at the end of the day, after three years, this came out. And it was somewhat of a consensus statement between the critics and the scientists that said there are better ways to investigate fingerprints, to report fingerprints, to testify about fingerprints, to run fingerprint labs. Now, are any of these perfect? I don't know, but I got no money for this, but they at least sent us to nice hotels around the country periodically.

So my last words, then I am going to ask Anj for a comment or two as a scientist who was on this workgroup, for her perspective. I go back to do they work? And I think this stuff works more after a crisis. The actual first crisis we had was when Janet Reno commissioned this report in the 1990s after the first twenty-six or twenty-eight DNA exonerations, and she said, "Let's have a blue ribbon panel look at this."⁵³ So I am sad to say that I think that it is crisis driven, but I will leave on a note of optimism and then we'll give Anj the last word. In February of this year, the United States Government announced that it was seeking applicants for a federal, national forensic science commission. Forensic scientists, pointy-head academics, practitioners, psychologists, you name it. So they're trying to get a body that will say if we take the lessons from these crises, and from improvements in science over time, maybe we can start getting ahead of the curve.

So Anj, I am going to ask you to come up here for a minute and just as a scientist who attended these meetings, did they have any merit besides that you went to some nice places?

Anjali A. Ranadive, MFS, JD: Well I can expand on that just a little bit. When I worked for the National Institute of Justice in the late 1990s, I actually managed five or six of these technical working groups as program manager and contributor. And as Jules said they almost always were precipitated in crises—a little strong word for those, but when there were issues in a particular forensic discipline, NIJ would throw some money at the problem and put a bunch—lock a bunch of people in a room and say, "You're the experts, you tell us what we should be doing if we're doing it wrong." And we tried to populate those groups with differing opinions so that it wasn't, you know, a unilateral publication, and we had—and part of that process was very painful, because when you lock a bunch of people in a room that have different opinions, you don't reach consensus easily. But I think that what came out of those were – there was – to answer your question, I think there

53. *The Future of Forensic DNA Testing: Predictions of the Research and Development Working Group*, NAT'L INST. OF JUSTICE (Nov. 2000), <https://www.ncjrs.gov/pdffiles1/nij/183697.pdf>.

was utility, but I think that there is still an issue, which is that the Department of Justice, which is the body that published all of these proceedings, doesn't have the authority to impose them with any type of—for lack of a better word—punishment.

So they were all—they weren't standards, and NIST, which did manage the specific technical working group that Jules mentioned, is the federal government's standards branch. So they actually do promulgate standards in not just forensics but basically for any type of unit in the country. And they do have a forensics division, which is what funded the specific group on human factors and latent prints. But all of the other working groups that worked on a similar protocol basically published guidelines or best recommended practices in arson investigation, crime scene investigation, what have you. Those were often adopted by practitioners and they could be recommended, so if you had working groups that Cedric talked about—there are scientific working groups that are under the auspices of the FBI that exist in every discipline—they would adopt these best recommended practices and then recommend those to their practitioners.

So, the latent print ones would maybe take recommended guidelines and say, “You guys need to be doing this.” The problem is if somebody says, “Yeah, thanks a lot, but we don't want to,” there's no punishment for not doing it. You can certainly take those documents into court, and use them and say, “Do you recognize this as being an established group of your peers? Are you aware of what's inside? Are you following these guidelines and protocols, and if you're not, why aren't you?” And there may not be a good reason. But you also have to understand—and I'm sure you do—that any analyst or technician or scientist working in the lab doesn't get to choose what their protocols are.

So, I had a conversation at lunch about accreditation and certification. Accreditation and certification in this country is not required, right? We all know that. It's voluntary. It's absolutely recommended, but it is not mandatory. And I think the climate is changing. I think there's a lot of peer pressure now. Most laboratories in the U.S. are accredited, but you can certainly be a functioning, operational forensic science lab that is not accredited. And some of them may be doing work that is on the level of an accredited lab, but lots of them are not, and that's something you want to look into when you are questioning witnesses.

Same with individual analyst certification. It is not required, and I would say the majority of forensic practitioners today are not certified. And again, it's just because there's not the pressure for them to be certified. And I think unless and until we have some kind of crisis, where, you know, somebody making some colossal mistake, or being fraudulent, or misrepresenting something, is somehow tied into the fact that they weren't certified, there's not going to be a big push for people to rush and get certified. The NAS report recommended mandatory accreditation and certification, but again, as we've seen, there hasn't been this huge, immediate response to do everything that they recommended, and there are no repercussions for anyone that hasn't.

So, I think I agree with you, that from a scientific perspective, we can't wait for the courts to demand it, but I don't necessarily see it coming internally from us either, unless there's pressure with some threat of repercussion for failing to take action.

Professor Jules Epstein: So we're all going to continue doing our *Frye* and *Daubert* litigation, which is all tied up in the particulars of individual cases, but maybe part of the take away here is we need some more systems approaches.