

NAVIGATING EXPERT RELIABILITY:
ARE CRIMINAL STANDARDS OF CERTAINTY BEING
LEFT ON THE DOCK?

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This article shows that, as to proffers of asserted expert testimony, civil defendants win their Daubert reliability challenges to plaintiffs' proffers most of the time, and that criminal defendants virtually always lose their reliability challenges to government proffers. And, when civil defendants' proffers are challenged by plaintiffs, those defendants usually win, but when criminal defendants' proffers are challenged by the prosecution, the criminal defendants usually lose. The article then goes on to examine, in detail, various categories of expert proffers in criminal cases, including "syndrome evidence," polygraph, bite mark, handwriting, modus operandi, and eyewitness weakness, to shed light on whether the system bias revealed in the statistical breakdown is illusory or real. Finally, an afterword analyzes the last year's cases, and makes observations on apparent trends.

I. INTRODUCTION

With its decision in *Kumho Tire Co., Ltd. v. Carmichael*¹ the United States Supreme Court has launched the lower federal courts on a voyage of discovery. The object of this quest is a set of defensible standards of threshold dependability for all expertise introduced into evidence in the trial of cases.² The lower courts

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¹ 526 U.S. 137 (1999).

² In my estimation, *Kumho Tire* stands for two important principles: that the gatekeeping requirement of minimum threshold reliability pursuant to Federal Rule of Evidence 702 applies to all proffered expert testimony, not just to the explicit products of "science," *see id.* at 141 ("This case requires us to decide how *Daubert* applies to the testimony of engineers and other experts who are not scientists.") and that this judgment must be made in regard to the particular "task at hand," not globally in regard to the average dependability of a broad

begin this quest with only a sketchy set of sailing directions provided by the Supreme Court, and it could easily be a decade before we are in a position to evaluate the results of this enterprise. However, it is not too early to alert the fleet to one grave potential disaster, and to suggest, with more particularity than the Court has done, some navigational principles that may aid in bringing the enterprise to a respectable and productive conclusion.

The system shipwreck I fear is that in ten years we will find that civil cases are subject to strict standards of expertise quality control, while criminal cases are not. The result would be that the pocketbooks of civil defendants would be protected from plaintiffs' claims by exclusion of undependable expert testimony, but that criminal defendants would not be protected from conviction based on similarly undependable expert testimony. Such a result would seem particularly unacceptable given the law's claim that inaccurate criminal convictions are substantially worse than inaccurate civil judgments, reflected in the different applicable standards of proof.³

I believe we have reason to fear this potential result of the courts' attempts to fashion new standards of expertise dependability because, in large measure, this situation is already the operational reality (though perhaps the current scheme of things is more a result of accident than of conscious decision).

Or perhaps, while not completely conscious, describing it as accidental goes too far. In a rough generality sufficiently precise for present purposes, we might describe the 1970s and early 1980s as a period of virtually unbridled expansion of varieties of asserted expertise in civil and criminal courtrooms, limited only by the imagination of an attorney with a point to prove and a hole in her more conventional evidence.⁴ The appeal of using such experts

definition of an area of expertise, which might be dependable in other contexts, but not in regard to the "task at hand," see *id.* at 153-54 (emphasizing that inquiry must focus on "*the particular matter to which the expert testimony was directly relevant*"). The first of these principles is explicit in the *Kumho Tire* opinion, and the second is somewhat less obvious, but, nevertheless, of central importance. See generally D. Michael Risinger, *Defining the "Task at Hand": Non-science Forensic Science after Kumho Tire v. Carmichael*, 57 WASH. & LEE L. REV. (forthcoming 2000) (noting that "*Kumho Tire* squarely presented the issue of the reach of the general *Daubert* approach to threshold reliability under Rule 702, and of *Daubert's* application both to 'non-science' and to a claim of expertise that was at least in part 'clinical'").

³ See *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 253 (1986) (noting that the standard of proof a jury must apply in a criminal case is "more demanding" than that applied in a civil proceeding).

⁴ See Michael D. Green, *The Road Less Well Traveled (And Seen): Contemporary Lawmaking in Products Liability*, 49 DEPAUL L. REV. 377, 383-86 (1999) (discussing the litigation surrounding the morning sickness drug Bendectin and noting that "[p]laintiffs

stems, in large part, from two aspects of the law, one in regard to experts and one in regard to sufficiency of evidence. Experts were allowed to give “opinions” that could be phrased in terms of the ultimate issues in the case.⁵ If the “opinion” of the expert was competent, it might be adopted *in toto* by the jury, hence making failure of proof on the issue legally impossible.⁶ Combine this situation with lax threshold standards of admissibility for expertise, and you set the stage for the acceptance of some fairly questionable practices in the utilization of expertise by litigants. And, the threshold standards of the period were decidedly lax.⁷ So, while all sides were free to play the game, the result was generally much more favorable to parties with the proof burdens (generally civil plaintiffs and the prosecution in criminal cases, though criminal defendants were substantial players in regard to various affirmative defenses).

In the mid and late 1980s voices were beginning to be raised in protest, saying that the kind of expertise regularly accepted as admissible by courts was, frankly, “junk” of scandalous lack of dependability. Voices were raised protesting lack of dependability in both the criminal⁸ and civil⁹ spheres, but the voice that finally

managed to cobble together plausible theories about why Bendectin was a teratogen, having no trouble finding expert witnesses who would testify in support of it”); Richard H. Underwood, “*X-Spurt*” Witnesses, 19 AM. J. TRIAL ADVOC. 343, 345-47 (1995) (contending that the liberalization of the Federal Rules of Evidence has led to the admissibility of “[u]nreliable as well as unnecessary expert testimony”).

⁵ See FED. R. EVID. 704(a) (departing from the historical prohibition and allowing for expert testimony on the “ultimate issue to be decided by the trier of fact”).

⁶ See FED. R. EVID. 704 advisory committee’s note (noting that the basis of the ultimate issue rule was to prevent a witness from trespassing on the province of the jury).

⁷ See 1 DAVID L. FAIGMAN, DAVID H. KAYE, MICHAEL J. SAKS, & JOSEPH SANDERS, MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 1-3.4.1 (1997) [hereinafter 1 MODERN SCIENTIFIC EVIDENCE] (“Many courts and commentators see in *Daubert* a response to so-called ‘junk science’ and the perceived problem of the hired-gun expert witness.”); Underwood, *supra* note 4, at 345-46 (observing that the admissibility of expert testimony expanded when the Federal Rules of evidence substituted the common law test of admissibility with one that looked to whether the testimony would be helpful to the jury). As Professor Michael Green has said in regard to expertise in products liability cases, prior to *Daubert*, “expert testimony in product liability cases simply was not judicially screened.” Green, *supra* note 4, at 399. With rare exceptions, such as deoxyribonucleic acid (DNA) evidence, see *infra* notes 107-16 and accompanying text (discussing the treatment of DNA evidence by the state courts), there is little reason to conclude that proffered expertise was more aggressively screened for reliability in any context.

⁸ See, e.g., Randolph N. Jonakait, *Real Science and Forensic Science*, 1 SHEPARD’S EXPERT & SCIENTIFIC EVIDENCE Q. 435, 443 (1991) (indicating that “forensic scientists routinely perform analyses without adhering to established protocols”); D. Michael Risinger, Mark P. Denbeaux & Michael J. Saks, *Exorcism of Ignorance as a Proxy For Rational Knowledge: The Lessons of Handwriting Identification “Expertise,”* 137 U. PA. L. REV. 731, 770-71 (1989) (explaining that the public’s desire for a conviction in the Lindbergh baby case may have promoted the acceptance of handwriting identification as a science); David L. Faigman, Note,

spoke loudest, and was heard most clearly, spoke almost exclusively of the injustice of “junk” expertise used against civil defendants. I refer, of course, to Peter Huber and his 1991 book *Galileo’s Revenge*,¹⁰ which popularized the phrase “junk science.” It is unlikely to be pure coincidence that the Supreme Court chose a civil case, *Daubert v. Merrell Dow Pharmaceuticals Inc.*,¹¹ to review the appropriate criteria of dependability,¹² or that its two subsequent forays into these waters have also been in civil cases.¹³ Be that as it may, the pronouncements of the Supreme Court were nominally trans-substantive constructions of the Federal Rules of Evidence, and so have application in criminal as well as civil cases.¹⁴ And, as positions of the United States court of the highest prestige, they might be predicted to have some influence on approaches to dependability in the states, both in those jurisdictions with explicit analogues to Federal Rule of Evidence 702, and those without.

So, what relative impact has *Daubert* had on civil and criminal litigation here at the beginning of the *Kumho Tire* era? When I first started writing this I had an idea, but I then realized that it was insufficiently based on evidence. So I have looked.

II. THE CASES IN GENERAL, PRE- AND POST-DAUBERT

As of August 2, 1999, there were nearly 1600 citations to *Daubert* in opinions issued by American courts¹⁵ and published on Westlaw¹⁶,

The Battered Woman Syndrome and Self Defense: A Legal and Empirical Dissent, 72 VA. L. REV. 619, 644 (1986) (criticizing the theory that abused women exhibit a uniform, distinctive behavior as a result of being battered).

⁹ See *In re “Agent Orange” Prod. Liab. Litig.*, 611 F. Supp. 1223, 1253 (E.D.N.Y. 1985) (characterizing plaintiff’s expert proffers on Agent Orange’s cancer causation as “conclusory and subjective”). The eight-year period from the *Agent Orange* decision to the *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), decision forms a kind of run-up period to *Daubert*, marked by a small number of intensely litigated decisions in civil cases which prefigure *Daubert*.

¹⁰ PETER W. HUBER, *GALILEO’S REVENGE: JUNK SCIENCE IN THE COURTROOM* (1991).

¹¹ 509 U.S. 579 (1993).

¹² See *id.* at 585 (“We granted certiorari in light of sharp divisions among the courts regarding the proper standard for the admission of expert testimony.”) (citation omitted).

¹³ See *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 158 (1999) (determining that rule 702 of the Federal Rules of Evidence granted the district judge discretion to decide the reliability of expert testimony in light of the circumstances surrounding this tire blow-out case); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 142 (1997) (noting that “the Federal Rules of Evidence allow district courts to admit a somewhat broad[] range of scientific testimony . . . [but] leave in place the ‘gatekeeper’ role of the trial judge in screening such evidence”).

¹⁴ See *Kumho Tire*, 526 U.S. at 147-49 (discussing Federal Rule of Evidence 702 and concluding that the gatekeeping obligation required of the trial court under rule 702 “applies to all expert testimony”) (emphasis added).

¹⁵ It should be kept in mind that this reference set by no means encompasses all the cases which have dealt with expertise, especially on the state level, merely the ones which have

including around 535 in the state courts.¹⁷ Not all of these citations were in cases involving expert dependability issues, of course, but the great bulk of them were. This represents a truly prodigious increase in judicial examination of expert reliability, particularly in civil cases, on both a state and federal level. While we cannot, of course, compare *Daubert* citations post-*Daubert* to *Daubert* citations before the case was decided, we can use *Frye v. United States*¹⁸ as a good proxy to get a fair idea of pre-*Daubert* judicial activity in this regard. Given *Frye*'s iconic status, it is unlikely that many opinions rejecting expertise on reliability grounds prior to *Daubert* would have failed to cite *Frye*, especially in federal courts. So what do we see when we compare the universe of *Daubert*-citing opinions from

referenced *Daubert*. This is the set that would be likely to reveal the influence of *Daubert* most clearly. In addition, it seems reasonable to expect that any case breaking new ground in holding some proffered form of expertise too undependable to gain admission would generally cite *Daubert* someplace. However, even this is not always the case, especially more recently as individual states have begun to have their own post-*Daubert* cases to cite to. Note, for instance, the New Jersey Supreme Court's recent opinion in *State v. Fortin*, 745 A.2d 509, 510 (N.J. 2000), wrestling with the admissibility of "linkage analysis" in criminal cases, an asserted ability, based on the FBI's "profiling" programs, to determine reliably if two not obviously similar crimes were in fact committed by the same person. *See id.* at 512.

It should also be kept in mind that many of the state cases in the reference set did not claim to accept or apply *Daubert*, but continued to operate under the rubric of whatever pre-*Daubert* reliability doctrines they had (generally one of the myriad versions and variations of the *Frye* test, that is, the test for "novel scientific" evidence derived from *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923)). For a summary of the various pre-*Daubert* approaches to reliability applying to both "novel scientific" evidence and to other asserted expertise, see 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7, §§ 1-1.0 – 1-2.4 and the authorities cited therein.

¹⁶ Even in the computer age an exact count can be surprisingly hard to come by. In this case, a search by official citation does not pick up the earliest citations, some cases do not give all parallel citations, and "Merrell" is commonly misspelled (i.e. "Merrill," "Merril," etc.). A search for "*Daubert v.*" w/2 "Dow" after July 1, 1993, appears to do the trick, with the advantage of allowing an easy generation of chronological lists by court. It may have missed cases only reflected in certain specialized reporting services, but I am comfortable that if it did not generate an absolutely complete census, it is close enough for my purposes. As the reader will come to know, in this article I am more interested in general magnitude accuracy than perfection of exact counts. (It is for this reason that percentages are given rounded, or even expressed in ordinal fractions.) My best count is 1593, but that is not unlikely to have been off by a few. However, with the search strategy given, the interested reader can duplicate my reference lists from the CTA, DCT, and ALLSTATES databases for cases between July 2, 1993, and August 2, 1999.

¹⁷ A word about case citations. I am obviously not going to string-cite 535 cases here. With the search protocols given in the previous note, interested readers can generate their own list. Even when sets require some judgment in classification (such as which cases actually involve dependability issues), all that will be given are the sorting criteria if more than ten cases are involved. Readers can either do their own search, or trust the author. This is more access to raw data and its handling than is given in virtually any article in, for instance, the social science literature. I trust most readers will be grateful not to be burdened with the tedious string-cites.

¹⁸ 293 F. 1013 (D.C. Cir. 1923).

July 1, 1993 to August 2, 1999 (the reference set) to the universe of *Frye*-citing opinions for similar six-year one-month periods prior to *Daubert*?

Looking first at the federal court of appeals cases, 416 opinions in the reference set cite *Daubert*,¹⁹ 287 of which were non-criminal. In the same length period pre-*Daubert* (June 1, 1987, to July 1, 1993) only twenty-one cases cited *Frye*, and only seven of these were non-criminal. And, in the similar period before that (May 1, 1981, to June 1, 1987) there were another twenty-two cases that cited *Frye*, of which only four were non-criminal. Clearly *Daubert* triggered a deluge, especially in regard to civil cases.

Nor are things different in regard to the federal district courts.²⁰ In the post-*Daubert* reference set, there were 649 district court opinions, of which 584 were non-criminal. In the first pre-*Daubert* period there were twenty-nine cases citing *Frye*, of which twelve were criminal and seventeen were non-criminal. The number of district court opinions on expert reliability in criminal cases rose five fold, but similar civil cases rose thirty-four fold. And, in the period before that, there were only thirteen cases total, six criminal and seven civil. If anything, *Daubert* triggered a larger flood in the district courts than in the courts of appeals, especially in civil cases.

Finally, there are the state cases.²¹ In the main reference set, 528 cases cited *Daubert*, 288 criminal (55%) and 240 non-criminal (45%). In the first preceding comparison period there were 398 cases citing *Frye*, of which less than 20% were non-criminal, and in the period before that there were 190 cases citing *Frye*, of which about 13% were non-criminal. So, in state cases as well, the post-*Daubert* era has seen an explosion of civil cases, with criminal cases being relatively less affected. Now let us turn to an examination of the cases in the main reference set in more detail, beginning with the cases from the United States courts of appeals.

A. *The Court of Appeals Cases*

As already noted, there were 416 court of appeals opinions in the reference set which cited *Daubert*. Of these, 129 are fairly characterized as dealing with dependability issues in a criminal

¹⁹ See *infra* notes 22-35 and accompanying text (discussing various federal court of appeals cases and providing relevant background information).

²⁰ See *infra* notes 37-41 and accompanying text (reaching conclusions on the basis of a review of various district court cases).

²¹ See *infra* notes 42-44 and accompanying text (discussing the pattern that emerged from an analysis of various state court opinions).

context, but some of these deal with ancillary proceedings such as sentencing. Excluding such peripheral cases, about 120, or roughly 30% of the total cases, deal with challenges to the dependability of expert evidence proffered for consideration on issues of guilt or innocence. The reader will find a graphic representation, detailing the distribution of civil and criminal cases within the reference set, in *Appendix Figure 1*.

In these cases, which generally involve criminal defendants who were convicted at the district court level, the dependability of expert testimony offered by the government is attacked sixty-seven times,²² and the exclusion of expert testimony offered by defendants and knocked out after a government dependability objection is complained of fifty-four times.

In the sixty-seven cases of challenged government expertise, the prosecution prevailed in all but six, as seen in *Appendix Figure 2A*. And, in only one of those six was there a reversal because proffered expertise was found to be generally undependable, or undependable in regard to the particular application of expertise for which the government witness was called below.²³ Rather, in one case the error was failure to conduct any *Daubert* hearing at all,²⁴ in three cases the error was for going beyond the scope of the expertise which justified the witnesses' presence on the stand in the first place (each of these errors were found harmless),²⁵ and one case

²² Nearly all of these deal with government proffers admitted below. One of the defense victories, however, involved a government proffer rejected below and brought before the court of appeals by interlocutory appeal. See *United States v. Katz*, 178 F.3d 368, 369-70 (5th Cir. 1999) (per curiam) (discussing the reliability of expert witness testimony that pinpoints the ages of individuals in photographs by using the "Tanner Scale").

²³ *United States v. Iron Cloud*, 171 F.3d 587 (8th Cir. 1999). *Iron Cloud* was a vehicular homicide case. *Id.* at 589. The district court admitted the results of a test by a portable breath test machine, which was administered to the defendant at the scene, without holding a validity hearing, claiming *Daubert* didn't apply because the test was recognized in the scientific community. *Id.* at 590. The Eighth Circuit reversed, and, instead of remanding for a *nunc pro tunc Daubert* hearing, with the fate of the conviction turning on the result of that hearing, the court took judicial notice of the undependability of the portable breath test machine by reference to other reported cases concerning it, and reversed and remanded for a new trial. *Id.* at 591, 593.

As noted in footnote 27 below, *Katz* can also perhaps be read as a determination of the unreliability of the Tanner Scale when applied to fuzzy photos, but *Katz* was not a reversal.

²⁴ *United States v. Lee*, 25 F.3d 997 (11th Cir. 1994) (per curiam). *Lee* involved the results of tests performed with field equipment utilizing gas chromatographic chemiluminescence and ion mobility spectrometry to determine the presence of cocaine residues on the defendant's personal effects. *Id.* at 998. The trial judge had held no *Daubert* hearing because *Daubert* had not been decided at that point. *Id.* The Eleventh Circuit remanded for a *nunc pro tunc Daubert* hearing, the fate of the conviction to hinge on the results of that hearing. *Id.* at 999.

²⁵ See *United States v. Charley*, 176 F.3d 1265 (10th Cir. 1999); *United States v. Bruck*, 152 F.3d 40 (1st Cir. 1998); *United States v. Sepulveda*, 15 F.3d 1161 (1st Cir. 1993). In

involved the failure of a factual condition²⁶ to the dependable application of the expertise (affirming a lower court ruling raised by interlocutory appeal).²⁷

On the complaint of criminal defendants that their expertise was improperly excluded, the criminal defendant lost forty-four of the fifty-four challenges, winning on ten occasions.²⁸ These figures are

Sepulveda, a prosecution law enforcement expert called to testify about the usual structuring of drug schemes testified to his conclusions concerning the guilt of the defendants on trial, which testimony was struck by the judge with limiting instructions. 15 F.3d at 1183. The exposure of the jury to the testimony was found to have produced no cognizable harm. *Id.* at 1185. In *Bruck*, the testimony of an arson investigator that the fire in question was “arson for profit” was found harmless. 152 F.3d at 47. In *Charley*, a pediatrician expert in the treatment of child sexual abuse victims did not simply educate the jury as to the usual reactions of such victims which have been observed by researchers, but testified to the conclusion that these victims had been sexually abused. 176 F.3d at 1283. This was found to be error without having a *Daubert* hearing to show that such a conclusion could be made accurately by such a witness. *Id.* In addition, a counselor testified that the child’s symptoms were more consistent with sexual abuse than any other trauma, *id.* at 1281, and there was other testimony by counselors assuming the existence of molestation. *Id.* All were improperly admitted, but found harmless in the context of the rest of the evidence in the case. *Id.* at 1283. This case was later the subject of a decision to not grant rehearing en banc, which itself had an opinion with dissents. See *United States v. Charley*, 189 F.3d 1251, 1278-81 (10th Cir. 1999) (discussing the applications *Daubert* in light of changes in the law); see also *infra* Part III A (addressing the swamp of victim syndrome evidence and its limitations).

²⁶ The “failure of a factual condition to the dependable application of the expertise” refers to the absence of clear photographs from which an expert could apply the Tanner Scale to determine the age of models in the photos. *Katz*, 178 F.3d at 371. Although such photos were available, the trial court in *Katz* had held that they were inadmissible since the prosecution had provided other, poor quality, photos to the defense during pre-trial discovery. *Id.* at 370.

²⁷ *Id.* at 374. *Katz* could be interpreted as a finding that the expertise at issue was undependable in regard to a defined subtask a la *Kumho Tire*. See *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 149 (1999) (noting that, to be considered reliable, expert testimony must have a solid basis in the specific discipline it pertains to). *Katz* is also the case involving an interlocutory appeal by the prosecution. 178 F.3d at 370. The defendant in *Katz* advertised for child pornography on the internet, and was then sent, by government agents, a videotape and a computer disc with a collection of digital photos on it, both of which the agents then seized under a warrant and subsequently charged defendant with possessing. *Id.* at 369. The government still had to prove that the tape and photofiles it provided defendant showed children under the age of eighteen, since the government didn’t make the stuff, it had no direct evidence of the age of the subjects shown. See *id.* at 374. It proposed to prove their ages by use of an agent trained in the application of the Tanner Scale, a set of criteria developed to provide evidence of age by scoring such details revealed in images as pubic hair patterns and breast development. See *id.* at 370. The district court had no problem accepting this methodology under *Daubert*, *id.*, which is interesting in itself because it is not clear how validation data was or could be ethically derived. At any rate, as to the photos in *Katz*, the government had only provided the defense with fuzzy low-quality black-and-white images in discovery, whereas in fact it had high resolution color images, which were what the Tanner Scale expert proposed to use in court. See *id.* at 370-71. The judge ruled that, having only produced the fuzzy black-and-whites in discovery, the prosecution was limited to using them at trial, and that they were too fuzzy for dependable application of the Tanner Scale. See *id.* at 371. This ruling is what the government challenged on interlocutory appeal, and what the court of appeals upheld. See *id.* at 374.

²⁸ Occasionally, losses on the court of appeal level give evidence of partial victories at the district court level. For instance, in *United States v. Stops*, No. 96-30335, 1997 WL 599667, at

further illustrated in *Appendix Figure 2A*. However, in seven of those cases, the error was complete failure to hold a *Daubert* hearing, and while the defendant obtained a remand for such a hearing, there was no guarantee of a retrial if the judge below found the expertise inadmissible after hearing.²⁹ In two cases (involving three opinions) where the district court's exclusion was found to be error, new trials did not necessarily follow: the error was ruled harmless in one case,³⁰ and potentially curable after a Rule 403 hearing on remand in another.³¹ In only one case did the defendant obtain a reversal and remand for retrial from the court of appeals based on improper exclusion of defendant's proffered expert testimony.³²

*1 (9th Cir. Sept. 23, 1997), a child sex abuse case, the district court had allowed the defense to call an expert on child suggestibility under interrogation (although perhaps the government had not objected to this), but had not allowed evidence regarding the witness' evaluation of the particular child's statements, a decision affirmed on appeal. *Id.*

²⁹ See *United States v. Cordoba*, 104 F.3d 225, 230 (9th Cir. 1997) (remanding to the district court for a *Daubert* hearing on the admissibility of defendant's polygraph test); *United States v. Hall*, 93 F.3d 1337, 1345-46 (7th Cir. 1996) (ordering a *Daubert* hearing at the district court level regarding defense expert testimony on conditions that lead to false confessions, and ordering a new trial on these and other grounds); *United States v. Posado*, 57 F.3d 428, 436 (5th Cir. 1995) (instructing the district court to hold a *Daubert* hearing on the admissibility of defendant's polygraph test); *United States v. Minnis*, No. 93-50330, 1994 WL 259757, at *2 (9th Cir. June 14, 1994) (remanding for a *Daubert* hearing on the admissibility of defense expert's testimony concerning the reliability of eyewitness testimony); *United States v. Gates*, 20 F.3d 1550, 1550 (11th Cir. 1994) (per curiam) (remanding for rehearing on the admissibility of testimony by defense experts on weaknesses of eyewitness identification and on photo array suggestivity); *United States v. Rincon*, 11 F.3d 922, 922 (9th Cir. 1993) (remanding for a *Daubert* hearing at the district court level); *United States v. Amador-Galvan*, 9 F.3d 1414, 1418 (9th Cir. 1993) (remanding the case to the district court for a determination as to whether testimony on the weaknesses of eyewitness identification satisfied the requirements of *Daubert*).

³⁰ *United States v. Rouse*, 111 F.3d 561 (8th Cir. 1997) (en banc). *Rouse* was another child sex abuse case involving potential suggestion during interrogation. See *id.* at 572. The lower court allowed the defense to call an expert on interrogative suggestion effects, but did not allow the witness to point out the specific factors in the actual case that fit the general variables he testified to. See *id.* at 570-71. Nor was the witness allowed to give a conclusion regarding whether the particular witness had likely yielded to suggestion. See *id.* at 571. A panel of the Eighth Circuit found the latter restriction proper, but the former restriction to be error requiring a new trial. See *United States v. Rouse*, 100 F.3d 560, 573 (1996). After granting rehearing en banc, the Eighth Circuit later found the error to be harmless. 111 F.3d at 572.

³¹ *United States v. Shay*, 57 F.3d 126 (1st Cir. 1995). In *Shay*, the district court had excluded a proffered defense expert on the likelihood that the defendant's confessions were the product of the defendant's mental illness, pseudologia fantastica, and, as a result, would be unhelpful and potentially confusing to the jury. See *id.* at 129-30. The circuit reversed, but intimated that, on remand, a Federal Rule of Evidence 403 hearing might result in justifying the exclusion so as not to require a new trial. See *id.* at 134. This case thus perhaps belongs in the "reversed for no *Daubert* hearing at all" pile.

³² See *United States v. Velasquez*, 64 F.3d 844, 848, 852 (3d Cir. 1995) (finding reversible error in the exclusion of a defense expert on the weaknesses of handwriting identification).

So, in these criminal cases, defense-proffered expertise was found to be properly excluded 83% of the time (with only one mandated retrial for erroneous exclusion), and government proffered expertise was found only once to be so undependable as to require exclusion (and reversal). Contrast this with the situation in civil cases. Examination of a large random sample of court of appeals civil cases³³ shows that nearly 90% of such cases involved challenges by civil defendants of plaintiff-proffered expertise, and that the defendants prevailed nearly two-thirds of the time. In the small number of cases where civil plaintiffs attacked defense-proffered expertise, such plaintiffs were ultimately successful slightly more than half the time. These proportions are graphically depicted in *Appendix Figure 2B*.

Of course, none of this goes directly to the validity of any given decision, and because different forms of expertise are commonly proffered in civil and criminal cases, these numbers do not directly establish disparate standards of dependability in the two contexts, but they are fairly striking in their own right. Maybe it is true that the prosecution always proffers highly dependable expertise, and that criminal defendants and civil plaintiffs usually proffer garbage, or that prosecutors and civil defendants only object to low quality proffers whereas criminal defendants (and to a lesser extent civil plaintiffs) object to demonstrably dependable evidence as a matter of course. Only a more detailed examination of the case mix represented by these numbers can shed light on this (we will turn to specific issues of the case mix later in the article).

Of course, appellate cases are not random samples of proffers and the fate of proffers. Results on appeal are somewhat ordained by doctrines of deference in regard to the decision below (the abuse of discretion standard of review),³⁴ and neither government proffers rejected below nor defendant proffers accepted below in criminal

³³ I personally examined all the criminal cases in every court setting. The civil cases were examined and counted by my research assistant, Jennifer Mara, under my supervision and direction, after training by me in the criteria of classification and description which were to be used. The samples were wildly large for statistical purposes, since a randomly selected half of all civil cases was examined. The sampling protocol, which was selected in order to explore the potential possibility of a time effect analysis of the cases, was conducted by examining the earliest, median, and latest one-sixths of the civil cases.

³⁴ See *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141-42 (1999) (noting that Federal Rule of Evidence 702 sets forth the trial court's "gatekeeping" obligation with regard to testimony based on specialized knowledge and that "courts of appeals are to apply [the] 'abuse of discretion' standard when reviewing district court's" decisions regarding the reliability and admissibility of expert testimony) (citing *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 143 (1997)).

acquittal cases can ever show up in appellate opinions.³⁵ So we now turn to the district court experience.³⁶

B. *The District Court Cases*

There were 649 district court opinions citing *Daubert* in the reference set. Of these, only sixty-five arose in regard to criminal cases, and only fifty-four dealt with dependability issues in a guilt-or-innocence context, as can be seen in *Appendix Figure 1*.³⁷ These fifty-four cases represented twelve opinions on defense challenges to prosecution proffers, and forty-two opinions on government challenges to defense proffers. Of the twelve defense challenges, the government's challenged evidence was fully admitted eleven times, and admitted with restrictions once.³⁸ Moreover, one can be relatively confident that virtually any decision totally excluding government proffered expertise on dependability grounds would have been the subject of some sort of opinion, at least the first time the decision was made in regard to a particular kind of proffer.³⁹ It

³⁵ See *United States v. Ball*, 163 U.S. 662, 671 (1896) ("The verdict of acquittal was final, and could not be reviewed, on error or otherwise, without putting him twice in jeopardy, and thereby violating the Constitution.").

³⁶ The reported district court cases also don't fully mirror practice, of course, since many proffers are not objected to, and since contested issues of admissibility in cases resulting in acquittals or pleas may not show up anywhere. However, sometimes such cases may surface and even have influence, as in the case of Judge Matsch's oral ruling in regard to handwriting expertise in *United States v. McVeigh* (the Oklahoma City bombing case), No. 96-CR-68, 1997 WL 47724 (D. Colo. Trans. Feb. 5, 1997).

³⁷ This roughly 10% criminal figure may be surprising at first glance, but it is not significantly less than the percentage of criminal-related published district court opinions generally, as a perusal of the general index of a few recent volumes of the Federal Supplement will quickly indicate. The district courts turn out to spend most of their efforts on civil cases, at least as far as published opinions go.

³⁸ See *United States v. Hines*, 55 F. Supp. 2d 62, 67 (D. Mass. 1999) (noting that a forensic document examiner was allowed to point out similarities and differences between the questioned document and authenticated exemplars of defendant's handwriting, but was not allowed to give a conclusion regarding common authorship). This ruling is rightly regarded as a defense victory with regard to an expert's specific ability to determine common authorship more dependably than the jury and, therefore, justify admission of the expert's conclusion. The case also illustrates another reason why I am circumspect about the meaning of exact numbers in this article. The case is based on a similar ruling by Judge Matsch in the Oklahoma City bombing case, *United States v. McVeigh*, which is not in the reference data set because it was not published, in any way, in any reporter, but which is reflected only in an oral ruling after argument, the transcript of which is available on Westlaw. No. 96-CR-68, 1997 WL 47724 (D. Colo. Trans. Feb. 5, 1997).

³⁹ Judge Matsch's oral decision on handwriting expertise in *McVeigh*, No. 96-CR-68, 1997 WL 47724, at *23, (D. Colo. Trans. Feb. 5, 1997), is something of an anomaly, but it did not totally exclude the challenged experts from the stand, and at any rate has become well known.

seems clear that rarely has a federal prosecutor had proffered expertise excluded on dependability grounds.

However, as can be seen in *Appendix Figure 2A*, when the government challenged defense proffers, it prevailed two-thirds of the time (in regard to twenty-eight of the forty-two proffers). This does not give a significantly different picture than that seen on appeal. While defense proffers were admitted over objection at the district court level more often than defense proffers rejected below were found to have been erroneously rejected at the court of appeals level (a third of the time compared with less than a fifth of the time), this is perhaps to be expected given the standard of deference to be applied on appeal.⁴⁰ The significant thing is still that, even at the district court level, when the prosecution objected to defense-proffered expertise, the prosecution won two-thirds of the time.

Contrast this finding with the civil case track record. A substantial sample⁴¹ of such cases at the district court level shows, once again, nearly two-thirds of challenged plaintiff expertise being rejected, whereas in the small number of cases where plaintiffs have challenged defense-proffered expertise, less than half the defense proffers have been rejected. The reader will find a graphic representation of the federal civil cases in *Appendix Figure 2B*.

These findings mirror the court of appeals record, except that defendants have been successful more often in getting their experts accepted at the district court level than one would infer from the court of appeals numbers. So, just looking at the federal numbers, it seems that civil defendants win their *Daubert* dependability challenges most of the time, and that criminal defendants virtually always lose their dependability challenges. And when civil defendants' proffers are challenged by plaintiffs, those defendants usually win, but when criminal defendants' proffers are challenged by the prosecution, the criminal defendants usually lose.

C. *The State Court Cases*

Evidence from state courts does not reveal a greatly dissimilar pattern, though, as we shall see, there are differences in detail. As already noted, in the reference set there were 528 *Daubert* cites in

⁴⁰ See *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (holding "that abuse of discretion is the proper standard by which to review a district court's decision to admit or exclude scientific evidence").

⁴¹ The sampling protocol for the civil cases at the district court level was conducted in accordance with the protocol conducted in the sampling of court of appeals civil cases. See *supra* note 33 (outlining the sampling protocol).

state court opinions, of which a bit more than half (288) dealt with criminal matters. (State appellate⁴² courts apparently spend more time in criminal business than do federal courts).

Of these opinions, 279 involved dependability challenges to evidence proffered on guilt or innocence, 211 involved challenges by the defense to government expertise, and seventy involved challenges by the government to defense experts (once again, a few cases involved both).

Of the 211 challenges to government proffered expertise, the government prevailed in 161, seventeen were found to have been improperly admitted under the circumstances without denying the underlying potential dependability of the expertise in the context of the case, and thirty-three were wins for the defendant.⁴³ Just on the numbers, the prosecution lost a quarter of the time in state cases, as compared with less than 10% of the time in federal cases. This distinction is readily apparent in a comparison of *Appendix Figure 3A* and *Appendix Figure 2A*.

Prosecution challenges to defense expertise were less common in state court, when measured as a percent of all challenges, 25% to 48%, and they were successful at about the same rate, that is, three quarters of the time.

As depicted in *Appendix Figure 3B*, in state civil cases, 82% of the cases involved defendants challenging plaintiff expert proffers, and 40% of these were successful. While this rate is lower than the two-thirds victory rate for defendants in federal court, it represents a not-insignificant percentage of rejection of proffered civil plaintiff expertise on reliability grounds. This rate is almost certainly higher than the pre-*Daubert* rate, even though the case was not directly binding in any state court.⁴⁴ Finally, in the small number of cases

⁴² Most, but not all, of the opinions picked up in a Westlaw ALLSTATES search were appellate and I did not separate the trial court opinions from the appellate opinions.

⁴³ Many were illusory victories where the win on expertise was washed out by the universal solvent of "harmless error." See, e.g., *United States v. Bruck*, 152 F.3d 40, 47 (1st Cir. 1998) (finding the trial court's decision to admit prosecution proffered expertise to be "absolutely harmless" since there was other "strong evidence of guilt").

⁴⁴ Exactly how one would conveniently generate an appropriate pre-*Daubert* comparison group is not entirely clear. Clearly, the small number of cases which generated opinions citing *Frye* in the two comparison periods prior to *Daubert* is not such a set, featuring, as it does, a high percentage of family law cases and attempted civil uses of polygraph. See *supra* text accompanying notes 18-21 (comparing the citation rates of *Daubert* with the citation rate for *Frye* in the pre-*Daubert* era). However, it appears unlikely that any appropriate comparison set of pre-*Daubert* challenges to plaintiff-proffered expertise would have shown a 40% defense victory rate. See Green, *supra* note 4, at 398 ("What the Court did in *Daubert* was to adopt a test for scrutinizing an expert's methodology and reasoning that filled a previously extant void.").

where civil plaintiffs challenged defense expertise on reliability grounds, such plaintiffs prevailed at about the same rate as did civil defendants in their challenges. This contrasts with the federal experience, where plaintiffs prevailed less often in their challenges than defendants did in theirs.⁴⁵ And, of course, criminal defendants prevailed much less often in their challenges than either civil plaintiffs or defendants, and the prosecution prevailed in its challenges much more often than any other class of litigant.

The most striking contrast between the state and federal numbers is the prosecution's higher loss rate in state courts. One obvious contributing variable is the difference in case mix between the two types of courts. There were three areas which were much more commonly litigated on the state level and which produced significant clusters of defense victories: DNA evidence, horizontal gaze nystagmus (HGN) evidence, and psychological "syndrome" evidence, especially in child sexual abuse cases.

III. SIGNIFICANT STATE CRIMINAL CASE CLUSTERS

A. *The "Syndrome" Cases*

It is important not to let this article sink too far into the swamp of controversy surrounding syndrome evidence and the myriad cases that have struggled with it, but some discussion is necessary to understand the cases in the reference set.

In its general meaning, all "syndrome" means is a group of symptoms or signs typical of an underlying cause or disease.⁴⁶ In regard to physical illnesses with established causal agents, the concept of syndrome is uncontroversial.⁴⁷ With regard to behavioral or psychological manifestations where the "cause" may commonly be constructed partly from the symptoms themselves, the notion of "syndrome" is more controversial.⁴⁸ These problems are

⁴⁵ See *supra* notes 33, 41 and accompanying text (discussing expert proffers in civil cases in federal court).

⁴⁶ See WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE UNABRIDGED 2320 (1993) (defining "syndrome" as "a group of symptoms or signs typical of a disease, disturbance, condition, or lesion in animals or plants").

⁴⁷ See PAULA J. CAPLAN, THEY SAY YOU'RE CRAZY 54 (1995) ("Calling mental disorders a subset of medical disorders . . . gives the former the appearance of being scientifically proven and indisputably true, in the way that there is rarely any question about whether or not someone has a medical disorder such as high blood pressure or cancer.").

⁴⁸ See *id.* (explaining that "once medical-scientific language is used to talk about emotional or behavioral issues, many citizens will begin believing they know what they are talking about when they are actually speaking in tongues").

compounded by ethical restrictions on experimental research into behavioral syndromes, making most of the data utilized in their identification necessarily the product of inherently less reliable methodology.⁴⁹ This is further complicated by the fact that many of those involved in both supplying the initial “data” and in analyzing it and constructing it into theories may wear two hats: researchers looking for empirically defensible constructs of reality, and therapists committed to helping their patients regardless of the objective reality of the patients’ particular accounts. To this is sometimes added a third role, social policy advocate for the groups to which the patients are perceived to belong. It is not surprising that the result of all this is not always the most dependable science, especially in its forensic applications.⁵⁰

In a sense, any mental condition listed in any version of the Diagnostic and Statistical Manual⁵¹ is a “syndrome”, and testimony concerning such syndromes has been part of the evidence proffered by criminal defendants on issues of insanity and diminished capacity since long before the first such manual. Nevertheless, the first asserted condition commonly associated with the modern controversy over “syndrome” evidence, “Rape Trauma Syndrome,”

⁴⁹ See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 2-4.3.2 (recognizing that “[r]esearchers of the biological effects of toxic substances cannot instruct people to spend their lives exposed to certain substances,” although such a test might result in a study that reliably creates a strong inference of causation).

⁵⁰ See *id.* § 8-1.5 (noting that “[t]o date, the research [on battered woman syndrome] has only muddied [the] picture” and that “[c]ourts should expect, indeed demand, more from social science”).

⁵¹ The Diagnostic and Statistical Manual of Mental Disorders (DSM) is a publication of the American Psychiatric Association (APA). AMERICAN PSYCHIATRIC ASSOCIATION, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (4th ed. 1994) It has had five incarnations in the last 30 years; the DSM-I, DSM-II, DSM-III, DSM-III-R and DSM-IV. See *id.* at xvi-xviii (discussing the historical background of the DSM). It is essentially a taxonomic undertaking with intense normative and political overtones, exhibiting a surprisingly low overall level of reliability. See CAPLAN, *supra* note 47, at 85 (1995) (criticizing the APA’s methodology in the creation of the DSM).

It was a disappointing surprise to me . . . and one that I acknowledged only a small step at a time, to discover that a careful and sincere search for either scientific support or even usefulness to therapists wanting to help their patients has played only a minor role in the entire process of constructing the *DSM-III*, *DSM-III-R*, and *DSM-IV*. Many other factors did figure significantly, including APA personnel’s worries about what the public and their patients would think of psychiatrists, the force with which they resisted examining their own biases in their clinical practice, and a host of other political and probably financial considerations. . . . [T]he *DSM* process’s major weakness is that mental disorders are defined so much on the basis of the beliefs and values of those who literally write the book. [One particular chapter] is a description of the scarcity of good science and the pervasiveness of politics, power, and other inappropriate determinants of the *DSM* authors’ decisions.

Id.

surfaced in the psychological literature in 1974,⁵² in civil courtrooms in 1978,⁵³ and criminal courtrooms in 1979.⁵⁴ Then, spurred by the publication of Lenore Walker's influential, if empirically thin, 1979 book *The Battered Woman*,⁵⁵ (wherein was coined the phrase "battered woman syndrome"), and by the 1980 issuance of the DSM-III, which promoted the phenomenon of post traumatic stress effects to a full scale disorder,⁵⁶ Battered Woman Syndrome and Post Traumatic Stress Disorder (PTSD) followed Rape Trauma Syndrome into the courtroom,⁵⁷ trailed not long after by Child Sexual Abuse Accommodation Syndrome (CSAAS).⁵⁸

When used as defense-proffered evidence on insanity, diminished capacity or *mens rea* questions (all normatively charged mental state issues not directly bearing on what I have elsewhere termed "brute fact" guilt or innocence⁵⁹), these asserted "syndromes" seem to have been held to fairly low dependability standards, which was in keeping with the fairly lax foundational standards of the period.⁶⁰

⁵² The term is generally traced to Ann Wolbert Burgess and Lynda Lytle Holmstrom, *Rape Trauma Syndrome*, 131 AM. J. PSYCHIATRY 981 (1974).

⁵³ See *White v. Violent Crimes Comp. Bd.*, 388 A.2d 206, 216 (N.J. 1978) (discussing whether the residual psychological effects of a rape amounted to a crime-induced incapacity and thus tolled a statute of limitations provision).

⁵⁴ See *People v. Mathews*, 154 Cal. Rptr. 628, 632 (Cal. Ct. App. 1979) (contending that the defense of rape trauma syndrome "was available to insulate [the defendant] from liability for the death of . . . an innocent third party").

⁵⁵ LENORE E. WALKER, *THE BATTERED WOMAN* (Harper Colophon 1980) (1979). In *The Battered Woman*, Dr. Walker claims to have developed a "psychosocial theory of learned helplessness" on the basis of her interviews with women involved in abusive relationships. *Id.* at xvi.

⁵⁶ See ERIC T. DEAN, JR., *SHOOK OVER HELL: POST-TRAUMATIC STRESS, VIETNAM AND THE CIVIL WAR* 27 (1997) (noting that, although PTSD was not formally recognized as a disorder until the DSM-III's adoption in 1980, the roots of the disorder can be traced to hysteria exhibited by railway accident victims in the nineteenth century).

⁵⁷ See *Ibn-Tamas v. United States*, 407 A.2d 626, 631 (D.C. 1979) (noting that the trial court refused to permit the testimony of Dr. Lenore Walker regarding the extent to which the defendant's behavior and characteristics corresponded to those of a "battered woman"); *State v. Hardimon*, 310 N.W.2d 564, 567 (Minn. 1981) (noting that the defendant argued on appeal that the trial court improperly prevented him from showing that post traumatic stress disorder mitigated his criminal responsibility for murder).

⁵⁸ See, e.g., *State v. J.Q.*, 617 A.2d 1196, 1197 (N.J. 1993) (discussing whether CSAAS is scientifically reliable). CSAAS was originally put forth in Roland C. Summit, *The Child Sexual Abuse Accommodation Syndrome*, 7 CHILD ABUSE & NEGLECT 177 (1983).

⁵⁹ See D. Michael Risinger, *Preliminary Thoughts on a Functional Taxonomy of Expertise*, in 3 DAVID L. FAIGMAN, DAVID H. KAYE, MICHAEL J. SAKS, & JOSEPH SANDERS, *MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY* § 34-2.4 (1999) (contending that forensic pathology should be subject to a higher standard of reliability than forensic psychology to the extent that "[f]orensic psychology generally has relevance only to such normatively charged issues as responsibility and mens rea . . . but forensic pathology deals with the most concrete kind of who-what-when-where actus reus/identity fact issues").

⁶⁰ See 1 *MODERN SCIENTIFIC EVIDENCE*, *supra* note 7, § 8.1-0 (noting that courts have welcomed battered woman syndrome into evidence even though "the legal and empirical

This was the use given to rape trauma syndrome evidence in its first recorded appearance in a criminal courtroom, the 1979 California homicide case reflected in *People v. Mathews*.⁶¹ And, as long as use of such evidence was so confined, its admission presented few jurisprudential problems,⁶² and it has been generally received in most jurisdictions when so proffered by criminal defendants.⁶³

It was not long before prosecutors too found use for such testimony; however, not limited to state-of-mind issues, but bearing upon the brute fact issues of the happening of the crime or the identity of the perpetrator, and that presented a different set of jurisprudential problems.⁶⁴ The first reported case considering prosecution use of this kind of evidence appears to be the 1982 Kansas case of *State v. Marks*.⁶⁵ In that case the defendant had allegedly picked up the victim in a bar and lured her to his house, where, he did not contest, there was intercourse.⁶⁶ The victim complained to her roommate and the police the same night that she had been drugged, physically threatened and forced to engage in sexual intercourse and oral sodomy.⁶⁷ Moreover, the victim had lacerations at her vaginal opening when examined medically.⁶⁸ Nevertheless, the practical focus of the defense was consent.⁶⁹ In rebuttal of this defense, the state called a “forensic psychiatrist” who testified that there was a variety of PTSD known as rape

pillars that define [the] syndrome rest on less than sound foundations”). Some legislatures have gone so far as to mandate defensive admissibility of battered woman syndrome evidence by statute. See *id.* § 8-1.0 n. 2 (noting that the states of Ohio, Massachusetts, Maryland, Missouri, and Wyoming have adopted such provisions).

⁶¹ 154 Cal. Rptr. 628 (Cal. Ct. App. 1979).

⁶² There always seems to have been special tolerance for expertise in regard to such issues. See Risinger, *supra* note 59, § 34-2.4 (recognizing that it is not uncommon to find “normative expert testimony . . . by members of various psychological disciplines offered as relevant to insanity or diminished capacity or child custody or similar issues”).

⁶³ See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7, §§ 8-1.1, 9-1.3 (discussing the use of battered woman syndrome and battered child syndrome, respectively, in connection with the theory of self-defense).

⁶⁴ See Risinger, *supra* note 59, § 34-2.4.

Part of the growing concern for dependability in expertise can be traced to the mutation of forensic psychology beginning a couple of decades ago from a beast that confined itself to ultimately normative issues such as sanity and capacity, to one that also attacked important “real fact” criminal guilt-or-innocence issues such as identity or the existence of the actus reus, generally through the medium of so called “syndrome” evidence.

Id.

⁶⁵ 647 P.2d 1292 (Kan. 1982).

⁶⁶ *Id.* at 1294, 1298.

⁶⁷ *Id.* at 1294-95.

⁶⁸ *Id.* at 1295.

⁶⁹ *Id.* at 1298.

trauma syndrome, that he had interviewed the victim, and that as a result of his evaluation he concluded that she had recently “been the victim of ‘a frightening assault, an attack’ and that she was suffering from the post-traumatic stress disorder known as rape trauma syndrome.”⁷⁰ No very sophisticated review of the existence of such a syndrome, its discoverability by interview, or the validity of inferring the objective circumstances of lack of consent was undertaken by the court, which nevertheless declared the evidence admissible.⁷¹ It was not long before the general lines of controversy were clearly drawn, however, for seven weeks later the Supreme Court of Minnesota decided *State v. Saldana*,⁷² which held on similar facts that such evidence was not sufficiently dependable to be admitted for such use.⁷³

To make a long story short, during the late 1980s and early 90s, chaos reigned, but, by the time of the decision in *Daubert*, certain general approaches to such prosecution evidence had already begun to work themselves out.⁷⁴ A minority of jurisdictions allowed prosecutors to use some or all syndrome evidence pretty openly in very specific proof of the objective elements of the crime.⁷⁵ In typical cases, the experts would interview the victim, evaluate their rendition and affect, then conclude that they demonstrated the syndrome and therefore had been the victim of battering, rape, or child molestation.⁷⁶ The expert would generally not be allowed to explicitly say that the victim was truthful,⁷⁷ or to identify the perpetrator of the crime, but the diagnostic finding not only provided evidence of the actus reus, but by implication corroborated

⁷⁰ *Id.* at 1299.

⁷¹ *See id.* at 1300 (noting that the admissibility of expert testimony is within the discretion of the trial court and explaining that a trial court decision regarding admissibility is only to be reversed upon a showing that the trial court abused its discretion).

⁷² 324 N.W.2d 227 (Minn. 1982).

⁷³ *See id.* at 230 (stating that “[t]he scientific evaluation of rape trauma syndrome has not reached a level of reliability that surpasses the quality of common sense evaluation present in jury deliberations” and that such syndrome testimony remains inadmissible until further reliability evidence is present).

⁷⁴ Valiant efforts to summarize and sort out the chaos were undertaken in *Hutton v. State*, 663 A.2d 1289, 1295-97 (Md. 1995) and *State v. Alberico*, 861 P.2d 192, 207-08 (N.M. 1993).

⁷⁵ *See, e.g., State v. Liddell*, 685 P.2d 918, 923 (Mont. 1984) (noting that psychiatric testimony is admissible in order to aid the jury in determining a fact at issue in the case – i.e., whether there was consent, on the part of the alleged rape victim, to engage in a sexual act) (citing MONT. R. EVID. 702).

⁷⁶ *See id.* at 922 (stating that a psychiatric nurse had testified that the victim’s acute depression and severe headaches were caused by her rape).

⁷⁷ Some jurisdictions apparently allowed even this. *See, e.g., Kruse v. State*, 483 So. 2d 1383, 1387 (Fla. Dist. Ct. App. 1986) (contending that the expert’s opinion as to an alleged child-abuse victim’s truthfulness was “more in the nature of a medical opinion . . . than a legal conclusion that a criminal act had occurred”).

the veracity, and to a lesser degree, the accuracy of the victim's rendition.

The majority of jurisdictions would not go so far. They have held that syndrome evidence was not admissible to prove the existence of the crime, but could be used in cases where there was a delay in reporting the crime, or some other detail of the victim's situation, which common assumptions might cause one to overvalue in discounting the victim's testimony.⁷⁸ In those cases (and such conditions were commonly present) the expert would be allowed to explain the aspects of the syndrome that accounted for such a delay, and also normally to opine on whether the characteristics of the victim were consistent with the syndrome.⁷⁹ And, beyond this, virtually every jurisdiction allowed expert testimony in such circumstances if the expert did not evaluate the individual victim, but testified as a clear and unambiguous educational expert summarizing what the expert claimed was known to science about the syndrome.⁸⁰ Checking the available research to see if the

⁷⁸ See, e.g., *State v. Spigarolo*, 556 A.2d 112, 122-23 (Conn. 1989) (upholding a trial court's decision to allow a social worker to testify that it is not unusual for child abuse victims to recount their abuse history with apparent inconsistencies due to the trauma they have suffered since such a phenomenon is beyond the average person's comprehension).

⁷⁹ See, e.g., *State v. Middleton*, 657 P.2d 1215, 1218 (Or. 1983) (affirming a conviction where an expert witness gave testimony at trial regarding the usual characteristics of child abuse victims and linking those characteristics to the alleged victim).

⁸⁰ See, e.g., *State v. Ciskie*, 751 P.2d 1165, 1173 (Wash. 1988) (upholding a decision allowing a social worker specializing in family violence to explain the characteristics of a person suffering from battered woman syndrome since such testimony would be helpful to a lay jury). Similar cases in the reference set include *United States v. Bighead*, 128 F.3d 1329, 1330 (9th Cir. 1997) (noting that the expert did not examine the victim and merely testified as to the "typical characteristics" of child abuse victims) and *State v. Edelman*, 593 N.W.2d 419, 423 (S.D. 1999) (observing that the expert "testified as to the general characteristics of a sexually abused child" and "never stated that [the victim] displayed some of these characteristics"). Such "summarizational" or "educational" experts are called to communicate to the jury what is sometime called "major premise" or "general background" information. Normally such information is assumed to be part of the jurors "common sense" experience, which they bring with them into the jury room and utilize in formulating the "base rate of occurrence" assumptions by which they judge the likelihood of the adjudicative fact claims of the parties put forward through the evidence. Sometimes, when it is clear such necessary background knowledge is absent (as in the case, for example, of industry practices necessary to construe a contract), or likely to be inaccurate (as is arguably the case concerning the likelihood of delayed complaint among actual rape victims), the law allows the testimony of such "educational" experts, who do not (at least while performing this role) offer inferences, opinions or conclusions about the adjudicative facts of the individual case, but merely deliver a summary of their specialized knowledge concerning the major premise issue in question. See Risinger, *supra* note 59, § 34-2.2 ("[T]he jury education function should actually be preferred to the 'opinion' giving function, because it empowers the jury to draw their own conclusions more accurately instead of relying on the conclusions of others."). See generally Ronald J. Allen & Joseph S. Miller, *The Common Law Theory of Experts: Deference or Education?* 87 NW. U. L. REV. 1131, 1133 (1993) (exploring the difficulty in determining the expert's role in a trial); Ronald J. Allen & Joseph S. Miller, *The Expert as Educator:*

empirical record supported such assertions was done haphazardly at best.⁸¹

Finally, toward the end of the period, there was a growing feeling that rape trauma syndrome and CSAAS were not anything different than PTSD, that the research did not indicate any objective symptoms which could be used to indicate the particular nature of the underlying trauma, and that the very names of the syndromes were problematic, in that they assumed the nature of a particular underlying trauma. This seemed to be an especially bad problem in regard to CSAAS, given some of the problems with child testimony confabulation and false memory implanted by suggestion that some courts began to realize were real, non-trivial potential problems.⁸² It is in this light that the “syndrome” cases in the reference set must be viewed.

There were twenty-seven prosecution-proffered “syndrome evidence” cases in the reference set, sixteen government victories and twelve defense victories (one case went both ways⁸³). All but one of the defense victories involved alleged child sex-crime victims,⁸⁴ while less than half of the government victories did. Six of

Enhancing the Rationality of Verdicts in Child Sex Abuse Prosecutions, 1 PSYCHOL. PUB. POL'Y & L. 323, 323-24 (1995) (comparing the legal profession's reliance on expert testimony in sexual abuse cases to the Salem witch trials' reliance on superstition).

Not only have I not discovered a case where it has been declared error to have allowed a syndrome witness to give only educational testimony, some cases allow such testimony only on the explicit condition that the witness not deal at all with any adjudicative facts in their testimony. See, e.g., *Arcoren v. United States*, 929 F.2d 1235, 1239, 1241 (8th Cir. 1991) (upholding a decision to allow a psychologist to testify as to her scientific knowledge about battered woman syndrome but not as to a diagnosis of the victim).

⁸¹ See, e.g., *Edelman*, 593 N.W.2d at 422-23 (relying on previous decisions of the Supreme Court of South Dakota and other jurisdictions as evidence that CSAAS testimony is reliable scientifically).

⁸² See *State v. Michaels*, 642 A.2d 1372, 1380 (N.J. 1994) (noting that in a child abuse case against a nursery school teacher, “[t]he record of the investigative interviews [with the children] discloses the use of mild threats, cajoling, and bribing” and finding a “substantial likelihood . . . that the children’s recollection of past events was both stimulated and materially influenced by that course of questioning”); *State v. J.Q.*, 617 A.2d 1196, 1200 (N.J. 1993) (acknowledging that the suggestibility of children in child sexual abuse prosecutions should force courts to be particularly diligent in safeguarding the rights of defendants in those cases).

⁸³ See *State v. Alberico*, 861 P.2d 192, 195 (N.M. 1993). This case resolved two appeals with different results in one opinion. Should it be counted as one case or two? This once again illustrates the approximate nature of the “counts” given in this article.

⁸⁴ The exception was *Fowler v. State*, 958 S.W.2d 853, 857, 860, 864 (Tex. App. 1997), which found testimony concerning “family violence syndrome” offered to rebut defendant’s claim that his estranged wife voluntarily accompanied him and was therefore not kidnapped, to be inadmissible. Why the state did not offer the more conventional “battered woman syndrome” evidence is unclear. At any rate, the defense victory in *Fowler* was futile, as the error was found to be harmless in the face of otherwise overwhelming evidence. See *id.* at 866-67 (noting that the expert testimony played a secondary role to the testimony of several

the defense wins involved CSAAS evaluations offered as evidence of the existence of the crime or the truth of the victim⁸⁵ or both⁸⁶ (though five, and perhaps six,⁸⁷ of the prosecution victories accepted similar evidence).⁸⁸ The rest of the defense victories involved

eyewitnesses). Similar “family violence syndrome” testimony was accepted in *State v. Maelega*, 907 P.2d 758, 766-68 (Haw. 1995), to rebut, in a not too clear way, a defendant’s claim of extreme emotional distress in the murder of his wife. Another defense victory that might be said to involve syndrome-like evidence was *Flanagan v. State*, 625 So. 2d 827, 828-30 (Fla. 1993), which ruled that it was error to admit “sex offender profile evidence” against defendant, but this was likewise found to be harmless error.

⁸⁵ It is sometimes difficult to tell which, since the victim has generally testified, and the expert’s testimony that the victim has “child sexual abuse accommodation syndrome” has both effects.

⁸⁶ See *Hadden v. State*, 690 So. 2d 573, 575 (Fla. 1997) (holding that CSAAS testimony has not been proven to be generally accepted by a majority of experts, and deeming it inadmissible in child abuse cases); *Steward v. State*, 652 N.E.2d 490, 493-94 (Ind. 1995) (indicating that CSAAS evidence is often presented “to prove directly . . . the fact that abuse actually occurred” and rejecting the use of the “consistent with” terminology); *Newkirk v. Commonwealth*, 937 S.W.2d 690, 693-95 (Ky. 1996), (discussing the irrelevancy of CSAAS evidence with regard to issues other than credibility); *State v. Foret*, 628 So. 2d 1116, 1119 (La. 1993) (discussing the psychologist expert’s opinion that the alleged victim “was telling the truth,” and indicating the doctor explained that, “on the basis of what I get from the child I make some conclusions about whether or not what she is telling me is consistent with what we know about the dynamics of sexual abuse”); *State v. Chamberlain*, 628 A.2d 704, 707 (N.H. 1993) (recognizing that CSAAS “cannot properly be used as a diagnostic device to detect whether a child has been sexually abused”); *State v. Jones*, 863 P.2d 85, 90 (Wash. Ct. App. 1993) (noting that the trial court allowed, over defense objection, a prosecution expert to testify that the alleged child victim “had some legitimate fears, based on some touching of her by [the defendant, and that] this child had been sexually molested by [the defendant]”).

⁸⁷ The “perhaps” is *State v. Alberico*, 861 P.2d 192, 210, 212 (N.M. 1993), which accepted proof of PTSD as generally admissible to prove the fact of rape, though it rejected any reference to rape trauma syndrome (on the ground that it was not listed in the DSM). The effect of this, as applied to child abuse cases in New Mexico, is to forbid explicit CSAAS reference, but to allow PTSD testimony to perform the same functions, as long as no explicit comment on credibility is made. See *State v. Fairweather*, 863 P.2d 1077, 1079 (N.M. 1993) (indicating that reversal was based on the limitations on the use of PTSD testimony, as outlined in *Alberico*).

⁸⁸ See *Toro v. State*, 642 So. 2d 78, 78-79 (Fla. Ct. App. 1994) (noting that the trial court did not err in allowing a psychologist to testify as to her evaluation of an alleged sexual abuse victim); *State v. Guidry*, 647 So. 2d 502, 508 (La. Ct. App. 1994) (dismissing defendant’s contention that a psychometrist’s statement that “the victim fit into the category of a child who had been sexually abused” had unfairly “bolstered the testimony of the child victim” because the defendant failed to object to the testimony); *People v. Peterson*, 537 N.W.2d 857, 859 (Mich. 1995) (stating that the trial court properly allowed expert testimony concerning why a child abuse victim might delay in reporting the attack); *State v. Schumpert*, 435 S.E.2d 859, 861-62 (S.C. 1993) (upholding a trial court’s decision to allow expert testimony and behavioral evidence on rape trauma syndrome “to prove a sexual offense occurred [since] the probative value of such evidence outweighs its prejudicial effect”); *State v. Morgan*, 485 S.E.2d 112, 114-15 (S.C. Ct. App. 1997) (holding expert testimony stating that “the child has been sexually abused even though there is no medical evidence” was properly admitted in a child sexual abuse case). Perhaps there is less here than meets the eye. Two cases are from one jurisdiction, South Carolina (*Schumpert*, 435 S.E.2d 859 & *Morgan*, 485 S.E.2d 112). One case, *Guidry*, refused to apply *State v. Foret*, 628 So. 2d 1116 (La. 1993), retroactively. 647 So. 2d at 508 n.2. In another case, *Toro*, the court felt obliged by previous decisions of its supreme court, but called on that court to change the rule, 642 So. 2d at 78, which the higher

various other approaches to getting in expert evaluations of the reality of the actus reus, or the truth of the victim.⁸⁹ The bulk of the other prosecution victories involved syndrome evidence to explain delay in reporting an episode,⁹⁰ or recantation,⁹¹ or to corroborate the single issue of lack of consent.⁹²

court subsequently did in *Hadden v. State*, 690 So. 2d 573, 575 (Fla. 1997). Finally, the Michigan Supreme Court, in a reinvention of the ultimate issue rule, imposed restrictions, not on the use of such evidence, but on the terms by which the expert is allowed to testify. *Peterson*, 537 N.W.2d at 859.

⁸⁹ Two of the cases involved using PTSD terminology to the same end as that forbidden in the CSAAS cases. See *Hutton v. State*, 663 A.2d 1289, 1297-1301 (Md. 1995) (stating that the prosecution expert impermissibly vouched for the credibility of the victim by testifying that the abuse did, in fact, occur); *State v. Alberico*, 861 P.2d 192, 210 (N.M. 1993) ("PTSD evidence . . . is admissible for establishing whether the alleged victim exhibits symptoms of PTSD that are consistent with rape or sexual abuse."). One case rejected a claim by an expert that he had a special interview technique that allowed him to determine if the victim was being truthful. See *State v. Carlson*, 906 P.2d 999, 1006 (Wash. Ct. App. 1995) (noting that, in the absence of any physical evidence or witnesses to the alleged abuse, the case boiled down to the defendant's word against the expert's, and that, since the trial ended in a hung jury, it was probable that the expert's testimony affected the outcome). One case rejected a determination of abuse, not through diagnosis of the syndrome, but by application of "clinical experience." See *State v. Cressey*, 628 A.2d 696, 699-702 (N.H. 1993) (finding the reliability of the expert's testimony to be insufficiently reliable as evidence of actual sexual abuse and, therefore, inadmissible). Another case rejected the determination of the fact of abuse based on examination of pictures drawn by the child victim. See *State v. Luce*, 628 A.2d 707, 709 (N.H. 1993) (reversing the defendant's conviction on the basis of the unreliable conclusions advanced by the expert regarding the child's drawings). The last two of these cases perhaps do not technically involve "syndrome" evidence, but they are appropriately included here because they were companion cases to *Chamberlain*, see 628 A.2d 704, 704 (revealing that *Chamberlain* was decided by the Supreme Court of New Hampshire on July 15, 1993, the same day as both *Cressey* and *Luce*), and both cases dealt with the same expert reaching the same conclusions in three different modes. See *Cressey*, 628 A.2d at 697-98 (noting that Dr. Kathleen Bollerud stated that the victims' symptoms "were consistent with those of a sexually abused child"); *Luce*, 628 A.2d at 709 (stating that Dr. Bollerud's testimony that the victim's drawings were consistent with those of a sexually abused child). One suspects that the New Hampshire Supreme Court might have judged that Dr. Bollerud's conclusions were foregone or based on an unsubstantiated belief that the victims were subject to future danger. See *Luce*, 628 A.2d at 709. (declaring that "Dr. Bollerud's testimony in this case clearly went beyond the limits of identifying a consistency when she expressed her serious concerns that a child drawing such pictures was being sexually abused and should be automatically reported to the division for children and youth services for investigation and protection"). This is a serious concern, because in any area where criteria are subjective and not empirically unmistakable, one risks the emergence of experts whose conclusions are always available to make weight for one particular side. See *Barefoot v. Estelle*, 463 U.S. 880, 884-85, 887 (1983) (allowing expert testimony that predicted the future dangerousness of the defendant, even though such testimony was based on hypothetical questions and no personal evaluation); see also *infra*, notes 118-26 and accompanying text (discussing expert testimony and other evidence in cases involving polygraph testing).

⁹⁰ See *United States v. Bighead*, 128 F.3d 1329, 1331 (9th Cir. 1997) (affirming the defendant's conviction and finding expert testimony regarding "class[es] of victims generally" and the delayed reporting by victims of child abuse to be admissible); *State v. Ali*, 660 A.2d 337, 349 (Conn. 1995) (indicating that the trial court properly admitted the testimony of a counselor regarding the characteristics of women who delay in the reporting of sexual assaults); see also *State v. Perkins*, No. 95-1353-CR, 1996 WL 442085, at *5-7 (Wis. Ct. App.

For the purposes of this article, what is one to make of this set of cases, and this cluster of defense victories? A person of panglossian views might say it shows that, when there are serious issues of dependability in prosecution-proffered evidence, the system responds honorably even though similar evidence is generally admissible when tendered by defendants. A cynic might respond by saying that the uses for which defense and prosecution tender such evidence require different standards of reliability,⁹³ that the evidence involved has such weak empirical underpinnings that any approved prosecution use is evidence of systemic tolerance of anti-defendant irrationality, that the structure the courts have created, mirroring the propensity rule in its miasma of “usable for one thing but not another” doctrines, results in little evidence that will not be before the jury for some reason in most cases, and that the doctrine of harmless error insures few reversals even when a way has not been found around the formal restrictions on use. My own view is that perhaps *Kumho Tire*, with its emphasis on the reliability of the particular task being performed by the particular witness, may turn the courts’ attention to a less formalistic and more defensible reaction to such proffered expertise, and the reliability of what,

Aug. 7, 1996) (holding that a social worker’s testimony that the victim’s initial behavior following the alleged sexual assault was “consistent with the initial reactions of adult victims” was properly admitted).

⁹¹ See *State v. Borrelli*, 629 A.2d 1105, 1110-11 (Conn. 1993) (admitting evidence of battered woman syndrome to explain the victim’s recantation because it aided the jury, and concluding that “satisfaction of the *Frye* test is not a necessary precondition for the admission of expert testimony on battered woman’s syndrome”).

⁹² See *State v. Alberico*, 861 P.2d 192, 208 (N.M. 1993) (noting that PTSD evidence need not be conclusive on the issue of whether a rape occurred, it need only be probative on that point to be admissible); *State v. Martens*, 629 N.E.2d 462, 467 (Ohio Ct. App. 1993) (finding expert testimony concerning the victim’s demeanor and behavior after an alleged rape to be proper where the defendant asserted that the sexual relations were consensual). Courts seem to be more comfortable allowing syndrome evidence in to corroborate claims of non-consent when intercourse is conceded than in allowing it into evidence to corroborate claims that intercourse occurred when that issue is contested. The difference in empirical dependability is questionable at best. See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 10-1.2.1 (“Courts are divided over the question whether [rape trauma syndrome] may be introduced to prove that a rape did occur. Yet, the line between the use of [rape trauma syndrome] to prove that a rape occurred and its use to disprove consent is not very bright.”); see also *Alberico*, 861 P.2d at 206-08 (discussing the admissibility of PTSD and RTS testimony, in New Mexico and other jurisdictions, to establish that a crime was committed). Perhaps the courts are influenced by the fact that the defendant elects to open that particular door by his own actions, or that the consent rebuttal rationale does not bring such testimony in every case. Of course, the consent rebuttal rationale opens no doors in child victim cases.

⁹³ See *Risinger*, *supra* note 59, § 34-4.0 (“High standards should apply to pure fact issues, and extremely high standards to pure fact issues in criminal cases, especially if the expertise is offered initially on the part of the prosecution to establish identity or other brute facts.”).

specifically, a given witness is saying in a particular case.⁹⁴ But, whatever one's reaction, one clear thing is that frankly educational "syndrome" witnesses called by the prosecution are virtually never found to have been improper.⁹⁵ This is an important point to which we shall return in due course.

B. The Horizontal Gaze Nystagmus Cases

In terms of percentage of defense victories relative to the total number of cases dealing with a single subject in state criminal cases citing *Daubert*, the palm goes to attacks on testimony concerning horizontal gaze nystagmus (HGN), a means of assessing impairment due to intoxication based on an investigator's observations of eyeball tremors when the eyes of a subject are shifted from straight ahead to the side.⁹⁶ However, the victories tended to be illusory. HGN testimony was accepted in seven cases⁹⁷ (though two of those noted that it could not be used to establish any quantified level of blood alcohol content);⁹⁸ it was accepted in

⁹⁴ See Risinger, *supra* note 2 ("The emphasis on the judgment of reliability as it applies to the individual case, to the 'task at hand,' runs through the [*Kumho Tire*] opinion like a river."); see also Patricia A. Frazier & Eugene Borgida, *The Scientific Status of Research on Rape Trauma Syndrome*, § 10-2.3.3, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997) (noting that there has been documented expert testimony as to the "stages" of both PTSD and rape trauma syndrome, although such "stages" have not been well-documented in the research literature and are based on studies of questionable methodology).

⁹⁵ See *supra* Part III A (discussing "syndrome" evidence in the case law).

⁹⁶ See generally 3 DAVID L. FAIGMAN, DAVID H. KAYE, MICHAEL J. SAKS, & JOSEPH SANDERS, MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 39-1.2.5[1] (1999) [hereinafter 3 MODERN SCIENTIFIC EVIDENCE] (discussing the validity and general acceptance of nystagmus testing).

⁹⁷ See *People v. Joehnk*, 42 Cal. Rptr. 2d 6, 7-8 (Cal. Ct. App. 1995) (affirming a driving under the influence conviction where a police officer and other experts testified at trial as to results of the defendant's HGN test); *State v. Carlson*, 720 A.2d 886, 887 (Conn. Super. Ct. 1998) (stating that HGN evidence was properly admitted where the defendant was charged with operating a motor vehicle while under the influence of alcohol); *State v. Ruthardt*, 680 A.2d 349, 351 (Del. Super. Ct. 1996) (noting that the defendant failed several field sobriety tests, including HGN, after driving through a police roadblock); *State v. Klawitter*, 518 N.W.2d 577, 578 (Minn. 1994) (noting that defendant was charged with driving under the influence of marijuana after a roadside examination by a police officer using a "Drug Recognition Protocol"); *State v. Hill*, 865 S.W.2d 702, 703 (Mo. Ct. App. 1993) (noting that the defendant argued on appeal that the HGN test does not meet the *Frye* test for reliability); *State v. Joyce*, No. C-970642, 1998 WL 315913, at *1 (Ohio Ct. App. June 12, 1998) (indicating that the Ohio courts have recognized the reliability of HGN testing and that, in this case, an officer qualified to administer the test properly did so); *State v. O'Key*, 899 P.2d 663, 669 (Or. 1995) (noting that police observed that the defendant had difficulty walking and was later found to have many empty beer cans in the rear of his truck).

⁹⁸ See *Ruthardt*, 680 A.2d at 358-59 ("[O]fficers can successfully be trained to perform the HGN test so as to detect alcohol consumption, but not specific BAC levels."); *O'Key*, 899 P.2d at 681 ("Statutory law requires . . . that the offense of DUII with a .08 percent or more BAC

principle in three cases, which were then reversed because the investigator who administered the test had not been shown to be properly qualified.⁹⁹ HGN testimony was held erroneously considered without a prior reliability hearing in eleven instances,¹⁰⁰ but its fate in those cases remanded to the trial court is unknown. In one case the issue of HGN dependability was explicitly avoided¹⁰¹ and in one case HGN testimony was held to have been erroneously

may be proved *only* by a ‘chemical analysis of the breath or blood of the person’”) (quoting OR. REV. STAT. § 813.010(1)(a)).

⁹⁹ See *State v. Ito*, 978 P.2d 191, 210 (Haw. Ct. App. 1999) (“[W]e have no way of knowing . . . whether [the officer’s] training was supervised by certified instructors, whether [the officer] was certified to administer the test, and whether [the officer] received periodic retraining to refresh himself on his HGN test administration skills.”); *Schultz v. State*, 664 A.2d 60, 77 (Md. Ct. Spec. App. 1995) (“The trial court . . . erred in admitting the testimony in that there was insufficient evidence that the proper precautions were taken or the proper considerations were accounted for prior to the administration of the test itself.”); *Hulse v. State Dep’t of Justice, Motor Vehicle Div.*, 961 P.2d 75, 95 (Mont. 1998) (“[N]othing in the evidence establishes that [the arresting officer] had special training or education nor adequate knowledge qualifying him as an expert to explain the correlation between alcohol consumption and nystagmus”).

¹⁰⁰ *People v. Leahy*, 882 P.2d 321, 337 (Cal. 1994) (affirming the reversal of one defendant’s conviction and remanding for a hearing to determine the admissibility of HGN evidence); *People v. Leahy*, 22 Cal. Rptr. 2d 322, 328-29 (Cal. Ct. App. 1993) (reversing one defendant’s conviction and affirming another since, in the second case, the presence of HGN testimony was harmless error); *State v. Merritt*, 647 A.2d 1021, 1028-29 (Conn. App. Ct. 1994), *appeal dismissed*, 659 A.2d 706 (Conn. 1995) (noting that the state did not establish reliability pursuant to *Frye*, but nonetheless affirming the defendant’s conviction since admitting the results of defendant’s HGN test was harmless error); *State v. Meador*, 674 So. 2d 826, 836 (Fla. Dist. Ct. App. 1996) (concluding that since “HGN testing constitutes scientific evidence” it must meet the “traditional predicates” prior to being admitted into evidence); *People v. Basler*, 710 N.E.2d 431, 434-35 (Ill. App. Ct. 1999) (reversing on other grounds and directing that a *Frye* hearing be conducted on remand); *Commonwealth v. Sands*, 675 N.E.2d 370, 373-74 (Mass. 1997) (remanding for a new trial, even though the defendant confessed at the police station to having blood-alcohol content over the legal limit); *State v. Torres*, 976 P.2d 20, 36-37 (N.M. 1999) (concluding that HGN testimony was improperly admitted at defendant’s DWI trial and instructing the trial court “to make the initial determination of whether HGN testing satisfies the [appropriate reliability] standard”); *State v. Helms*, 504 S.E.2d 293, 296 (N.C. 1998) (determining that the state’s failure to lay a proper foundation for the introduction of HGN test results was reversible error); *State v. Helms*, 490 S.E.2d 565, 569 (N.C. Ct. App. 1997) (determining that the State failed to lay a proper foundation for the admission of HGN test results but finding the error to be harmless); *State v. Collier*, No. 03CO1-9709-CR-00388, 1998 WL 42487, at *8 (Tenn. Crim. App. Feb. 5, 1998) (noting that the admission of testimony concerning the results of defendant’s HGN test does not “appear[] to have affected the result of the trial on the merits”); *State v. Cissne*, 865 P.2d 564, 569 (Wash. Ct. App. 1994) (ordering a new trial because, even though the improper admission of HGN testimony “was not of constitutional magnitude,” it was “impossible to determine whether the jury’s verdict was affected by the error”). The *Leahy* and *Helms* citations refer to the same underlying cases, but they have been counted separately under the convention used in this set of reported opinions that each separate judicial consideration is counted as a case.

¹⁰¹ *Williams v. State*, 884 P.2d 167, 172 (Alaska Ct. App. 1994) (noting that “[t]he question of whether HGN evidence is admissible at criminal trials in this state is still open” but finding “that it is still unnecessary to decide the admissibility of HGN evidence” in this case because the evidence of the defendant’s performance on the test was not admitted at trial).

admitted in order to prove a specific quantified blood alcohol level.¹⁰² In only one case was HGN testimony arguably deemed too unreliable for evidentiary use generally.¹⁰³

One of the striking things about the set of cases under study is the large number of attacks (almost always unsuccessful) on means of assessing drunkenness, which accounted for forty-five cases, more than one reported challenge in five at the state level. Readers may make whatever they will out of this as commentary on what our society believes is truly important as far as evidence reliability and accuracy of fact-finding are concerned. To me it shows that drunk driving charges happen to a lot of middle class people who want to keep their driver's licenses and who have the resources to challenge the evidence against them without much regard to cost.

Not that HGN testimony is of unquestionable dependability. Both the science behind the phenomenon, and the subjectivity of the evaluation of the nystagmus, make it a proper subject of serious reliability concern.¹⁰⁴ However, it is probably as dependable as other "clinical" expert testimony regularly admitted against less well-off criminal defendants.¹⁰⁵ And one can perhaps make more of the "success" of HGN challenges in opinions citing *Daubert* than is called for. Since the *Daubert* decision there have been well over a *thousand* reported state opinions indicating the presence on the record of HGN evidence,¹⁰⁶ the vast bulk of which have accepted testimony based on it without much, if any, question.

¹⁰² See *State v. Jankowski*, No. 03CO1-9503-CR-00100, 1995 WL 686121, at *2 (Tenn. Crim. App. Nov. 15, 1995) (concluding that there was no evidence in the record showing that the officers' observations were scientifically reliable evidence of blood alcohol content, and holding that it was harmless error to admit such testimony).

¹⁰³ See *State v. Chastain*, 960 P.2d 756, 761 (Kan. 1998) (rejecting the prosecution's cross-appeal on the issue of the trial court's failure to admit HGN testimony and affirming the defendant's conviction on other grounds). The "arguably" is inserted in the text because, while it is clear that the Kansas Supreme Court was skeptical of HGN, and while it is clear that the prosecution had tried and failed to establish the showing required under the Kansas version of the *Frye* test at the first trial, it is not completely clear that *Chastain* will have much influence on future cases in Kansas.

¹⁰⁴ See Charles R. Honts & Susan L. Amato-Henderson, *Horizontal Gaze Nystagmus Test: The State of the Science in 1995*, 71 N.D. L. REV. 671, 693-94 (1995) ("The lack of empirical studies utilizing clinical methods of assessing HGN characteristics not only leads to questionable validity, but also influences the reliability of [HGN testing]."). See generally 3 MODERN SCIENTIFIC EVIDENCE, *supra* note 77, § 39-1.2.5 (discussing the admissibility and validity of horizontal gaze nystagmus testing).

¹⁰⁵ See *infra* Parts III C, D (discussing DNA and polygraph analysis evidence, respectively); *infra* Part V (discussing bite mark and handwriting evidence).

¹⁰⁶ To duplicate the database, search Westlaw "ALLSTATES" with "horizontal gaze nystagmus."

C. *The DNA Cases*

Of the 213 state court challenges to prosecution evidence in the reference set, 44% (ninety-three) involved some aspect of DNA, whereas the percentage of DNA cases in federal court challenges was only about a third of that (fourteen of eighty challenges, or 18%).¹⁰⁷ Also, with one or two arguable exceptions, the federal opinions have tended to be derivative rather than extensive and serious opinions dealing with alleged problems of DNA. The DNA saga was generally played out in state courtrooms, and the play was half over before *Daubert* was decided.

In the aggregate (and in my opinion), the judicial handling of the issues raised by DNA shows the judicial system operating at its highest potential in evaluating expertise, a point to which I will return below. For now, suffice it to say that in the *Daubert* era the main issues of substantial controversy dealt with the proper way to derive and express to the jury information on the relative rarity of a DNA type, and, to a lesser degree, regarding the proper protocols for declaring a match and the acceptability of the Polymerase Chain Reaction (PCR) process. It was in regard to these issues that defendants achieved their thirteen DNA “victories” (though many of these were hollow victories not resulting in reversals).¹⁰⁸

¹⁰⁷ Four of twelve district court cases involved DNA, but the sample size is too small to mean much.

¹⁰⁸ See *Turner v. State* (Turner II), 746 So. 2d 355, 361 (Ala. 1998) (remanding the case and noting that, if the admissibility of DNA evidence is contested, a hearing must always be held outside the presence of the jury); *Turner v. State* (Turner I), 746 So. 2d 352, 354 (Ala. Crim. App. 1996) (reversing and remanding on the basis of the prosecution’s failure to establish the reliability of DNA testing in a capital murder case); *People v. Venegas*, 954 P.2d 525, 556 (Cal. 1998) (agreeing with the lower court that “it was reasonably probable [the] defendant would have had a more favorable verdict had the trial court not erroneously admitted the DNA evidence” in his rape trial); *State v. Sivri*, 646 A.2d 169, 192 (Conn. 1994) (remanding the case for a determination of the reliability of DNA match probability calculations); *Nelson v. State*, 628 A.2d 69, 76 (Del. 1993) (“[F]or DNA evidence to be admissible, *both* the procedures used to obtain a match *and* the statistical evidence interpreting the significance of a match must satisfy the Delaware standard applicable to the admissibility of scientific evidence.”); *Brim v. State*, 695 So. 2d 268, 275 (Fla. 1997) (remanding the case for an evidentiary hearing on the reliability of DNA testing); *Murray v. State*, 692 So. 2d 157, 164 (Fla. 1997) (noting that the prosecution failed to demonstrate the reliability of DNA testing at a murder trial and finding the prosecution’s expert’s qualifications regarding DNA evidence to be insufficient); *Vargas v. State*, 640 So. 2d 1139, 1151-52 (Fla. Dist. Ct. App. 1994) (remanding for a hearing on the reliability of DNA population frequency evidence in a sexual battery case); *State v. Langlois*, 729 So. 2d 591, 591 (La. 1998) (remanding the case for a pre-trial hearing on the reliability of DNA evidence); *State v. Quatrevingt*, 670 So. 2d 197, 206, 209 (La. 1996) (concluding that the trial court erred in admitting DNA evidence in a first-degree murder trial, but finding that the error was harmless and affirming the defendant’s conviction); *Commonwealth v. Vega*, 634 N.E.2d 149, 151-52 (Mass. App. Ct. 1994) (concluding that the erroneous admission of DNA evidence was harmless error in defendant’s

In the case of DNA, it is easy to isolate a number of factors which contributed to the success of courts in dealing with this evidence so well. First, DNA science is real science. It was initially developed in academic scientific research for reasons having nothing directly to do with its courtroom applications.¹⁰⁹ It deals with a purely empirical issue appropriate to resolution by normal scientific methods.¹¹⁰ In addition, since the real science community rewards skepticism almost as much as it rewards advances, the potential meanings, weaknesses and limitations of DNA science were already

trial for the rape of an elderly woman); *State v. Carter*, 524 N.W.2d 763, 786 (Neb. 1994) (“The erroneous admission of DNA evidence cannot be said to be harmless error given the highly prejudicial nature of DNA evidence and the unusual circumstances of this [first-degree murder] case.”); *State v. Streich*, 658 A.2d 38, 48-50 (Vt. 1995) (concluding that the admission of DNA “product-rule” (probability statistics) evidence in defendant’s sexual assault trial was harmless error). The opinions of the separate courts in the two *Turner* cases have been counted as two cases pursuant to the normal counting practices applied to the reference set.

One case, *Venegas*, turned on the acceptability of the protocols used to generate population frequencies from a database. 954 P.2d at 554. That case was remanded for a possible re-trial. *See id.* at 556-57 (noting that the prosecutor candidly confessed that there was insufficient evidence in the absence of the DNA to convict the defendant but observing that the prosecutor was free to try again). *Quatrevingt* similarly dealt with the acceptability of the bandshifting protocol used to declare a match with the defendant’s DNA. 670 So. 2d at 205-06. The bandshifting protocol utilized was found to be unacceptably wide, declaring too many matches, but the error in admitting the DNA evidence was found to be harmless. *Id.* at 206, 209. One case, *Murray*, involved the State’s first impression on the issue of the acceptability of the PCR process, and both the prosecution and the lower court butchered the dependability hearing by using a technician with no real knowledge of the process. 692 So. 2d at 163. This case resulted in a new trial. *Id.* at 164. Most of the other cases dealt either with the process of deriving the population base rates used in generating a probability of random match, *Brim*, 695 So. 2d at 271; *Turner II*, 746 So. 2d at 362; *Turner I*, 746 So. 2d at 353-54; *Carter*, 524 N.W.2d at 776; *Sivri*, 646 A.2d at 192, or some aspect of proper expression concerning such probability, *Streich*, 658 A.2d at 48-50; *Vargas*, 640 So. 2d at 1151; *Nelson*, 628 A.2d at 76, or both, *Vega*, 634 N.E.2d at 151-52. *Langlois* is an opinion on interlocutory appeal and is too cursory to tell which issue it is concerned with. *See* 729 So. 2d at 591 (stating that *Langlois* applied for “supervisory and/or remedial writs” to the Louisiana Court of Appeals). In four of these ten cases, *Nelson*, 628 A.2d at 77, *Quatrevingt*, 670 So.2d at 209, *Vega*, 634 N.E.2d at 152 and *Streich*, 658 A.2d at 50, the errors were found to be harmless and, of course, in *Langlois*, 729 So. 2d at 591 there could be no new trial, as the appeal was interlocutory. In *Brim*, 695 So. 2d at 275, *Vargas*, 640 So. 2d at 1151-52, and the two *Turners*, 746 So. 2d at 363; 746 So. 2d at 354, the error was found to be failure to hold any reliability hearing, which resulted in a remand for a hearing *nunc pro tunc* with no guarantee of a new trial. Only *Carter*, 524 N.W.2d at 786, *Sivri*, 646 A.2d at 192, and the previously noted *Venegas*, 954 P.2d at 556-57, and *Murray*, 692 So. 2d at 164, resulted in remands for a new trial.

¹⁰⁹ *See* 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7 § 15-4.1 (“The first wave of criminal cases involving DNA identification began around 1985. The focus was on the problems raised in transferring the technology of modern molecular biology from the medical and genetics laboratories . . . to the forensic laboratory . . .”).

¹¹⁰ *See* Michael L. Baird, *DNA Profiling: Laboratory Methods* § 16-1.0, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997) (“Because each person’s DNA is unique and inherited from the biological parents, methods that examine DNA for differences are highly informative for establishing identity and lineage. Differences resulting from insertions, deletions, or sequence changes in the DNA molecule can be identified.”).

being explored in the scientific literature before they surfaced in the courtroom.¹¹¹ Thus, the contending opinions over DNA in the courtroom were not in the first instance generated by litigation.

Second, the legal applications of DNA technology were centrally important in important ways. They resolved serious identity issues in very serious and publicly high profile criminal cases, including rapes and murders, many of which later involved the death penalty.¹¹² For this reason, criminal defense attorneys were heavily bankrolled to litigate the underlying validity issues, and were expected to do so.

Related to the latter point, because DNA science is academic science, the defense attorney had experts available from the academic community, who could provide virtual turn-key testimony on relevant points of weakness.¹¹³

Finally, DNA evidence was truly novel, and a little scary in its claims to determine so much from so little.¹¹⁴ This stimulated judges to take validity challenges seriously. It also did not hurt (in my opinion) that DNA testimony was generally offered by the prosecution, and that, at the end of the day, the science was good enough that generally it got admitted. Even in those areas of legitimate serious concern, such as how to deal with ambiguities in what counts as a match,¹¹⁵ or the problems of generalizing from rate-of-occurrence data for general populations to isolated populations such as Native American groups, ongoing research has

¹¹¹ See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7 § 15-6.0 (“In assimilating scientific developments, the legal system generally lags behind the scientific world.”).

¹¹² See, e.g., *Turner II*, 746 So. 2d 355, 356 (noting that DNA evidence was used to show the defendant’s connection to the scene of a multiple homicide and that defendant was convicted of two counts of capital murder).

¹¹³ See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 7 § 15-2.0 (noting that several experts might be needed in a given case to testify as to the various issues arising in DNA identification).

¹¹⁴ See R.C. Lewontin, *Population Genetic Issues in the Forensic Use of DNA* § 17-1.1, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997) (explaining that a sufficient amount of DNA recovered from a small amount of blood, semen or skin at the crime scene can yield “a numerical probability estimate which [indicates] the proportion of people in ‘the population’ that share the incriminating DNA profile”). “Such a statement generally takes a form such as: ‘The probability that someone else beside the accused has a DNA profile that matches the one at the crime scene is one in 220,310.’” *Id.*

¹¹⁵ See Bernard Devlin & Kathryn Roeder, *DNA Profiling: Statistics and Population Genetics* § 18-3.1.2, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997) (“The term ‘match’ suggests that the DNA samples are identical. Clearly, this is a misnomer.”).

tended to overtake the courtroom issues and resolve them.¹¹⁶ It was during this evolution that the defense achieved its thirteen victories.¹¹⁷ The days of substantial reliability controversy over courtroom applications of DNA science appear to be just about over, and the occasional interim victories achieved by defendants as both the science and the law developed are unlikely to be repeated in the future.

D. *The Polygraph Cases*

If DNA accounted for a large percentage of prosecution victories (as well as a significant number of its interim defeats), a similarly large percentage of defense defeats were attributable to rejected proffers of polygraph evidence. Defendants proffered polygraph evidence fifty-three times in the reference set, losing all but four.¹¹⁸ This accounted for 40% of the rejections of defense-proffered expertise in the reference set. The avalanche of polygraph cases seems, at least in part, to have resulted from hopes raised by *Daubert's* rejection of the *Frye* test, coupled with the failure of criminal defense attorneys to understand a fundamental reality when it comes to polygraph evidence and other technological means of assessing witness veracity: judges will instinctively demand a level of reliability for such evidence that is much higher than with regard to any other expert evidence, *and it's a good thing too*.

¹¹⁶ See 1 DAVID L. FAIGMAN, DAVID H. KAYE, MICHAEL J. SAKS, & JOSEPH SANDERS, MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY, § 15-4.5 (Supp. 2000) [hereinafter 1 MODERN SCIENTIFIC EVIDENCE (Supp. 2000)] (noting that, in the last three to four years, virtually every jurisdiction has accepted the validity of estimated population profiles notwithstanding difficulties with profiling discrete subpopulations).

¹¹⁷ See *supra* note 108 and accompanying text (discussing the thirteen defense "victories" with regard to DNA evidence in the state courts).

¹¹⁸ See *United States v. Cordoba*, 104 F.3d 225, 228 (9th Cir. 1997) (holding that the United States Supreme Court's ruling in *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993) "effectively overruled [the] per se rule . . . against admission of unstipulated polygraph evidence"); *United States v. Posado*, 57 F.3d 428, 434 (5th Cir. 1995) (rejecting a per se rule against the admissibility of polygraph evidence because polygraph testing had become "more standardized" and had been "subjected to extensive study"); *United States v. Galbreth*, 908 F. Supp. 877, 896 (D. N.M. 1995) (admitting polygraph evidence on the condition that the test is properly conducted "by a highly qualified, experienced, and skillful examiner"); *United States v. Crumby*, 895 F. Supp. 1354, 1365 (D. Ariz. 1995) (admitting polygraph evidence for the limited purpose of impeaching or corroborating the defendant's testimony). *Cordoba* and *Posado* involved the rejection of a *per se* rule of exclusion coupled with a remand for reconsideration of the admissibility of the polygraph with no guarantee of admission. See *Cordoba*, 104 F.3d at 228, 230; *Posado*, 57 F.3d at 434, 436.

The lie detector literature is vast,¹¹⁹ but surprisingly scant attention has been paid to the practical impact that the acceptance of any lie detector evidence would have. The furthest people usually go is to note that lie detector evidence would be prejudicial in the individual case if juries accepted it at face value when, in fact, it was subject to substantial error rates.¹²⁰ But that is not the half of it. Even a dependable lie detector result would invite jurors to confuse veracity with accuracy even more than they now do.¹²¹ But its systemic impact is what makes lie detector evidence a potential nightmare. Acceptance of any lie detector evidence as admissible would change the entire litigation system in ways that would be drastic and unpredictable. Veracity is a relevant issue wherever there is to be live testimony, which is in virtually every litigated matter, civil and criminal. If polygraphs are good enough to be admissible, they would seem *a fortiori* good enough to be demanded of every witness as part of discovery. And if this is not the case, by what standards would we distinguish between those witnesses who are to be required to submit to this relevant and dependable process, and those who are not? Or would there be a blanket rule that says these substantially accurate determiners of veracity could never be compelled? And, if so, could the refusal to submit to a polygraph voluntarily be commented upon to the jury? Remember, I am not speaking exclusively, or even largely, of criminal defendants now, but of every witness whatsoever who is to testify in any case. Could any rule limiting compellability of witness polygraphs withstand a due process challenge by criminal defendants who were being deprived of the opportunity to obtain such relevant and dependable evidence of the untruthfulness of the testimony against them, and therefore of their (claimed) innocence? A polygraph for every cop witness in every case? Would the government have to pay for defense polygraphs of witnesses, and if not, why not, if the stuff

¹¹⁹ See David C. Raskin et al., *The Scientific Status of Research on Polygraph Techniques: The Case for Polygraph Tests*, §§ 14-2.0, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997 & Supp. 2000) (assessing the present state of polygraph techniques and summarizing the scientific literature on the subject).

¹²⁰ See, e.g., *Brown v. Darcy*, 783 F.2d 1389, 1395 (9th Cir. 1986) (stating that “[t]he questionable accuracy of polygraph examinations is the most persuasive reason for excluding polygraph evidence”). Actual estimates as to whether polygraph examinations accurately and dependably confirm the truthfulness of a given examinee vary considerably. See *id.* at 1395, n.12 (citing various authorities in which the estimates range from 70% to 95%).

¹²¹ See *United States v. Pitner*, 969 F. Supp. 1246, 1252-53 (W.D. Wash. 1997) (noting that, even if the court were to conclude that a polygraph was reliable, it would remain inadmissible because it would confuse and unduly prejudice the jury).

is good enough to be admissible? Would the default rule against accrediting one's own witness survive, so that only failed polygraphs would be admissible absent some sort of door-opening? And what new standards of door-opening would be required in order to render dependable "passed" polygraphs admissible? Though it is now criminal defendants who proffer polygraphs most often (in the subset of cases where they pass one with the polygrapher of their choice), the large volume of litigation and the relatively small number of polygraphers would immediately give the government and well-heeled civil litigants the advantage were the results of the process generally admissible, most especially in regard to non-party witnesses. Most importantly, there is the question of whether any established reliability of the polygraph under test conditions is robust enough to withstand the expectancy pressures on polygraphers resulting from employment by litigants in an adversary system.

Polygraph evidence is probably already more dependable under ideal conditions than some evidence which is presently routinely admitted.¹²² This, coupled with a reading of *Daubert* that was inconsistent with *any* per se rule of exclusion,¹²³ was probably what was behind the few victories defendants achieved in regard to polygraph admission in the mid 1990s. This boomlet appears to have disappeared after the Supreme Court's decision in *United States v. Scheffer*,¹²⁴ that a per se exclusion of defense unstipulated polygraphs does not violate any Constitutional right, even though the case did not deal directly with FRE 702, and even though five justices had reservations about the wisdom of a per se rule of exclusion.¹²⁵ However, I believe judges do properly intuit that

¹²² The system's willingness to accept stipulated polygraphs is some evidence of this. While the admissibility of stipulated polygraphs may be dominantly a manifestation of a "trial-by-combat, fair fight" instinct rather than a "search for truth" principle, and, while one can argue that the conditions of a stipulated polygraph are more likely to approach the ideal conditions necessary for accuracy of the process than are unstipulated polygraphs, it is hard to imagine the system accepting the admissibility of stipulated astrology readings.

¹²³ See *Cordoba*, 104 F. 3d at 227 (stating that "[t]he per se . . . rule excluding unstipulated polygraph evidence is inconsistent with the 'flexible inquiry' assigned to the trial judge by *Daubert*"); *Posado*, 57 F.3d at 434 (noting that the legal foundation supporting the per se exclusion rule was overruled by the Supreme Court in *Daubert*); see also *United States v. Amador-Galvan*, 9 F.3d 1414, 1418 (9th Cir. 1993) (overturning a per se exclusion rule in regard to evidence of eyewitness identification weaknesses).

¹²⁴ 523 U.S. 303 (1998).

¹²⁵ See *id.* at 318 (Kennedy, J., concurring) (noting that Justice Kennedy, in a concurring opinion in which Justices O'Connor, Breyer and Ginsberg joined, stated that "it should have been sufficient to decide this case to observe . . . that various courts and jurisdictions 'may reasonably reach differing conclusions as to whether polygraph evidence should be admitted'")

declaring polygraphs sufficiently dependable for normal admissibility in any context is likely to lead to profound alterations in the entire litigation system, alterations which cannot be predicted and which may not be desirable once they are played out. And, though this applies different standards to lie detectors than to other kinds of evidence, I am already on record in asserting that it is perfectly proper to demand different levels of epistemic dependability for the admission of different types of expert evidence in different legal contexts.¹²⁶ For these reasons, no technological means of assessing veracity is likely to become generally admissible unless it is so overwhelmingly dependable that failing to allow its entry into the courtroom would become a scandalous joke.

IV. POSITIVE INFERENCE OF OPERATIVE BIAS: OF “EDUCATIONAL” EXPERTISE

As noted, the syndrome evidence cases, taken by themselves, present a record from which a claim of systemic bias would be hard to construct.¹²⁷ In addition, since I believe the prosecution victories in DNA admissibility and the defense losses in regard to polygraph admissibility are largely right, presumably I must evaluate any asserted pro-prosecution system bias in administering *Daubert* without them. And it is true that, when you subtract out those cases the apparent relative advantage of the prosecution begins to diminish, though it does not disappear.

There are still some serious specific pro-prosecution disparities in the set of cases under review, however. When it comes to

(citation omitted); *id.* at 320 (Stevens, J., dissenting) (noting that Justice Stevens dissented because he felt that a per se rule of polygraph exclusion is unconstitutional).

¹²⁶ See Risinger, *supra* note 59, § 34-3.2 n.5 (discussing the inherent problems in adopting a unitary standard of dependability for the admissibility of expert testimony).

[A] unitary standard of dependability . . . either lets in too much [scientific evidence] of dubious dependability on behalf of the prosecution in criminal cases, or which excludes too much of adequate dependability for the purposes of tort law. The result of the latter situation would be too many failures of proof in tort, based on the easiest insufficiency judgment to make, a record without evidence on some essential issue like causality. On the other hand, the result of a lower uniform standard would be the admission of too much [evidence] of low dependability in criminal cases, under circumstances where the sufficiency check is likely to prove largely illusory. If such expert testimony provides all or most of the evidence on a particular issue such as identity of the perpetrator or existence of the actus reus (a not uncommon situation where forensic expertise is offered by the prosecution), how likely is a judge to rule that the stuff he just said was dependable enough to be admitted is not dependable enough to support a finding?

Id.

¹²⁷ See *supra* Part III A (discussing the treatment of syndrome evidence in the state courts).

“summarizational” or “educational” expertise,¹²⁸ prosecution witnesses almost always are allowed to testify, and defense witnesses are rejected in a majority of cases. Consider the contrasting results between the two most frankly educational expertise proffers, prosecution *modus operandi* (M.O./argot) witnesses and defense witnesses on the weaknesses of eyewitness identification.

M.O./argot witnesses are usually police officers who testify from their experience and study concerning the general way criminal schemes and enterprises operate and the usual meaning of criminal slang and code words.¹²⁹ There were twenty-two challenges to M.O./argot evidence in the reference set, all in federal cases, and all but one in the courts of appeals. Only two such challenges were even partially successful, both on the ground that the witness went too far and testified to his conclusion concerning elements of the particular defendant’s guilt, and neither resulted in a reversal.¹³⁰

Contrast this with the defense track record on witnesses concerning the weaknesses of eyewitness identification. While it is both easier to restrict such witnesses to their educational function, and to be confident that the jury will not become confused about it (since they are usually psychologists not otherwise related to the case, while M.O./argot witnesses are usually police officers involved in the investigation of the case at hand who will also commonly be giving fact-witness testimony), nevertheless such defense witnesses were rejected two thirds of the time (twenty out of thirty-one cases), and never merely on the ground that they had gone too far and strayed into offering a conclusion about whether the particular identification in the case at hand was, in fact, inaccurate. More

¹²⁸ See Risinger, *supra* note 59, § 34-2.2 (noting that “such witnesses traffic in providing information, often unexpected or counterintuitive information, which is relevant to the jury’s ultimate fact reconstruction function”).

¹²⁹ See, e.g., *United States v. Jackson*, 425 F.2d 574, 577 (D.C. Cir. 1970) (upholding the trial court’s acceptance of a police officer as an expert witness where the officer had been on the “pickpocket squad” for three years and had investigated fifty to seventy-five pickpocket cases); *State v. Keener*, 520 P.2d 510, 514 (Ariz. 1974) (holding that there was no abuse of discretion by the trial court in allowing a police officer with six years narcotics investigation experience, multiple contacts with drug users, knowledge of drug user’s habits and customs, and special education from the federal Bureau of Narcotics and Dangerous Drugs, to testify as an expert witness).

¹³⁰ In *United States v. Sepulveda*, 15 F.3d 1161, 1185 (1st Cir. 1993), the witness’ testimony as to the defendant’s guilt was struck by the trial judge with a limiting instruction, which the court of appeals found to be a sufficient remedy. In *United States v. Bruck*, 152 F.3d 40, 47 (1st Cir. 1998), the government’s expert on arson-for-profit schemes testified that the fire in question was deliberately set, and set for economic reasons. The court of appeals found this to have been harmless error, if indeed it was error and had been sufficiently preserved. *Id.*

particularly, there were nineteen federal cases, four in the district courts and fifteen in the courts of appeals. The four district court opinions favored admission of eyewitness identification weakness evidence three to one.¹³¹ However, the court of appeals cases affirmed twelve district court rejections of such witnesses, and found their rejections to be error only three times, always on the ground that a *Daubert* hearing was required and had not been done.¹³² These three cases resulted in remands for the required hearing, not necessarily for new trials.¹³³ So, based on the evidence of the cases in the reference set, there were thirteen federal rejections of such evidence, three admissions, and three remands for a hearing which might or might not have resulted in admission. On the state level, there were eleven opinions, six rejections,¹³⁴ and five

¹³¹ Compare *United States v. Hines*, 55 F. Supp. 2d 62, 72 (D. Mass. 1999) (noting that the function of the eyewitness identification expert was to provide the jury with non-biased “information with which the jury [could] then make a more informed decision”), *United States v. Norwood*, 939 F. Supp. 1132, 1136 (D. N.J. 1996) (noting that that the eyewitness identification expert’s testimony was sufficiently reliable under *Daubert*), and *United States v. Jordan*, 924 F. Supp. 443, 447 (W.D.N.Y. 1996) (explaining that the eyewitness identification expert’s testimony was based upon scientific knowledge that would be helpful to the jury), with *United States v. Burrous*, 934 F. Supp. 525, 528 (E.D.N.Y. 1996) (stating that the presence of eyewitness identification expert testimony “posed the danger of confusing the jury” and noting that an “aura of special reliability and trustworthiness surrounding expert testimony . . . ought to caution [against] its use”) (quoting *United States v. Young*, 745 F.2d 733, 766 (2d Cir. 1984)).

¹³² See *United States v. Minnis*, No. 93-50330, 1994 WL 259757, at *2 (9th Cir. June 14, 1994) (remanding the case to the district court because of the lower court’s failure to consider *Daubert* in assessing the validity of eyewitness identification theory even though the district court had excluded the testimony as possibly “confusing to the jury”); *United States v. Gates*, 20 F.3d 1550, 1550 (11th Cir. 1994) (remanding the case to the district court to reexamine the admissibility of testimony by two experts: one concerning the reliability of eyewitness testimony and the other concerning the suggestivity of photo arrays); *United States v. Amador-Galvan*, 9 F.3d 1414, 1418 (9th Cir. 1993) (explaining that “the district judge should remain concerned about the relevance and reliability of [eyewitness reliability] scientific evidence, [and that] his or her determination must be based on an individualized inquiry”). One way in which *Daubert* actually helped criminal defendants was to undermine the per se rule of exclusion that had been put up in some federal courts in regard to educational witnesses on the weaknesses of eyewitness identification. See *supra* note 123 and accompanying text (discussing *Daubert*’s effect on per se rules of exclusion).

¹³³ *Minnis*, 1994 WL 259757, at *2; *Gates*, 20 F.3d at 1550; *Amador-Galvan*, 9 F.3d at 1418.

¹³⁴ See *Jones v. State*, 862 S.W.2d 242, 244 (Ark. 1993) (finding that the trial court did not abuse its discretion by refusing to admit the testimony of a defense expert on the unreliability of eyewitness testimony); *Dyer v. State*, No. CACR97-1554, 1998 WL 792248, at *3 (Ark. Ct. App. Nov. 11, 1998) (same); *State v. McClendon*, 730 A.2d 1107, 1116 (Conn. 1999) (same); *McMullen v. State*, 714 So. 2d 368, 373 (Fla. 1998) (same); *Commonwealth v. Santoli*, 680 N.E.2d 1116, 1120 (Mass. 1997) (same); *Forte v. State*, 935 S.W.2d 172, 176 (Tex. Ct. App. 1996) (noting that, to be considered reliable, and thus admissible, scientific evidence “must satisfy three specific criteria pertaining to its validity and application: ‘(a) the underlying scientific theory must be valid; (b) the technique [or method] applying the theory must be

finding rejection of such a defense witness to be error.¹³⁵ This might seem like a more evenly divided group than the federal cases, until you realize that three of the five defense victories were opinions in the same case,¹³⁶ and all five defense victories were from the same jurisdiction, Texas.¹³⁷

While the contrast between the systemic treatment of prosecution M.O./argot witnesses and defense witness on the weaknesses of eyewitness identification is dramatic, the comparisons become even more difficult to rationalize when one recalls that it has never been found to be error to admit prosecution “syndrome” experts characterized as giving such educational testimony, whether the witness was clearly called only for that purpose, or had played some other role in the facts, such as evaluating the individual complainant.¹³⁸ Let’s look at this a little closer. Witnesses on the weaknesses of eyewitness identification are testifying to educate the jury on why the jurors’ everyday assumptions about the strengths and weaknesses of eyewitness identification may be wrong and are generally testifying concerning the findings of a substantial body of controlled research including a large number of experimental studies.¹³⁹ Witnesses on the existence and characteristics of

valid; and (c) the technique [or method] must have been properly applied on the occasion in question”) (quoting *Jordan v. State*, 928 S.W.2d 550, 554 n.5 (Tex. Crim. App. 1996)).

¹³⁵ See *Weatherred v. State*, 975 S.W.2d 323, 324 (Tex. Crim. App. 1998) (vacating the decision of the Texas Court of Appeals and remanding the case to that court for reconsideration in light of *Nenno v. State*, 970 S.W.2d 549 (Tex. Crim. App. 1998)); *Jordan v. State*, 928 S.W.2d 550, 556 (Tex. Crim. App. 1996) (reversing the court of appeals and remanding the case to that court for a determination as to whether the defense expert’s eyewitness reliability testimony was “scientifically reliable”); *Weatherred v. State*, 985 S.W.2d 234, 239 (Tex. App. 1999) (reconsidering the court’s own earlier decision and nonetheless finding that the trial court improperly denied the testimony of a defense expert on the reliability of expert witnesses); *Weatherred v. State*, 963 S.W.2d 115, 131 (Tex. App. 1998) (reversing a capital murder conviction and remanding the case for a new trial because the trial court abused its discretion in refusing to allow the testimony of the defense’s eyewitness identification expert); *Nations v. State*, 944 S.W.2d 795, 802 (Tex. App. 1997) (reversing a sexual assault conviction because the trial court did not allow the defense’s expert on eyewitness reliability to testify). Subsequent to the completion of this study, the Texas Criminal Court of Appeals once again revisited *Weatherred v. State*, 15 S.W.3d 540 (Tex. Crim. App. 2000). In this latest ruling, the appellate panel, in a five to four decision, once again reversed the Texas Court of Appeals and found that the trial court had not abused its discretion in refusing to allow the defendant’s expert on eyewitness unreliability to testify at trial. See *id.* at 543.

¹³⁶ *Weatherred v. State*, 975 S.W.2d 323 (Tex. Crim. App. 1998); *Weatherred v. State*, 985 S.W.2d 234 (Tex. App. 1999), *rev’d by* 15 S.W.3d 540 (Tex. Crim. App. 2000); *Weatherred v. State*, 963 S.W.2d 115 (Tex. App. 1998).

¹³⁷ See *supra* note 135 (discussing the five Texas cases).

¹³⁸ See *supra* note 80 (discussing the case law on educational testimony by “syndrome” experts).

¹³⁹ See generally Gary L. Wells, *The Scientific Status of Research on Eyewitness Identification* § 11-2.0, in 1 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT

“syndromes” are offered to educate the jury on why their everyday assumptions on the strengths and weaknesses of sex crime complainants’ testimony may be wrong, and they are generally testifying to the results of studies that are heavily rooted in anecdotal data and non-reproducible clinical judgments.¹⁴⁰ Yet the proffer by criminal defendants of the epistemically stronger “education” is often rejected, but the proffer by the prosecution of the weaker “education” rarely, if ever, is rejected. Something is wrong with this picture.

Similar observations might be marshaled in regard to other portions of the data, finding this government victory or that defense defeat proper, or at least defensible, or vice versa. However, in my view, the true systemic bias is reflected, not so much in the decisions that are there, but in the ones that are not. When you get right down to it, the real story is about the dog that didn’t bark.

V. NEGATIVE INFERENCE OF OPERATIVE BIAS: OF BITE MARKS AND HANDWRITING AND THE DOG THAT DIDN’T BARK

When I first started looking at these post-*Daubert* cases, I expected to find records of multiple well-litigated attacks on the weakest kinds of common prosecution-proffered expertise, with any system bias coming from judicial decisions. What I found was an apparent systematic failure to seriously litigate these issues on the part of the criminal defense bar. Take, for example, bite mark evidence.

Expert testimony identifying a person (usually a criminal defendant) as the source of bite marks found elsewhere (usually on the victim of a crime) was noted as present in forty-eight cases during the period of study, forty-seven criminal cases and one civil case.¹⁴¹ In only four or five of those cases is there any indication that the foundational reliability of such evidence was challenged. All of the challenges were generally brushed off by the courts involved in a paragraph or two, with citations to pre-*Daubert* cases

TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997 & Supp. 2000) (discussing the science behind eyewitness identification).

¹⁴⁰ See *supra* note 80 (discussing the testimony of “syndrome” experts).

¹⁴¹ To confirm, search West’s ALLCASES database by “bitemark!” “bite mark!” “bite-mark!”, then discard the majority of cases which note the presence of bite marks only to corroborate the intentionality of an attack, often without any expert testimony at all. The reason “forensic dentist!” and “forensic odontologist!” will not pick up everything is that occasionally the expert is not “forensic,” though combined they pick up most pertinent cases.

The single reported post-*Daubert* civil case involving bite mark identification that I found is *In re P.P.*, 633 N.E.2d 965 (Ill. App. Ct. 1994), a child custody case.

decided during the decidedly laxer view of things in the 1970s and 80s, even though some of the testimony involved in these cases went beyond mere identification to the timing of the bites, and even to the intent with which they were inflicted.¹⁴² In fact, only one opinion dealing with bite mark evidence even cited to *Daubert*, making it the only bite mark opinion in the reference set.¹⁴³

The ability of forensic odontologists to attribute the origin of a human bite mark to a particular person has been controversial since such evidence first appeared in courts in the early 1970s. Under certain conditions the claimed skill seems relatively obvious. If the dentition is shaped and aligned in a clearly unusual manner, with significant chips and other defects, and the bite mark involves all or most of the dentition, and the medium which has received the bite is both plastic enough to receive an impression and sufficiently implastic to retain a high quality outline of the reciprocal of the dentition pattern, few would question the resulting identification, even in the absence of quantified tables of alignment incidence that would allow some mathematically expressible probability of a random match between the bite mark and a randomly selected individual from a reasonable candidate population. Unfortunately, in the real world, none of these ideal conditions are commonly present. A bite mark often reflects only a few teeth without clearly unusual alignment, and the most common medium in litigated

¹⁴² Evidence of some level of reliability challenge appears in the following cases: *Spence v. Johnson*, 80 F.3d 989, 1000 (5th Cir. 1996); *Verdict v. State*, 868 S.W.2d 443, 447 (Ark. 1993); *State v. Hodgson*, 512 N.W.2d 95, 98 (Minn. 1994); *State v. Timmendequas*, 737 A.2d 55, 113-14 (N.J. 1999) and *State v. Cazes*, 875 S.W.2d 253, 263 (Tenn. 1994). *Cazes*, 875 S.W.2d at 263, contained testimony on the timing of the bite, as did *People v. Gallo*, 632 N.E.2d 99, 102 (Ill. App. Ct. 1994), and *Harrison v. State*, 635 So. 2d 894, 897-98 (Miss. 1994), a case involving the notorious Dr. Michael West. In *Harrison*, Dr. West testified that the victim had been "alive and responsive" when the bite was inflicted. *Id.* Dr. West also gave us *Franks v. State*, 666 So. 2d 763, 765 (Miss. 1995), in which he testified that, based on the severity of the bite wound, he could correlate the bite characteristics with an intention to inflict pain. Dr. West is also notorious for having claimed to have developed a technique for discovering bite marks on human flesh which only he could see. See *Keko v. Hingle*, No. CIV.A.98-2189, 1999 WL 155945, at *2 (E.D. La. Mar. 18, 1999) (noting that "two of the nation's most distinguished forensic science organizations, the American Academy of Forensic Sciences and the American Board of Forensic Odontology" questioned Dr. West's methodology and were holding him under disciplinary review); see also *Brewer v. State*, 725 So. 2d 106, 116 (Miss. 1998) (discussing Dr. West's testimony in a capital murder case). Dr. West seems to be involved in about one in ten of the appealed cases, and, although he was severely criticized in *Banks v. State*, 725 So. 2d 711, 714 (Miss. 1997) for destroying evidence, he continues to testify. See also *Commonwealth v. Henry*, 706 A.2d 313, 326-27 (Pa. 1997) (discussing the testimony of another bite mark expert, Dr. Dennis Asen).

¹⁴³ See *State v. Hodgson*, 512 N.W.2d 95, 98 (Minn. 1994) (equating bite mark evidence with fingerprint comparisons for purposes of identifying individuals). *Hodgson* is pretty typical of the post-*Daubert* bite mark cases, in that it spends two paragraphs on the issue, and resolves it by citing a survey law review article and an ALR annotation. *Id.*

cases, human flesh, because of its particular conditions of plasticity, which can vary between parts of the body, both receives the impressions imperfectly and retains them imperfectly. Indeed, it is often controversial whether a wound represents a bite mark at all. Exactly when, in these circumstances, identifications are reliable is unclear. The literature of forensic dentistry is full of claimed improvements on the technique of deriving dependable information from bite marks, but virtually free of any reports of tests designed to map when forensic dentists, in fact, can make such identifications dependably and when they cannot.¹⁴⁴

It is said that hard cases make bad law. Sometimes, in regard to the admissibility of expertise, it is easy cases that make bad law. The first case to consider the dependability of bite mark identification evidence was *People v. Marx*,¹⁴⁵ a 1975 California case. The case involved near ideal conditions. The defendant had what the court characterized as “obvious irregularities”¹⁴⁶ in his teeth, and the bite had been to the victim’s nose, a site which resulted, in the words of one prosecution witness, in “an exceptionally well defined human bite mark. . . . the clearest bite mark that I ha[ve] ever seen, either personally or published in the literature.”¹⁴⁷ That same witness testified that he had refused to testify in regard to other bite marks shown to him because they were not “sufficiently detailed nor sufficiently useful to serve as evidence.”¹⁴⁸ Another prosecution witness further elaborated on the distinctive character of the bite marks seen in the case:

[i]n the case of bite marks in skin, most of the ones that have been in the literature have been on the softer portions of the body, notably in sex crimes related to the female breasts. And here, of course, there is a very soft underbase and consequently the bite marks are not very deep . . . [but] this

¹⁴⁴ An examination of the numerous authorities cited by Forensic Odontologist Raymond D. Rawson in Raymond D. Rawson, *Identification from Bite Marks: The Scientific Status of Bitemark Comparisons* § 24-2.0, in 2 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., 1997), reveals not a single validity study. Forensic Odontologist C. Michael Bowers, who wrote the 2000 supplement, turned up one: a 1975 study by D.K. Whittaker published at 25 INT’L. J. FORENSIC DENTISTRY 166, which showed a 76% error rate in identifications by experienced examiners who were tested. C. Michael Bowers, *Identification from Bite Marks: The Scientific Status of Bitemark Comparisons* § 24-2.1.1, in 2 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., Supp. 2000).

¹⁴⁵ 126 Cal. Rptr. 350 (Cal. Ct. App. 1975).

¹⁴⁶ *Id.* at 356.

¹⁴⁷ *Id.* at 354, n.8.

¹⁴⁸ *Id.*

particular case will be recorded as one of the most definitive and distinct and deepest bite marks on record in human skin.¹⁴⁹

It was on this record that the California Court of Appeal accepted the testimony, fashioning what was, in fact, a narrow exception to California's *Frye* test even in the absence of "systematic, orderly experimentation in the area."¹⁵⁰ The court's evaluation of the reliability of the technique under the particular factual conditions of the case can be seen as an anticipation of *Kumho Tire* by a quarter century. However, thereafter the *Marx* case was regularly cited by courts dealing with much more questionable applications of bite mark identification, without noting *Marx's* particular facts.¹⁵¹ In the normal way that courts have worked in regard to defining the parameters of admissibility for proffered expertise, *Marx* came to be read as a global warrant to admit bite mark identification evidence whenever a person displaying apparent credentials chose to testify to an identification. Perhaps the most notorious such case was the very next full-scale examination of bite mark evidence, the Illinois case *People v. Milone*,¹⁵² which, relying at least in part on *Marx*, declared bite mark evidence acceptably reliable under much less clear conditions.¹⁵³ After *Marx* and *Milone* there was little serious consideration given to bite mark foundational dependability by subsequent courts, since bite mark evidence was no longer "novel" under the *Frye* test.¹⁵⁴ When *Daubert* changed this general

¹⁴⁹ *Id.* at 354.

¹⁵⁰ *Id.* "Concededly, there is no established science of identifying persons from bite marks as distinguished from, say, dental records and X-rays." *Id.* at 355.

¹⁵¹ See, e.g., *People v. Slone*, 143 Cal. Rptr. 61, 69 (Ct. App. 1978) (relying on *Marx* to establish the general reliability of bite mark evidence).

¹⁵² 356 N.E.2d 1350 (Ill. App. Ct. 1976). Notwithstanding the admitted controversy concerning the reliability of bite mark identification among forensic odontologists both at the trial and in the literature of the time, the *Milone* court found the *Frye* general acceptance standard had been met, citing *Marx*. *Id.* at 1359-60. *Milone* remains controversial. The defendant has been released, but continues to maintain his innocence and attack the bite mark evidence. See *Milone v. Camp*, 22 F.3d 693, 697 n.1 (7th Cir. 1994) (noting that *Milone* was released after serving almost twenty years of his 90-to-175-year prison sentence). In addition, there is good evidence that another person actually committed the murder, a person whose bite marks have been judged by at least one forensic odontologist to be as good a match for those on the victim as *Milone's*. See *id.* at 700-01 (noting that the bite marks found on the victim match the dentition of known serial killer Richard Macek and that Macek confessed to the murder several times prior to his 1987 suicide).

¹⁵³ See *Milone*, 356 N.E.2d at 1356, 1355, 1360 (upholding the trial court's decision to allow bite mark identification testimony even though four forensic odontologists testified as to the unreliability of such positive identifications).

¹⁵⁴ See generally 2 DAVID L. FAIGMAN, DAVID H. KAYE, MICHAEL J. SAKS, & JOSEPH SANDERS, MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 24-1.0 (1997) [hereinafter 2 MODERN SCIENTIFIC EVIDENCE] (noting the ironic history of bite

approach for federal courts, state courts, as we have seen, were somewhat influenced in civil cases, but have paid little attention in regard to prosecution evidence in criminal cases.¹⁵⁵ Thus, the global acceptance of bite mark evidence, developed at the height of the tolerance for junk expertise admissibility in the late 1970s and early 1980s, has had no reexamination. The New Jersey Supreme Court's one paragraph disposal of a first-impression challenge to bite mark identification evidence in a recent capital case is typical: "[j]udicial opinion from other jurisdictions establish[es] that bite-mark analysis has gained general acceptance and therefore is reliable. . . . Over thirty states considering such evidence have found it admissible and no state has rejected bite-mark evidence as unreliable. . . . Accordingly, the evidence was well within the trial court's discretion to admit."¹⁵⁶

One gigantic irony is that there is less published empirical evidence regarding the reliability of bite mark identification under non-optimum conditions than there is in regard to another area of forensic science where *Daubert* attacks have had at least mild success: handwriting identification.¹⁵⁷

Handwriting identification expertise is proffered more often than bite mark identification, especially in civil cases.¹⁵⁸ Since the decision in *Daubert*, such expertise has turned up in about 300 reported cases, including about 120 in federal court and 180 in state court. In only one reported state case, so far as the record reflects, was a challenge made to the validity of any part of document examiner handwriting identification practice.¹⁵⁹ In federal court,¹⁶⁰

mark evidence, in that the courts were admitting such evidence before many prominent forensic odontologists were confident such identifications could be done accurately).

¹⁵⁵ See *supra* Part II C (discussing the impact of *Daubert* on the admission of scientific evidence in state cases).

¹⁵⁶ *State v. Timmenedequas*, 737 A.2d 55, 114 (N.J. 1999).

¹⁵⁷ See generally D. Michael Risinger, *Handwriting Identification: The Scientific Status of Handwriting Identification Expertise* § 22-2.0, in 2 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks & Joseph Sanders eds., 1997).

¹⁵⁸ See *infra* notes 163-68, 170-71 and accompanying text (outlining the reasons why handwriting expertise may be proffered, and accepted, more frequently than bite mark evidence).

¹⁵⁹ See *Basinger v. Commonwealth*, No. 2968-98-4, 2000 WL 724037 at *1 (Va. Ct. App. Jun. 6, 2000) (upholding the trial court's determination that the handwriting analyst provided reliable testimony).

I have personal knowledge of two more such attacks which were mounted in state court during the reference period but did not result in either exclusion or published (or even written) opinions. Under the circumstances, that remains a pretty sparse record of performance by the criminal defense bar as a whole.

¹⁶⁰ This includes two cases from the military courts. Cases from the military courts, which have exclusively criminal jurisdiction, were not included in the main reference set.

nine such reported challenges have been made and litigated pursuant to *Daubert* (which resulted in ten opinions),¹⁶¹ and in two of those cases substantial restrictions were placed upon the scope of such handwriting identification testimony.¹⁶² While this partial success may seem modest, it marks the beginning of the system actually dealing with the contours of dependability of this asserted expertise in regard to the various ground contexts in which it arises

¹⁶¹ See *United States v. Battle*, No. 98-3246, 1999 WL 596966, at *3-4 (10th Cir. Aug. 6, 1999) (rejecting the defendant's challenge to the testimony of a qualified document examiner who testified that the defendant had forged the signature of another individual); *United States v. Paul*, 175 F.3d 906, 911 (11th Cir. 1999) (affirming the trial court's decision to allow a F.B.I. document examiner to testify that the defendant authored an extortion note); *United States v. Jones*, 107 F.3d 1147, 1161 (6th Cir. 1997) (upholding the admissibility of a United States Postal Service forensic document analyst's testimony that the defendant's signature was on various documents related to a stolen credit card); *United States v. Velasquez*, 64 F.3d 844, 845 (3d Cir. 1995) (reversing a defendant's continuing criminal enterprise conviction because of the trial court's failure to admit the testimony of the defendant's expert on the limitations of handwriting analysis); *United States v. Rutherford*, 104 F. Supp. 2d 1190, 1194 (D. Neb. 2000) (granting defendant's motion to exclude the testimony of a prosecution handwriting expert as to the "ultimate conclusion on the authorship of questioned documents"); *United States v. Santillan*, No. CR-96-40169 DLJ, 1999 WL 1201765, at *5 (N.D. Cal. Dec. 3, 1999) (barring a handwriting expert from testifying as to the authorship of the documents in question); *United States v. Hines*, 55 F. Supp. 2d 62, 69-70 (D. Mass. 1999) (granting, in part, the defendant's motion to exclude the testimony of the prosecution's handwriting expert in a bank robbery case); *United States v. Starzecpyzel*, 880 F. Supp. 1027, 1049-50 (S.D.N.Y. 1995) (allowing, with certain restrictions, the testimony of a forensic document examiner in an art theft prosecution); *United States v. Ruth* (Ruth II), 46 M.J. 1, 2 (C.A.A.F. 1997) (upholding a military judge's decision to deny the testimony of a defense expert critical of handwriting analysis in a court-martial for fraud); *United States v. Ruth* (Ruth I), 42 M.J. 730, 733-34 (A. Ct. Crim. App. 1995) (upholding the admissibility of a prosecution-offered handwriting analyst and upholding the exclusion of a defense critic of handwriting analysis). For general statistical purposes *Ruth* was counted as two cases (because there were two separately reported opinions) pursuant to the normal counting protocol adopted in this article. However, in the text it is identified as a single case with two opinions.

¹⁶² See *Hines*, 55 F. Supp. 2d at 70-71 (allowing the prosecution's expert to testify as to the similarities between a bank robbery note and the defendant's handwriting sample, but not allowing testimony as to actual authorship of the note); *Starzecpyzel*, 880 F. Supp. at 1049-50 (allowing forensic document examiner (FDE) testimony with the following procedural safeguards: 1) a jury instruction stating that FDE's offer "practical, rather than scientific expertise;" 2) possible restrictions on the FDE's testimony as to the degree of certainty upon which they base their opinions; and 3) permitting the defense to attack the reliability of forensic document examination during trial). A similar result was reached by Judge Matsch in *United States v. McVeigh* (the Oklahoma City Bombing Case), but his oral opinion, though it has been influential and was relied upon by Judge Gertner in *Hines*, 55 F. Supp. 2d at 70-71, was not reported in a form that showed up in the reference set. It may be found at 1997 WL 47724 (D. Colo. Trans. Feb. 5, 1997). Since the close of the reference set two courts have adopted the Matsch/Gertner approach. See *Santillan*, 1999 WL 1201765, at *4-5 (relying on *Hines* and *McVeigh* and concluding that handwriting analysis is an unreliable method of determining the identity of a given author); *Rutherford*, 104 F. Supp. 2d at 1194 (precluding the expert from testifying as to "the degree of probability, confidence, or certainty underlying his proffered opinions" on authorship). The *Santillan* and *Rutherford* cases are further analyzed in Risinger, *supra* note 2.

and the various subtasks that comprise it. So why have challengers been more successful in regard to handwriting identification than in regard to bite mark identification? One can identify a number of variables, most of which should perhaps not make any difference, but nevertheless do.

First, handwriting identification gained entry into courtrooms in the late nineteenth and early twentieth century.¹⁶³ Hence, contemporary judges are not exquisitely resistant to considering that the standards applied to handwriting evidence's acceptance by long dead judges may have been misdirected or too lax. However, admission of bite mark evidence is predominantly a result of decisions in the late 1970s and early 1980s.¹⁶⁴ In this case, judges are often dealing with their own previous decisions, or those of recent colleagues. The perceived threat to *stare decisis* is thus much more intense.

Second, handwriting identification witnesses have generally been "technicians"—persons without any academic background in the sciences (and rarely with graduate degrees) who have received apprenticeship training in handwriting examination.¹⁶⁵ Bite mark identification witnesses have academic backgrounds in science and graduate degrees in dentistry at a minimum.¹⁶⁶ The group just looks more dependable based on its apparent familiarity with basic normal science.

Third, bite mark identification is not thought to commonly have lurking problems of forgery, simulation, and significant source variation, as is the case in regard to handwriting.¹⁶⁷ Hence, there can be demonstrably clear cases in regard to bite marks, such as *People v. Marx*,¹⁶⁸ whereas there are few such obviously clear cases in regard to handwriting identification. There appears to be a tendency to generalize from the existence of clear cases to the

¹⁶³ See D. Michael Risinger, Mark P. Denbeaux & Michael J. Saks, *Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification "Expertise,"* 137 U. PA. L. REV. 731, 762-70 (1988) (stating that by 1925 all but five American jurisdictions permitted handwriting analysis evidence).

¹⁶⁴ See, e.g., *People v. Milone*, 356 N.E.2d 1350, 1356 (Ill. App. Ct. 1976) (noting that "bite mark identification is a matter of first impression before [the] court").

¹⁶⁵ See Jonakait, *supra* note 8, at 444 (noting that no formal education or certification requirement is necessary to become, and remain, a handwriting analysis expert).

¹⁶⁶ See Rawson, *supra* note 144, § 24-2.4.2 ("There are hundreds of hours of study and practice in subjects pertinent to the specialty of forensic odontology in every accredited dental school in the United States.").

¹⁶⁷ See *id.* § 24-2.2.1 (noting that, with regard to bite mark identification, there is "general agreement" on what types of evidence should be harvested from both the victim and the suspect).

¹⁶⁸ 126 Cal. Rptr. 350 (Cal. Ct. App. 1975).

validity of identifications in unclear situations, which is not necessarily rational, but powerful.

Fourth, bite mark identification has little published data from studies showing that forensic odontologists can identify the origin of a bite mark under non-ideal conditions, or how various non-ideal conditions affect individual and group performance.¹⁶⁹ There have been proficiency studies, but the results have never been made public. However, while the data regarding handwriting identification is sparse, what has gotten some courts' attention seems to have been proficiency test results which fall far short of the claims of the area in regard to at least some subtasks.¹⁷⁰ So bite mark experts have benefited from their ability (up to now) to do few proficiency studies and to keep secret the results of such proficiency studies as have been done; isn't this backward?

Finally, there has been an academic assembly of all the data in regard to handwriting, which has acted as a kind of turnkey blueprint on weaknesses and how to attack them, coupled with providing witnesses to present the data and lack of data coherently to a court.¹⁷¹ In this regard, handwriting identification is more like DNA than other purely forensic sciences. Nothing of the sort has been assembled regarding bite mark identification, and, while forensic odontologists are not loathe to testify against each other before a jury as a matter of "opinion," they have not apparently been breaking down any doors to testify to the rational limits of their own expertise in such a way that identifications would be excluded absent certain minimum conditions of dependability being present in the individual case.

¹⁶⁹ See *supra* notes 142-54, 156 and accompanying text (discussing the scientific validity and reliability of bite mark identification).

¹⁷⁰ See *United States v. Starzekpyzel*, 880 F. Supp. 1027, 1037 (S.D.N.Y. 1993) (classifying bite mark identification data as "sparse, inconclusive and highly disputed"). Bite mark is perhaps not without a bit of negative data also. See the results of the Whittaker study, discussed *supra* note 144.

¹⁷¹ This assembly has been done largely by myself and my frequent co-authors, Mark P. Denbeaux and Michael J. Saks. Denbeaux and Saks have testified as educational experts on the weaknesses of the handwriting identification process, and the courts have split on the acceptability of such educational witnesses. Compare *United States v. Velasquez*, 64 F.3d 844, 852 (3d Cir. 1995) (holding that the district court erred as a matter of law in not allowing Denbeaux to testify regarding the limitations of handwriting analysis) with *United States v. Paul*, 175 F.3d 906, 912 (11th Cir. 1999) (holding that the district court properly excluded Denbeaux's testimony). A full discussion of these cases is available in D. Michael Risinger, *Handwriting Identification: The Judicial Response to Proffered Expert Testimony on Handwriting Identification by Comparison of Hands* § 2-1.4.4 in 2 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman, David H. Kaye, Michael J. Saks, & Joseph Sanders eds., Supp. 2000).

It is not my intention to make my way through every “forensic science” with areas of dubious reliability. We have seen that, on their face, the numbers seem to indicate that civil defendants have benefited greatly from *Daubert* but that criminal defendants have not. This seems especially true in regard to what might be called non-science forensic science, and it appears to be attributable partly to the inertia of courts, but at least as much to the criminal defense bar’s failure to construct sophisticated challenges and develop the evidence to support them. Lest you doubt this conclusion, ask yourself this question. If, after *Daubert*, substantial liability of General Motors or Microsoft were dependent on the identification of bite marks found in various non-ideal media, and on their attribution to various corporate employees, is it not clear that these issues would have been litigated differently and more thoroughly than they have been, and that the results would have often been different? If you are convinced that the record strongly suggests that this is true, I have made my point.

VI. AFTERWORD

The vicissitudes of legal scholarship and publication are such that a long delay between defining a data set and a published article based on it is not necessarily unusual. In this case, the main reference set was closed a little over a year ago. However, sometimes one can use lemons to make lemonade. The delays have allowed a look¹⁷² at another year’s cases, both as a check on the main conclusions and as a means of identifying emerging trends, if any.

Between August 2, 1999 and early August 2, 2000, another 449 cases cited *Daubert*.¹⁷³ One-hundred and two of these were in the

¹⁷² The size of these sets made it possible for me to personally examine all of the cases in the federal courts of appeals and the ALLSTATES universes, so that no sampling was involved in the results given for those two sets. The large size of the sub-set of non-criminal cases in the federal district court, and the short time available, made sampling desirable, if not absolutely necessary, and the numbers given for the district court opinions are based on an examination by me of all the criminal cases and a sample of a third of the non-criminal cases (every third case chronologically).

¹⁷³ This universe of cases was identified using the same search term, “*Daubert w/2 Dow*” in the same three Westlaw databases (CTA, DCT and ALLSTATES) as the main reference set. One should note that there is a small but increasing number of cases that cite *Kumho Tire* without citing *Daubert*. (eleven in the United States courts of appeals, nine in the United States district courts and eight in the ALLSTATES data base). These were not included in order to maintain comparability between the two reference sets, but they were examined, and their inclusion would not have affected the percentages given in any significant way. It

federal courts of appeals, compared with ninety-five cases in the last year of the reference set. This is an increase of only seven cases, truly insignificant considering that it was the first full year after the decision in *Kumho Tire*. Of these 102 cases in the new set, thirty-eight are fairly characterized as dealing with dependability issues in criminal cases, but six of these involved ancillary contexts such as sentencing. Excluding such peripheral cases, thirty-two, or about 30% of the total cases, dealt with challenges to the dependability of expert evidence proffered on issues of guilt or innocence. This is the same as in the main reference set.

These cases involve twenty complaints about admission of government-proffered expert testimony, and fifteen complaints about the exclusion of defendant-proffered expert testimony (as in the main set, some cases involved more than one such complaint). This ratio is not significantly different than in the main set.

Of the twenty cases challenging government expertise, the prosecution prevailed in seventeen, two were found to be error, but harmless,¹⁷⁴ and one resulted in a reversal.¹⁷⁵ Again, this is not significantly different from the main set.¹⁷⁶

should also be noted that not every significant state case on expert reliability cites either *Daubert* or *Kumho Tire*. *State v. Fortin*, 745 A.2d 509 (N.J. 2000), is a prime example.

¹⁷⁴ See *United States v. Williams*, 212 F.3d 1305 (D.C. Cir. 2000); *United States v. Charley*, 189 F.3d 1251 (10th Cir. 1999). *Williams* was a District of Columbia prosecution for being a felon in possession of a firearm, and involved a foot pursuit of the defendant, who began the pursuit with an unidentified object of some bulk and heft in his hand and finished with nothing. 212 F.3d at 1307. Later, an unrusty gun without fingerprints was found under a bridge crossed by the defendant during the pursuit. *Id.* The predicate felony was drug conviction. *Id.* at 1307-08. The admission of a police officer's testimony that it is "common for people who use drugs or sell drugs to carry weapons for protection" without establishing sufficient foundation regarding the witness's source of knowledge about the habits of "people who use drugs" was error, whether characterized as expert or fact witness testimony. *Id.* at 1309-10. However, the error was held to be harmless because of the weight of additional evidence against the defendant. *Id.* at 1312.

More surprisingly, in *Charley*, a child molestation case, the court found that a pediatrician's conclusion that the victim had been sexually abused, a child counselor's testimony that the victim's symptoms were more consistent with sexual abuse than with any other trauma, and testimony by counselors that assumed the fact of molestation were all erroneously admitted. 189 F.3d at 1266-70. This was nevertheless found to be harmless error, though the standard of harmless error utilized is not easy to fathom. See *id.* at 1272 (noting that the erroneously admitted testimony did not substantially affect the trial outcome even though the prosecution, who, on appeal, had the burden of establishing that the error was harmless, failed to even address the issue in its brief to the court).

¹⁷⁵ The single new trial was granted in *United States v. Velarde*, 214 F.3d 1204 (10th Cir. 2000), another Indian country child molestation case involving an improperly admitted conclusion by an expert that the victim had in fact been sexually abused. *Id.* at 1211. This was found to require reversal. *Id.* at 1212. Ironically, one of the same experts involved in *Charley*, 189 F.3d 1251, was involved here. *Id.* at 1210. *Velarde* may be a short-lived victory, however, since the opinion is somewhat inconsistent with the same circuit's decision in *Charley* and it has disappeared from Westlaw (though I have a printed copy of it). A

Of the fifteen complaints of excluded defense expertise, the defendant lost fourteen of them. In the main reference set the defense won ten of fifty-five. However, seven of those “victories” in the main set were remands for a *Daubert* hearing with no guarantee of a retrial if the result of the hearing affirmed the original. No case in the new set was handled in this way. Perhaps district court judges are becoming better at making *Daubert* records. Excluding those cases, the results are not significantly different (one defense win out of fifteen compared to three out of forty-eight).

On the civil side, the results are similarly consistent. The majority of the reliability challenges in a trial context were in civil cases. Of those, more than 90% involve challenges to plaintiff-proffered expertise, and 90% of those were tort cases. Defendants prevailed two-thirds of the time. If there is any change, it is that, in the three challenges to defense expertise in the new set, the defendants won all three,¹⁷⁷ whereas, in the main set, plaintiffs won about half of their challenges. However, the universe is too small to yield significant information. Finally, a perusal of the court of

rehearing en banc may be in the offing. It should be obvious that child sexual abuse expertise and “syndrome” evidence is no easier for the federal courts to deal with when it arises in federal prosecutions than it has been for state courts.

¹⁷⁶ The main set had six defense “victories” out of sixty-seven, (9%), five of which were declared harmless error. The new set had three defense “victories” out of twenty (15%), two of which were declared harmless. Given the relative size of the two sets, these differences are not significant.

¹⁷⁷ In *Laski v. Bellwood*, No. 99-1063, 2000 WL 712502, at *2 (6th Cir. May 25, 2000) plaintiff's car was struck from the rear and plaintiff claimed back injuries. Plaintiff lost at trial, and complained on appeal that the defense expert in biomechanics was allowed to say that he did not believe the car accident caused plaintiff's injuries. *Id.* Plaintiff relied on *Smelser v. Norfolk Southern Railway Co.*, 105 F.3d 299, 305 (6th Cir. 1997), a not very sophisticated decision which had specifically held that a biomechanic could never render an opinion on a subject which required medical training without explaining why causation of injury necessarily always required “medical” as opposed to “biomechanical” training. *Id.* at 305. The *Laski* court distinguished *Smelser* by relying on the particularized and fact-sensitive nature of a *Daubert* inquiry, without citing the more pertinent *Kumho Tire* on the proposition, and ruled that given the particular issue in this case, and the particular training and experience of this biomechanic, it was not error to allow his testimony. 2000 WL 712502, at *4.

In *Foster-Miller, Inc. v. Babcock & Wilcox Canada*, 210 F.3d 1, 15 (1st Cir. 2000), a trade secrets case, the court of appeals concluded, after a cursory analysis, that it was not error to admit defendant's valuation expert. It should be noted that valuation experts are less often excluded than virtually any other category of civil case expert, a result which should not be surprising. See Risinger, *supra* note 59, § 34-3.1 (explaining that, despite the abstract nature of market value determination, the predictive nature of the discipline makes it acceptable for the purpose it plays in the courtroom). “In th[e] case [of market valuation], very undependable expertise is used to forge a satisfactory result.” *Id.*

Finally, in *Bryant v. City of Chicago*, 200 F.3d 1092, 1094 (7th Cir. 2000), a racial discrimination case attacked the acceptability of the Chicago Police lieutenant's examination. The admission of defendant's “content validation expert” was found to be proper. *Id.* at 1098.

appeals case mix does not appear to reveal substantial trends. With the courts of appeals things have remained pretty stable.

In the district courts things are not quite so steady-state. In the new set, 187 opinions cited *Daubert*, a more than 60% increase over the last year of the main reference set. Of these, only eleven arose in criminal cases, and only eight involved dependability issues in a guilt-or-innocence context. This is about the same number as the last year of the reference set, but of course it is less than half the rate compared with civil cases because of the dramatic rise in civil cases.

These eight criminal cases generated six opinions on defense challenges to prosecution proffers and only two on government challenges to defense proffers. The government's evidence was admitted fully five times,¹⁷⁸ and once with substantial restrictions.¹⁷⁹ This is not significantly different from the eleven-to-one win ratio in the main reference set.

The two challenges to defense expertise were split one-to-one.¹⁸⁰ This 50% defense win rate is nominally higher than the 33% of the reference set, but of course the numbers are too small to mean anything (with only two cases the rate had to be zero, 50% or

¹⁷⁸ See, e.g., *United States v. Van Wyk*, 83 F. Supp. 2d 515, 523 (D. N.J. 2000) (allowing the testimony of the government's "forensic stylistics" witness but excluding testimony concluding that the defendant authored the writings in question); *United States v. Carroll*, No. CRIMA.99-88, 2000 WL 45870, at *5-8 (E.D. La. Jan. 20, 2000) (admitting, without a pre-trial *Daubert* hearing, the testimony of a F.B.I. agent as to the meaning of various notations and purported nicknames found in a notebook in the defendant's possession); *United States v. Walters*, 89 F. Supp. 2d 1206, 1208-09 (D. Kan. 2000) (holding that a stipulated polygraph was admissible against defendant). It should be noted that the "area of expertise" involved in *Van Wyk* ("forensic stylistics"—the identification of an author via a comparison with language used in a known sample) is novel indeed, and there is some question whether the case should be counted as an unalloyed victory for the prosecution, since some restrictions were imposed by analogy to handwriting identification and the approach of *United States v. Hines*, 55 F. Supp. 2d 62 (D. Mass. 1999). See *Van Wyk*, 83 F. Supp. 2d at 524 (allowing expert testimony comparing handwriting samples but not the expert's conclusory opinion regarding authorship). However, it seems that admission of any sort for "forensic stylistics" should be counted as a government victory. See *United States v. Potts*, No. CRIMA.00-060, 2000 WL 943219, at *1 (E.D. La. July 7, 2000) (allowing the testimony of an expert witness for the prosecution concerning the packaging and pricing of cocaine hydrochloride); *United States v. Cooper*, 91 F. Supp. 2d 79, 82 (D. D.C. 2000) (rejecting attacks on fingerprint, forensic pathology, and firearms identification evidence).

¹⁷⁹ See *United States v. Santillan*, No. CR-96-40169, 1999 WL 1201765, at *5 (N.D. Cal. Dec. 3, 1999) (allowing a government document examiner to point out similarities between documents, but not to give opinion of authorship) (citing *United States v. Hines*, 55 F. Supp. 2d 62 (D. Mass. 1999)).

¹⁸⁰ See *United States v. Robinson*, 94 F. Supp. 2d 751, 752, 754 (W.D. La. 2000) (allowing the defendant's psychological expert to testify about defendant's lack of interest in underage females in a sexual abuse case); *United States v. Microtek Int'l Dev. Sys. Div., Inc.*, No. CIV. 99-298-KI, 2000 WL 274091, at *6 (D. Or. Mar. 10, 2000) (rejecting a defendant's polygraph results in a money laundering case).

100%—it could not be 33%). What is significantly different is the plummeting rate of prosecution challenge to defense expertise. In the main set there were more than three government challenges for every defense challenge. Now, government challenges to defense expertise, as reflected in district court opinions, have dried up, and reexamination of the last year of the main set shows that they were drying up then. I have no idea if this means that there are fewer defense proffers, fewer government challenges, or fewer opinions as district courts become comfortable with disposing of what they see as repetitive issues by precedent without *Daubert* hearings.

As noted, the number of opinions citing *Daubert* is up by more than 60% on the civil side. About 70% of the total citations were in cases involving dependability determinations. Of those, 80% were tort cases, and 90% involved attacks by defendants on plaintiffs' proffered expertise. As in the main set, these challenges were successful two-thirds of the time (half the time in non-tort cases and three-fourths of the time in tort cases), and most of these decisions led to defense judgments. Finally, as in the main set, in the small number of cases involving plaintiff challenges to defense experts in the sample, the plaintiff prevailed less than half the time (two out of five).¹⁸¹

Finally, in the state courts, there were 160 cases citing *Daubert*, up from 118 in the last year of the main reference set (a 36% increase). Of these, only fifty-nine dealt with criminal matters, so the state courts are now generating nearly two-thirds of their opinions on non-criminal matters. However, a higher percentage of those citations are either peripheral citations or occur in non-litigation contexts such as appeals from administrative hearings. Only fifty-five of the cases clearly involve civil litigation, so the change in absolute and relative numbers of cases is not as great as the total numbers would suggest.

¹⁸¹ Compare *Robb v. Burlington N. & Santa Fe Ry. Co.*, 100 F. Supp. 2d 867, 874 (N.D. Ill. 2000) (excluding defendant's accident reconstruction expert who ran an experiment under non-comparable conditions in a case centering around a railroad accident in which plaintiff lost a foot), and *Klein v. Vanek*, 86 F. Supp. 2d 812, 818-19 (N.D. Ill. 2000) (excluding the testimony of a psychologist offered by the defense to opine that plaintiff is lying in a civil rights claim concerning excessive police force), with *Saad v. Shimano Am. Corp.*, No. 98-C-1204, 2000 WL 1036253, at *5 (N.D. Ill. July 24, 2000) (allowing defendant's experts to testify on bicycle pedal design in a products liability case), *Cayuga Indian Nation of N.Y. v. Pataki*, 83 F. Supp. 2d 318, 328 (N.D.N.Y. 2000) (allowing the testimony of defendants valuation experts in a case involving compensation for dispossessed ancestral lands and, interestingly, striking some of the testimony of plaintiff's valuation experts pursuant to *Daubert.*), and *Cayuga Indian Nation of N.Y. v. Pataki*, 79 F. Supp. 2d 78, 85, 87 (N.D.N.Y. 1999) (allowing the testimony of a history professor called by defendant on the issue of the reasonableness of state payments made 150 years ago, with some relevancy-based restrictions).

In the criminal context, there were fifty-seven opinions involving dependability challenges to evidence proffered on guilt or innocence; fifty involving challenges by the defense to government expertise and seven involving government challenges to defense-proffered expertise. In the fifty challenges to government proffers, the evidence was found to be properly admitted in forty-four of those cases. In six cases admission was found to be error, an 11% rate, less than half that for the reference set, and close to the federal court of appeals rate. Four of the six cases of erroneous admission were found to be harmless,¹⁸² leaving two reversals.¹⁸³

As to exclusions of defense expertise, as noted, there were only seven cases or 12% of total criminal challenges. This is less than half the rate in the reference set, and represents a dramatic drop, though not so dramatic as in the case of the federal district courts. In these seven cases, the defense lost six,¹⁸⁴ and its single victory

¹⁸² See *Garcia v. State*, No. 01-99-01068-CR, 2000 WL 730685, at *2-3 (Tex. App. June 8, 2000) (finding harmless error in trial court's decision to admit police officer testimony regarding the commonness of recantation in battered woman syndrome sufferers); *State v. Hurst*, No. 98AP-1549, 2000 WL 249110, at *8-10 (Ohio Ct. App. Mar. 7, 2000), *sentence vacated on other grounds*, (finding harmless error in trial court's decision to: 1) allow detective to testify that 90% of sexual assault victims do not resist; and, 2) to allow the victim's sisters to give victim behavioral change testimony); *Franco v. State*, No. 08-98-00008-CR, 2000 WL 190193, at *5 (Tex. App. Feb. 17, 2000) (finding harmless error in trial court allowing an unqualified police officer to give misleading blood spatter testimony); *Roise v. State*, 7 S.W.3d 225, 231-32, 238 (Tex. App. 1999) (holding, in a case in which defendant was convicted of possession of child pornography in connection with nineteenth century photos, many of which were available in fine art collections, that the trial court erred on both relevancy and reliability grounds in allowing the prosecution's psychologist to testify that the subjects of the photographs were injured by the experience, but that the error was nonetheless harmless).

¹⁸³ See *State v. Konechny*, 3 P.3d 535, 544-45 (Idaho Ct. App. 2000) (finding that the prosecution's expert witnesses, counselors who testified that the alleged victim was sexually assaulted, were improperly admitted without foundational testimony regarding their methodology or diagnostic tools, and holding that this was reversible error); *State v. Kunze*, 988 P.2d 977, 990-92 (Wash. Ct. App. 1999) (finding that earprint identification evidence was wrongly admitted in a murder trial).

¹⁸⁴ See *State v. Shively*, 999 P.2d 952, 962 (Kan. 2000) (finding no error in the trial court's rejection of defendant's polygraph test results in an aggravated assault case); *Christie v. Commonwealth*, No. 1998-CA-003025-MR, 1998-CA-003026-MR, 2000 WL 968069, at *2-5 (Ky. Ct. App. July 14, 2000) (holding that it was proper, for the trial court in a robbery trial, to exclude defendant's educational expert on the dangers of eyewitness identification); *Commonwealth v. Duguay*, 720 N.E.2d 458, 463 (Mass. 1999) (stating that the trial court properly rejected defendant's polygraph results in a first degree murder case); *Humphrey v. State*, 759 So. 2d 368, 383-84 (Miss. 2000) (determining that it was proper for the trial court, in a capital murder case, to reject the defense proffer of polygraph results for two prosecution witnesses); *People v. Johnston*, 709 N.Y.S.2d 230, 235-36 (N.Y. App. Div. 2000) (finding no error in the exclusion of the defendant's educational expert on child interrogative suggestibility in a child sexual abuse case); *State v. Brand*, No. C-990548, 2000 WL 299497, at *2 (Ohio Ct. App. Mar. 24, 2000) (holding, on interlocutory appeal, that the trial court abused its discretion in granting defendant's motion for polygraph tests for defendant).

was merely a remand for a full hearing on the admissibility of polygraph, with the disposition to depend on the outcome of the hearing on remand.¹⁸⁵

In state civil cases, 84% involved challenges by defendants' to plaintiffs' proffers, which is about the same as in the reference set, but the success rate rose from 40% to 50%, much nearer the federal court of appeals success rate. Finally, in the nine cases where plaintiffs attacked defense-proffered expertise, plaintiffs' win rate dropped to 33% (three out of nine), but the number of cases involved is too small to draw any significant conclusions.

And thus another year has passed, in which the effect of the *Daubert* decision and its progeny on civil cases and the heightened standards of dependability imposed on expertise proffered in civil cases has continued to expand, but in which expertise proffered by the prosecution in criminal cases has been largely insulated from any change in pre-*Daubert* standards or approach.

¹⁸⁵ See *In re Robert R.*, 531 S.E.2d 301, 304 (S.C. Ct. App. 2000) (remanding the case, in a juvenile proceeding for sexual assault, because the trial court employed a per se rule of polygraph inadmissibility).