YOU CAN'T HANDLE THE TRUTH: LIES, DAMN LIES, AND THE EXCLUSION OF POLYGRAPH EVIDENCE

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In all this legal maneuvering something got lost.
That something is the truth.
—Jake Brigance, *A Time to Kill*

TABLE OF CONTENTS

I. INTRODUCTION 433
II. THE HISTORY 435
III. A HISTORY OF EXCLUSION: AN OVERVIEW 437
IV. THE LIE-DETECTION LITERATURE 439
V. THE CURRENT STATE OF ADMISSIBILITY 441
VI. THE ARGUMENTS AGAINST ADMISSIBILITY 443
A. General Acceptance 443
B. Validity of The Scientific Foundation 449
C. Reliability (Having a Known or Established Error Rate) 454
D. Usurpation of the Jury Function 459
VII. THE RATIONALE BEHIND EXCLUSION 469
VIII. WHAT THE FUTURE HOLDS 470

I. INTRODUCTION

Over the course of the past ninety years, lie detection has been routinely excluded from American courtrooms in all of its technological forms. A variety of explanations have been offered

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to justify this exclusion, ranging from a lack of adequate scientific underpinnings, to an inconsistency in published error rates, to the notion that lie detection would usurp the function of the jury as the ultimate fact finder and arbiter of credibility. Lie detection proponents have attempted to rehabilitate the image of the practice, arguing that the evidence (regardless of the technology) does meet the standards for admissibility and concluding that the polygraph is being held to a higher bar than other forensic evidence.[1] However, these scholars have failed to dig deeper to discover *why* lie detection is held to such a high bar. Systematically looking at the exclusionary opinions for polygraph, and comparing the technologies and the legal justifications to other, routinely admitted forensic sciences, including latent fingerprint identification, bite-mark analysis, and handwriting analysis, shows that the arguments for exclusion could apply equally, if not more aptly to those forensic sciences. This paper goes beyond that one, previously missing, step and asks: Why is lie detection held to such a different standard? Systematic analysis probes a conclusion Risinger reached in his 2000 article, criminal defendants typically lose their proffer of expert evidence when challenged by the prosecution.[2] The party offering the evidence affects the admissibility decision.[3] As a legal realist might suggest, judges may be engaged in legislating from the bench, excluding lie detection for a number of reasons.[4] It may be the result of the rise of the crime-control model of justice and the conservative, result's oriented, shift in the judiciary that began in the late

[1] Charles W. Daniels, *Using Polygraph Evidence After* Scheffer*: The Law of Polygraph Admissibility in American Jurisdictions and Suggestions for Dealing with the Recurring Legal Obstacles* (pt. 1), CHAMPION, May 2003, at 12, 15.

[2] D. Michael Risinger, *Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left on the Dock?*, 64 ALB. L. REV. 99, 99, 110 (2000).

[3] *See id.* at 110 ("[W]hen 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.").

[4] *See* Daubert v. Merrell Dow Pharm. Inc., 509 U.S. 579, 600–01 (1993) (Rehnquist, C.J., concurring in part) (showing Chief Justice Rehnquist's opinion on polygraph admissibility: "I defer to no one in my confidence in federal judges . . . . But I do not think [we should] impose[] on them . . . the obligation or the authority to become amateur scientists"); Note, *The Emergence of the Polygraph at Trial*, 73 COLUM. L. REV. 1120, 1122 (1973) (stating that lie-detector results are often excluded because of the judge's doubts about the tests reliability, uncertainty as to the competence of the administrator of the test, and a fear of "undue influence on the jury").

1980's,[5] or it may be the manifestation of judges' distrust and discomfort with the possibility of living in a society overrun with technology that would, in the wrong hands, allow the government to exert great control over us.[6] Or, in the caricature of legal realism often attributed to Judge Jerome Frank, it may simply be the result of the ham sandwich the judge ate for breakfast that morning.[7] Further research is warranted to assess why lie detection is treated with such hostility in American courtrooms.

II. THE HISTORY

Unlike many forensic science techniques, particularly DNA typing, lie detection is not a recent development.[8] "For as long as human beings have deceived each other, people have tried to develop techniques for detecting deception and determining truth."[9] We find efforts to detect deception as far back as 300 B.C.[10] Over the intervening centuries, attempts have been made to make these efforts more scientific. Calls for the scientification of deception detection can be traced back to 1730, when novelist Daniel Defoe called on criminologists to use medical science in criminal investigations, such as monitoring an individual's heart rate to detect when the individual was lying.[11] Defoe wrote, "[g]uilt carries Fear always about with it; there is a Tremor in

[5] *See* JONATHAN SIMON, GOVERNING THROUGH CRIME: HOW THE WAR ON CRIME TRANSFORMED AMERICAN DEMOCRACY AND CREATED A CULTURE OF FEAR 112–113 (2007).

[6] *See infra* note 229 and accompanying text.

[7] FREDERICK SCHAUER, THINKING LIKE A LAWYER: A NEW INTRODUCTION TO LEGAL REASONING 129–30 & n.15 (2009).

[8] *See* Frye v. United States, 293 F. 1013, 1013–14 (D.C. Cir. 1923); JOHN M. BUTLER, FORENSIC DNA TYPING: BIOLOGY, TECHNOLOGY, AND GENETICS OF STR MARKERS 2–3 (2d ed. 2005) (stating that DNA typing was only first introduced in 1985); JOHN E. REID & FRED E. INBAU, TRUTH AND DECEPTION: THE POLYGRAPH ("LIE-DETECTOR") TECHNIQUE 2 (2d ed. 1977) ("The first attempt to utilize a scientific instrument in an effort to detect deception occurred about 1895."); Donald H.J. Hermann III, *Privacy, the Prospective Employee, and Employment Testing: The Need To Restrict Polygraph and Personality Testing*, 47 WASH. L. REV. 73, 77 n.16 (1971) ("The first reported attempt to use and instrument to detect deception occurred in 1895 . . . ."); *The Emergence of the Polygraph at Trial*, *supra* note 4, at 1120–21 (mentioning the *Frye* decision).

[9] NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., COMM. TO REVIEW THE SCIENTIFIC EVIDENCE ON THE POLYGRAPH, THE POLYGRAPH AND LIE DETECTION 11 (2003) [hereinafter NATIONAL RESEARCH COUNCIL].

[10] Paul V. Trovillo, *A History of Lie Detection*, 29 J. CRIM. L. & CRIMINOLOGY 848, 849 (1939).

[11] JAMES ALLAN MATTE, FORENSIC PSYCHOPHYSIOLOGY USING THE POLYGRAPH 11 (1996).

the Blood of a Thief, that, if attended to, would effectually discover him."[12] However, it was not until the nineteenth century that scientific research on deception became prevalent.[13] Angelo Mosso, an Italian physiologist and student of Cesare Lombroso, the father of modern criminology, began to study human emotion, particularly fear, and its influence on heart rate and pulse.[14] Using a device called the plethysmograph, Mosso discovered variations in blood pressure and the circulation of blood during fear.[15] Through a series of experiments, Mosso concluded he could identify a subject who is afraid from their pulsation records.[16] His contribution is significant, given that fear of detection is believed to play a key role in deception detection.[17] In 1895, Lombroso modified the plethysmograph, creating the hydrosphymograph.[18] The suspect's fist was placed in a water-filled tank, which was then "sealed across the top . . . by a rubber membrane.[19] "Pulsations of [the] blood . . . [are] transferred to the water," changing the level.[20] "[T]he changes in water level [are] carried [through a] tube, . . . record[ing] the pulsations on [a] revolving smoked drum."[21] Just two years later, Sticker measured galvanic responses in individuals, using a galvanometer.[22] In 1914, Vittorio Benussi began studying

[12] Vincent V. Vigluicci, Note, *Calculating Credibility:* State v. Sharma *and the Future of Polygraph Admissibility in Ohio and Beyond*, 42 AKRON L. REV. 319, 319 (2009).

[13] *See* Otniel E. Dror, *The Scientific Image of Emotion: Experience and Technologies of Inscription*, 7 CONFIGURATIONS 355, 391 (1999) ("[D]uring the late nineteenth and early twentieth centuries, various participants in the new science . . . underscored the power of emotion-gauging technologies to expose the truth.").

[14] STEVEN M. COX ET AL., JUVENILE JUSTICE: A GUIDE TO THEORY, POLICY, AND PRACTICE 87 (6th ed. 2008) (noting Cesare Lombroso as the "father of modern criminology"); Trovillo, *supra* note 10, at 858.

[15] *Id.* at 858. Francis Franke invented the plethysmograph, which revealed periodic undulations in blood pressure caused by the respiration cycle. *Id.* at 858, 864.

[16] *Id.* at 860.

[17] *Id.* at 859.

[18] *See* Hermann, *supra* note 8, at 77 n.16; Trovillo, *supra* note 10, at 864 fig.5.

[19] Courtney Kenny, *The Death of Lombroso*, 10 J. SOC'Y COMP. LEGIS. 220, 226 (1910); Trovillo, *supra* note 10, at 864 fig.5.

[20] Kenny, *supra* note 19, at 226; Trovillo, *supra* note 10, at 864 fig.5.

[21] Trovillo, *supra* note 10, at 864 fig.5.

[22] KERRY SEGRAVE, LIE DETECTORS: A SOCIAL HISTORY 12 (2004). The galvanometer, named for Italian physiologist Galvani, measures "the electrical conductivity of the skin due to sweating." *Id.* "Electrodes [are] attached to the fingers and . . . electric current [is] passed through." *Id.* Changes in conductivity

breathing rate, using pneumatic tubing.[23] Benussi, who would wrap the tubing around a subject's chest, discovered that the ratio of inspiration and expiration was greater before truthful responses than it was prior to deceptive responses.[24] In the early 1920's, William Moulton Marston, famous for creating Wonder Woman and her "Lasso of Truth," used systolic blood pressure to detect deception.[25] Adding to Marston's device, John Larson, a medical student at the University of California at Berkeley, created the first modern polygraph.[26] Larson's device measured breath rate and blood pressure.[27] In the 1930's, Leonard Keeler added the measurement of galvanic response to Larson's measurements of breath rate and blood pressure, combining them into a single machine.[28] Keeler's device is quite similar to those currently used by law enforcement, government agencies, and private companies over seventy years later.[29]

The research, conducted by private corporations, universities, and the U.S. Government, that has gone into developing the numerous technologies available for lie detection seems to imply a social or scientific/academic interest in lie detection; however, these technologies have fared poorly in court rooms across the United States.

III. A HISTORY OF EXCLUSION: AN OVERVIEW

Since the early twentieth century, lie-detection technologies have been excluded from most American courtrooms. The first

are believed to be associated with deception. Sticker believed "that a person who was emotionally aroused . . . would react with a definite increase" in electrical conductivity while a person with no emotional change would not affect conductivity. *Id.*

[23] *See* SEGRAVE, *supra* note 22, at 14; David E. Nagle, *The Polygraph in the Workplace*, 18 U. RICH. L. REV. 43, 45 (1983).

[24] RODNEY CARLISLE, SCIENTIFIC AMERICAN INVENTIONS AND DISCOVERIES: ALL THE MILESTONES IN INGENUITY—FROM THE DISCOVERY OF FIRE TO THE INVENTION OF THE MICROWAVE OVEN 358 (2004); SEGRAVE, *supra* note 22, at 14; Nagle, *supra* note 23, at 45–46; Eugene E. Levitt, *Scientific Evaluation of the "Lie Detector"*, 40 IOWA L. REV. 440, 441 (1955).

[25] SEGRAVE, *supra* note 22, at 15; *William Moulton Marston*, DC COMICS DATABASE, http://dc.wikia.com/wiki/William_Moulton_Marston (last visited Apr. 1, 2012).

[26] CARLISLE, *supra* note 24, at 359; SEGRAVE, *supra* note 22, at 17; Don Grubin & Lars Madsen, *Lie Detection and the Polygraph: A Historical Review*, 16 J. FORENSIC PSYCHIATRY & PSYCHOL. 357, 360 (2005).

[27] Grubin & Madsen, *supra* note 26, at 360; Nagle, *supra* note 23, at 46.

[28] *See* SEGRAVE, *supra* note 22, at 19; Nagle, *supra* note 23, at 46.

[29] *See* Grubin & Madsen, *supra* note 26, at 361.

legal opinion addressing the use of lie detection evidence at trial came in 1923. In *Frye v. United States*,[30] the Court of Appeals for the D.C. Circuit set a longstanding precedent for both the general standard of admissibility of scientific evidence, one that would govern for over fifty years in federal and state courts, and the exclusion of lie-detection evidence.[31] At trial, James Alphonzo Frye's *defense* attorney attempted to introduce evidence pertaining to the defendant's truthfulness through William Marston's systolic blood pressure test.[32] The trial court refused to admit the test; Frye was convicted of second-degree murder and appealed the court's admissibility ruling.[33] The appellate court upheld the trial court's decision and created a standard for assessing the admissibility of scientific evidence, holding that any technology or scientific proposition must be generally accepted in the relevant field to be admissible in court.[34] Thus, the court created what has come to be known as the *Frye* or general acceptance standard.[35] While the *Frye* standard was replaced in federal courts in the late 1960's by the Federal Rules of Evidence,[36] and in 1993 by *Daubert v. Merrell Dow Pharmaceuticals*,[37] some form of the *Frye* standard still reigns in many jurisdictions.[38] A variety of cases in the intervening period of time, which will be discussed for their pertinent specifics in other sections of this paper, have upheld this tradition of exclusion, which appears to be affecting admissibility decisions about new forms of lie detection. The Supreme Court finally dealt with the issue in 1997 in *United States v. Scheffer*.[39] From a

[30] 293 F. 1013 (D.C. Cir. 1923)

[31] *Id.*; Michael J. Ligons, *Polygraph Evidence: Where Are We Now?*, 65 MO. L. REV. 209, 211–12 (2000).

[32] *Frye*, 293 F. at 1013–14. I emphasize that it was Frye's defense attorney that sought to admit the results of the lie-detection test. This point is important to keep in mind because it will be key to understanding the argument made in later sections that the true reasons for the inadmissibility of lie-detection evidence are not those frequently stated by the courts. *Id.*

[33] *Id.* at 1013–14.

[34] *Id.* at 1014.

[35] Andrew R. Stolfi, *Why Illinois Should Abandon Frye's General Acceptance Standard for the Admission of Novel Scientific Evidence*; 78 CHI.-KENT L. REV. 861, 861–62 (2003).

[36] FED. R. EVID. 702.

[37] Daubert v. Merrell Dow Pharm. Inc., 509 U.S. 579, 586–87 (1993); Stolfi, *supra* note 35, at 862.

[38] Stolfi, *supra* note 35, at 872–75 (discussing *Frye* jurisdictions as of March 3, 2002).

[39] 523 U.S. 303 (1998).

decision of the United States Court of Appeals for the Armed Forces, the Supreme Court addressed the constitutionality of a longstanding per se ban on the use of polygraph evidence in court-martial proceedings.[40] The Court held that a per se ban on polygraph evidence does not violate a defendant's right to a proper defense under the Sixth Amendment.[41] Inappropriate application of dicta from Justice Thomas' opinion in *Scheffer* has become fodder for courts looking to uphold the exclusion of lie detection in a number of jurisdictions.[42]

IV. THE LIE-DETECTION LITERATURE

The academic literature on lie detection demonstrates the charged, partisan atmosphere surrounding admissibility. Articles often begin with a historical discussion of the technology or an effort to dispel the myth that polygraph evidence is inadmissible in courts, proceed to a historiographical discussion of the admissibility opinions and the exclusionary justifications, and conclude with a normative assessment of whether these courts were right or wrong and what the future might hold.[43]

Polygraph opponents often attempt to hide their distrust of polygraph evidence in an air of scholarly impartiality, adopting a more systematic approach to analyzing the polygraph

[40] Scheffer, 523 U.S. 303, 306–08 (1998). At issue in *Scheffer* was the constitutionality of Military Rule of Evidence 707, which governs the admissibility of polygraph results in courts martial. The regulations state: "(a) Notwithstanding any other provision of law, the results of a polygraph examination, the opinion of a polygraph examiner, or any reference to an offer to take, failure to take, or taking of a polygraph examination, shall not be admitted into evidence. (b) Nothing in this section is intended to exclude from evidence statements made during a polygraph examination, which are otherwise admissible. MIL. R. EVID. 707.

[41] *Id.* at 317.

[42] *See* Daniels, *supra* note 1, at 17.

[43] *See, e.g.*, Edward J. Imwinkelried & James R. McCall, *Issues Once Moot: The Other Evidentiary Objections to the Admission of Exculpatory Polygraph Examinations*, 32 WAKE FOREST L. REV 1045 (1997); James R. McCall, *Misconceptions and Reevaluation: Polygraph Admissibility After* Rock *and* Daubert, 1996 U. ILL. L. REV. 363 (1996) [hereinafter McCall, *Misconceptions and Reevaluation*]; Robin D. Barovick, Comment, *Between* Rock *and a Hard Place: Polygraph Prejudice Persists After* Scheffer, 47 BUFF. L. REV. 1533 (1999); John C. Bush, Note, *Warping the Rules: How Some Courts Misapply Generic Evidentiary Rules to Exclude Polygraph Evidence*, 59 VAND. L. REV. 539 (2006); Timothy B. Henseler, Comment, *A Critical Look at the Admissibility of Polygraph Evidence in the Wake of* Daubert*: The Lie Detector Fails the Test*, 46 CATH. U. L. REV. 1247 (1997).

techniques.[44] These scholars dissect each aspect of the various techniques and claim to demonstrate how the evidence fails to meet the minimum admissibility standards.[45] The antipolygraph articles seem to follow the change in admissibility standards, that is, they follow the federal courts' move from *Frye* to *Daubert*, and major technological advances in lie-detection technology.[46] Their analyses lead to the conclusion that the evidence is inadmissible because of unreliable or inconclusive science or because it violates evidentiary rules related to the nature and purpose of the technology, that is, its use for credibility assessment.[47] Additionally, some of the nonlegal literature justifies the exclusion for fear of the "brave new world" that admitting polygraph may represent, particularly as lie-detection technology advances.[48]

On the other hand, articles in favor of the admissibility of polygraph evidence typically argue that courts have erred on one of the following points: a misapplication of the admissibility standards,[49] a misunderstanding of the evidence (and its impact on jurors),[50] and/or reliance on outdated understandings of the science.[51] In addition to criticizing the current jurisprudence,

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[44] *See* David Gallai, Note, *Polygraph Evidence in Federal Courts: Should it be Admissible?*, 36 AM. CRIM. L. REV. 88 (1999).

[45] *See* Henseler, *supra* note 43.

[46] *See id.*

[47] *See, e.g.*, Klaus Fiedler et al., *What is the Current Truth About Polygraph Lie Detection?*, 24 BASIC & APPLIED SOC. PSYCHOL. 313, 313 (2002) (concluding that "almost all criteria of validity are neither met nor even considered"); Gallai, *supra* note 44, at 115–16 ("The Federal Rules of Evidence . . . are obstacles which the science of polygraphy cannot currently overcome.").

[48] *See, e.g.*, David Brin, *The Self-Preventing Prophecy: or, How a Dose of Nightmare Can Help Tame Tomorrow's Perils*, *in* ON NINETEEN EIGHTY-FOUR: ORWELL AND OUR FUTURE 222, 224 n.2 (Abbott Gleason et al. eds., 2005).

[49] *E.g.,* Bush, *supra* note 43, at 554–55; Ligons, *supra* note 31, at 225–26; Doran D. Peters, Comment, *Per Se Prohibitions of the Admission of Polygraph Evidence as Upheld in* Scheffer *are Both Violative of the Constitution and the Federal Rules of Evidence as Applied by* Daubert, 27 AM. J. CRIM. L. 249, 250 (2000); Barovick, *supra* note 43, at 1584–86.

[50] *E.g.,* Daniels, *supra* note 1, at 14; Ann Cavoukian & Ronald J. Heslegrave, *The Admissibility of Polygraph Evidence in Court: Some Empirical Findings*, 4 LAW & HUM. BEHAV. 117, 119, 127–28 (1980) (providing empirical evidence that jurors do not blindly accept testimony regarding polygraph results, contrary to the assertions of many courts); Albert S. Dabrowski, Note, *The Polygraph Revisited: An Argument for Admissibility*, 4 SUFFOLK U. L. REV. 111, 112 (1969) (explaining that the "basic character" of the polygraph has been misunderstood).

[51] *See, e.g.*, Ligons, *supra* note 31, at 214 (explaining that the "modern polygraph is much more accurate" than prior tests).

these articles offer different views on what courts and society should do as we move forward.[52] Some articles offer suggested alternative methods for evaluating the admissibility of polygraph evidence, under which polygraph evidence would be admissible.[53] Others call for further research into the validity of the polygraph.[54] A few seem to recognize defeat and offer alternative uses for polygraph in the legal arena,[55] while others suggest that advances in polygraph science may one day give rise to another Supreme Court case that challenges the Court's conclusions in *Scheffer*.[56] However, none of these articles explore the possibility of systemic bias. Charles Daniels comes closest, suggesting that no other form of evidence has been subjected to greater scrutiny and excluded on legally unjustifiable grounds.[57] Yet, this characterization again fails to explore *why* polygraph is held to a higher standard.

V. THE CURRENT STATE OF ADMISSIBILITY

A common misconception exists that polygraph is inadmissible in every jurisdiction across the United States under any circumstances.[58] In reality, jurisdictions' treatment of polygraph

[52] *See, e.g.*, Bush, *supra* note 43, at 568–69 (suggesting that jurisdictions opposing polygraph evidence enact statutory per se bans); Ligons, *supra* note 31, at 227 (encouraging courts to "re-examine the arguments for and against the admission of polygraph evidence"); Barovick, *supra* note 43, at 1586 ("[M]ore accommodating circuit court opinions [will] trickle down to federal trial courts and perhaps even to state courts."); Cavoukian & Heslegrave, *supra* note 50, at 131 (calling for further research and a reconsideration of polygraph admissibility); Dabrowski, *supra* note 50, at 126 (explaining that courts "must embrace modern and recognized scientific principles" like polygraph tests).

[53] *See, e.g.*, Vigluicci, *supra* note 12, at 351–52 (suggesting that judicial discretion, not absolute requirements, should guide admissibility).

[54] *See, e.g.*, Charles R. Honts & Mary V. Perry, *Polygraph Admissibility: Changes and Challenges*, 16 LAW & HUM. BEHAV. 357, 358, 367, 371, 374–76 (1992) (calling for further research into polygraph tests before they "can find a well-defined place in the courtroom").

[55] *See, e.g.*, Charles W. Daniels, *Using Polygraph Evidence After* Scheffer*: The Law of Polygraph Admissibility in American Jurisdictions and Suggestions for Dealing with the Recurring Legal Obstacles* (pt. 2), CHAMPION (2003), at 37–38 (suggesting the use of polygraph in nonjury proceedings or for "[p]urposes other than to show directly the results of the test"); Lloyd C. Peeples, III et al., *Exculpatory Polygraphs in the Courtroom: How the Truth May Not Set You Free*, 28 CUMB. L. REV. 77, 100, 102 (1997) (explaining that polygraph evidence is rarely offered to prove the veracity of the statements made during the examination).

[56] *See* Barovick, *supra* note 43, at 1586.

[57] Daniels, *supra* note 1, at 12.

[58] *See* Peeples, *supra* note 55, at 96–97 (explaining that per se inadmissibility

evidence falls into three categories (1) per se inadmissible, (2) admissible by stipulation of both parties, and (3) admissible in limited circumstances.[59] Twenty-nine states bar the admission of polygraph evidence under any circumstance (per se).[60] Currently, fifteen states admit polygraph results at trial if both the prosecution and defense stipulate to its use prior to the administration of the test.[61] Only New Mexico allows for the routine admission of polygraph evidence.[62] The following sections

has been deemed the "traditional approach" because of its popularity among American jurisdictions).

[59] *Id.* at 96–100.

[60] *See* Van Meter v. State, 743 P.2d 385, 387–88 (Alaska Ct. App. 1987); People v. Anderson, 637 P.2d 354, 355, 358 (Colo. 1981); State v. Porter, 698 A.2d 739, 758–59 (Conn. 1997); State v. Antone, 615 P.2d 101, 109 (Haw. 1980); People v. Gard, 632 N.E.2d 1026, 1032 (Ill. 1994); Morton v. Commonwealth, 817 S.W.2d 218, 222 (Ky. 1991); Evans v. DeRidder Municipal Fire, 815 So. 2d 61, 67 (La. 2002); State v. Hawkins, 604 A.2d 489, 492 (Md. 1992); State v. Harnish, 560 A.2d 5, 8 (Me. 1989); People v. Lagrou, No. 207166, 1999 WL 33434265, at *2 (Mich. Ct. App. Oct. 22, 1999); Ledin v. State, No. C7-97-876, 1997 WL 757156, at *1 (Minn. Ct. App. Dec. 9, 1997); State v. Burch, 939 S.W.2d 525, 528 (Mo. Ct. App. 1997); State v. Staat, 811 P.2d 1261, 1261 (Mont. 1991); State v. Allen, 560 N.W.2d 829, 842 (Neb. 1997); State v. Ober, 493 A.2d 493, 493 (N.H. 1985); People v. Leone, 255 N.E.2d 696, 700 (N.Y. 1969); State v. Grier, 300 S.E.2d 351, 360–61 (N.C. 1983); Fulton v. State 541 P.2d 871, 872 (Okla. Crim. App. 1975); State v. Lyon, 744 P.2d 231, 231–33 (Or. 1987); Commonwealth v. Brockington, 455 A.2d 627, 629 (Pa. 1983); State v. Werner, 851 A.2d 1093, 1104 (R.I. 2004); State v. Wright 471 S.E.2d 700, 701–02 (S.C. 1996); State v. Muetze, 368 N.W.2d 575, 588 (S.D. 1985); State v. Campbell, 904 S.W.2d 608, 614–15 (Tenn. Crim. App. 1995); Castillo v. State, 739 S.W.2d 280, 293 (Tex. Crim. App. 1987); State v. Hamlin, 499 A.2d 45, 53–54 (Vt. 1985); Taylor v. Commonwealth, 348 S.E.2d 36, 36–38 (Va. Ct. App. 1986); State v. Frazier, 252 S.E.2d 39, 49 (W.Va. 1979); State v. Dean, 307 N.W.2d 628, 653 (Wis. 1981).

[61] *See* State v. Marquez, 558 P.2d 692, 696 (Ariz. 1976); Wingfield v. State, 796 S.W.2d 574, 576 (Ark. 1990); CAL. EVID. CODE § 351.1(a) (West, Westlaw through ch. 11 of 2012 Reg. Sess. and all propositions on the 6/5/2012 ballot); Melvin v. State, 606 A.2d 69, 71 (Del. 1992); Codie v. State, 313 So. 2d 754, 756 (Fla. 1975); Forehand v. State, 477 S.E.2d 560, 562 (Ga. 1996); State v. Fain, 774 P.2d 252, 256 (Idaho 1989); Sanchez v. State, 675 N.E.2d 306, 308 (Ind. 1996); State v. Losee, 354 N.W.2d 239, 242 (Iowa 1984); State v. Wakefield, 977 P.2d 941, 954 (Kan. 1999); State v. Bakersville, 374 A.2d 441, 442 (N.J. 1977); Kazalyn v. State, 825 P.2d 578, 582 (Nev. 1992); Bismark v. Berger, 465 N.W.2d 480, 481 (N.D. Ct. App. 1991); State v. Brand, No. C-990548, 2000 WL 299497, at *1 (Ohio Ct. App. 2000); State v. Crosby, 927 P.2d 638, 642 (Utah 1996).

[62] *See* Peeples, *supra* note 55, at 100–01. In *State v. Dorsey*, 539 P.2d 204 (N.M. 1975), the New Mexico Supreme Court affirmed its ruling in previous cases that several conditions must be met for polygraph evidence to be admissible at trial. In *State v. Lucero*, 526 P.2d 1091, 1093 (N.M. 1974), the court held that polygraph evidence was admissible at trial when "1. The tests were stipulated to by both parties to the case; 2. When no objection is offered at trial; 3. When the court has evidence of the qualifications of the polygraph

of this paper use the admissibility discussions contained in the key opinions listed above to illustrate the common arguments offered against the admissibility of polygraph evidence.

VI. THE ARGUMENTS AGAINST ADMISSIBILITY

There are a number of subtle different arguments that have been offered by courts excluding lie-detection evidence; however, these arguments can be classified into two major categories (1) validity and reliability and (2) usurpation of the jury function. Far too many cases exist throughout the various state and federal jurisdictions to exhaustively discuss every exclusionary opinion and address the arguments contained in each. Using a representative sample of the opinions, this paper will rely on arguments made in a variety of jurisdictions to demonstrate the pattern of behavior that arises in decisions excluding lie-detection evidence.

Under the general theory of validity and reliability, courts excluding lie-detection evidence typically question the general acceptance of the techniques, the validity of the scientific underpinnings of lie detection, and the error rate of these techniques.

A. General Acceptance

In a number of cases, judicial opinions question whether lie detection, as required by both *Frye* and as part of the second

operator to establish his expertise; 4. Testimony to establish the reliability of the testing procedure employed as approved by the authorities in the field; and 5. The validity of the tests made on the subject." Additionally, in 1983, New Mexico adopted Rule 11-707, which outlines several conditions that must be met for polygraph evidence to be admissible. Peeples, *supra* note 55, at 100–01. The polygraph examiner must meet the minimum qualifications to testify as an expert; the examiner is qualified as an expert witness and the proper testing procedures were used in the specific tests; the examinee was fit to be tested; at least two relevant questions were asked and three charts produced; both the pretest interview and examination were either video or audio recorded. N.M. STAT. ANN. § 11-707(B), (C), (E) (West, Westlaw through through December 1, 2011). Any party intending to use polygraph test evidence must also give written notice to the other party of his or her intention at least thirty days before trial, and provide a list of all previous polygraph examinations taken by the examinee. *Id.* § 11-707(D). No witness may be compelled to take a polygraph. *Id.* § 11-707(G). However, upon a showing of good cause, the court may compel a witness who seeks to introduce the results of a previously taken polygraph to submit to yet another test. *Id.* If the witness refuses, "opinions of other polygraph examiners as to the truthfulness of the witness shall be inadmissible as evidence." *Id.*

prong of the *Daubert* analysis, is generally accepted by the relevant scientific community. According to the court in *Frye*, the systolic blood pressure deception test had "not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made."[63] However, the lie detector in *Frye* measured only variations in systolic blood pressure and was an "unsophisticated precursor to the modern polygraph machine which measures many other physiological responses."[64] Significant advances in the technology have yielded little change. For example, the Eighth Circuit Court of Appeals excluded polygraph in *United States v. Alexander*[65] based on "careful review of the numerous materials presently available discussing polygraphy."[66] Specifically, the court cited lack of general acceptance as a justification for the exclusion. Chief Judge Gibson wrote, "[b]ased upon the conclusion that the polygraph does not presently command general scientific acceptance . . . the District Court did not err in refusing to admit the unstipulated polygraph evidence."[67] On remand for a *Daubert* hearing, the District Court for the Central District of California in *United States v. Cordoba*,[68] made explicit, repeating several times, that the polygraph still did not garner general acceptance of the relevant scientific community.[69] The court found that there was "considerable evidence of a lack of general acceptance in the scientific community for use of polygraph evidence where reliability of the results is critical, such as in [a] courtroom."[70] Explicating its rationale, the court stated, "[c]onflicting testimony at the evidentiary hearing demonstrated a lack of general acceptance."[71] Finally, in summarizing its findings, the decision states, "[t]he court finds the polygraph has emerged as a useful technique for many diagnostic or investigative uses. However, the court finds there is no general acceptance in the scientific community for use of [the] polygraph . . . when

63 Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).
64 United States v. Alexander, 526 F.2d 161, 164 (8th Cir. 1975).
65 526 F.2d 161 (8th Cir. 1975).
66 *Id.* at 166.
67 *Id.* at 170.
68 991 F. Supp. 1199 (C.D. Cal. 1998), *aff'd*, 194 F.3d 1053 (9th Cir. 1999).
69 *Id.* at 1204–05.
70 *Id.* at 1205.
71 *Id.*

reliability is critical, as in courtroom fact determination."[72] More than twenty-three years after *Alexander*, the Ninth Circuit Court of Appeals once again determined that the polygraph did not garner general acceptance in the relevant scientific community.[73] Reviewing the outcome of the *Daubert* hearing, the Court of Appeals determined the court in *Cordoba* did not abuse its discretion in excluding polygraph evidence on the grounds that it was not generally accepted.[74] In *United States v. Gilliard*,[75] the Eleventh Circuit Court of Appeals found that the polygraph had not "gained general acceptance within the relevant scientific community."[76] Concluding that the particular technique offered had not gained general acceptance within the relevant scientific community, the trial court did not err in excluding the results.[77] In part, the debate about the general acceptance of lie detection stems from questions and disagreement about the scope of the relevant scientific community. Since the decision in *Frye*, courts have identified a variety of "scientific communities" that should be considered when addressing the question of general acceptance.

Courts have disagreed over "the scope of the 'pertinent field' in which polygraphs must gain [general] acceptance in order to be admitted [at trial]."[78] In *Frye*, the D.C. Circuit Court of Appeals determined that physiologists and psychologists constituted the relevant scientific community.[79] In *Alexander* and *United States v. DeBetham*,[80] the relevant community included psychiatry, physiology, psychophysiology, neurophysiology, and examiners.[81] According to Lykken and Iacono, "polygraph examiners are perhaps the group whose opinions concerning the technique are,

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[72] *Id.*

[73] United States v. Cordoba, 194 F.3d 1053, 1060–61 (9th Cir. 1999).

[74] *Id.* at 1055, 1060–61.

[75] 133 F.3d 809 (11th Cir. 1998).

[76] *Id.* at 815. The court had previously held that trial courts had the discretion to admit polygraph evidence if both parties stipulated to the results. United States v. Piccinonna, 885 F.2d 1529, 1536 (11th Cir. 1989).

[77] *Gilliard*, 133 F.3d at 815.

[78] 5 DAVID L. FAIGMAN ET AL., 5 MODERN SCIENTIFIC EVIDENCE: THE LAW & SCIENCE OF EXPERT TESTIMONY § 39:3 (2008) [hereinafter MODERN SCIENTIFIC EVIDENCE].

[79] *See* Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923) (inferring that physiological and psychological authorities would need to provide justification for admitting polygraph evidence).

[80] 348 F. Supp. 1377 (S.D. Cal. 1972).

[81] *See* United States v. Alexander, 526 F.2d 161, 164 (8th Cir. 1975); *id.* at 1379, 1381–82, 1386–87.

paradoxically, of the least value."[82] Published opinions suggest that courts are wary of relying on the opinions of individuals who make their living using the technology in question. Several courts have explicitly held that polygraph examiners alone cannot constitute the relevant scientific community. In *People v. Barbara*,[83] the Michigan Supreme Court excluded polygraph evidence in part because the defendant had failed to present testimony from disinterested and impartial experts.[84] The Fourth District Court of Appeal of Florida in *State v. Thompkins*[85] granted the state's petition to exclude polygraph testimony at Thompkins' trial, finding that it did not meet *Frye* because the trial court, in an evidentiary hearing, heard only from "two people who earn a living by giving polygraph tests."[86] In addition to examiners' self-interest, courts exclude these individuals from the relevant scientific community based on an assessment of the training, education, and licensing requirements, or lack thereof.

The court in *Cordoba* wrote, "[t]he evidence presented to the court demonstrates that there are no *controlling* standards in the polygraph industry."[87] The courts in *State v. Biddle*[88] and *People v. Schreck*,[89] further highlight polygraph examiners' lack of qualifications.[90] In *Biddle*, the court stated, "[i]n line with our concern about the examiner's role in testing, we note that Fred Inbau, a recognized expert in this field, states that 80% of all polygraph examiners are unqualified."[91] The court in *People v. Anderson* held "the absence of adequate qualification standards for the polygraph profession heighten[s] the possibility for grave abuse," and that there are no sufficient standards for qualifications of polygraph examiners to ensure competent

[82] William G. Iacono & David T. Lykken, *The Scientific Status of Research on Polygraph Techniques: The Case Against Polygraph Tests*, *in* SCIENCE IN THE LAW: FORENSIC SCIENCE ISSUES 609, 618 (David L. Faigman et al. eds., 2002).

[83] 255 N.W.2d 171 (Mich. 1977).

[84] *Id.* at 172–73, 180.

[85] 891 So. 2d 1151 (Fla. Dist. Ct. App. 2005).

[86] *Id.* at 1152–53.

[87] United States v. Cordoba, 991 F. Supp. 1199, 1207 (C.D. Cal. 1998), *aff'd*, 194 F.3d 1053 (9th Cir. 1999).

[88] 599 S.W.2d 182 (Mo. 1980) (en banc) (citing People v. Monigan, 390 N.E.2d 562, 569–571 (Ill. App. Ct. 1979)).

[89] 22 P.3d 68 (Colo. 2001) (en banc).

[90] *Schreck*, 22 P.3d at 74 (citing People v. Anderson, 637 P.2d 354, 358 (Colo. 1981), *abrogated by*, *Shreck*, 22 P.3d 68); *Biddle*, 599 S.W.2d at 189 (citing People v. Monigan, 390 N.E.2d 562, 569, 571 (Ill. App. Ct. 1979)).

[91] *Biddle*, 599 S.W.2d at 189 (quoting *Monigan*, 390 N.E.2d at 569) (internal quotation marks omitted).

examination.[92] Academic literature supports these claims. Dr. David Raskin, a professor of psychology and licensed polygraph examiner wrote, "a substantial proportion of those who conduct tests in the public and private sectors lack adequate training and competence."[93] Currently, only twenty-nine states have licensing statutes and agencies, each with varying standards for licensure.[94] Training is also quite brief, even for federal examiners, who receive fourteen weeks of training at the Department of Defense Polygraph Institute (DoDPI), now the DoD National Center for Credibility Assessment.[95] State and local examiners receive approximately seven weeks of training at one of the variety of private schools, accredited by the American Polygraph Association.[96] Given the large role polygraph examiners play in determining evidence of deception, the courts have seen the lack of adequate training and standards as a major problem.[97] However, polygraph is not alone in these

[92] *Anderson*, 637 P.2d at 358–61.

[93] David C. Raskin, *The Polygraph in 1986: Scientific, Professional and Legal Issues Surrounding Application and Acceptance of Polygraph Evidence*, 1986 UTAH L. REV. 29, 29, 66 n.119, 66–67 (1986). Dr. Raskin, a professor of psychology at the University of Utah at the time of his article, was a key expert in several of the early, significant polygraph cases. *See id.* at 29, 66 n.119. Dr. Raskin's article, while nearly 30 years old, still reflects the attitude towards polygraph examiners today. *See* Aaron M. Stronge, *Absolute Truth or Deus Ex Machina?: The Legal and Philosophical Ramifications of Guilt-Assessment Technology*, 10 J. HIGH TECH. L. 114, 120 n.33 (2009) (showing that significant improvements to the polygraph machine itself, since the publication of Raskin's article, still do not mitigate the requirement of expertise because "there is a substantial subjective component to polygraph testing").

[94] *Frequently Asked Questions*, AM. POLYGRAPH ASS'N, http://www.polygraph.org/section/resources/frequently-asked-questions (last visited Apr. 2, 2012); *State Licensing Boards*, AM. POLYGRAPH ASS'N, http://www.polygraph.org/section/state-licensing-boards (last visited Apr. 2, 2012).

[95] Paul C. Giannelli, *Polygraph Evidence: Post-Daubert*, 49 HASTINGS L.J. 895, 899, 906, 923 (1998); DEP'T OF DEF., DIRECTIVE NO. 5210.48, POLYGRAPH AND CREDIBILITY ASSESSMENT PROGRAM (2011), *available at* http://www.dtic.mil/whs/directives/corres/pdf/521048p.pdf.

[96] *See* Giannelli, *supra* note 95, at 905–06, 923 (indicating that DoDPI is responsible for training federal examiners, leaving state and local examiners to be trained by the accredited private schools). According to the American Polygraph Association, there are currently sixteen licensed polygraph schools in the United States. *APA Accredited Polygraph Schools*, AM. POLYGRAPH ASS'N, http://www.polygraph.org/section/training/apa-accredited-polygraph-schools (last visited Apr. 2, 2012).

[97] *E.g.*, United States v. Alexander, 526 F.2d 161, 164 & n.6, 165 (8th Cir. 1975); State v. Frazier, 252 S.E.2d 39, 44–48 (W. Va. 1979); State v. Biddle, 599 S.W.2d 182, 189 (Mo. 1980) (en banc) (citing People v. Monigan, 390 N.E.2d 562, 569, 571 (Ill. App. Ct. 1979)).

shortcomings.

The profession of latent print examination suffers many of the same ills as polygraph examination; yet latent print examination is routinely admitted, and very little is made of these problems outside of academic literature. According to Simon Cole, "the technique is only accepted, not by a 'branch of science,' but by practitioners of the technique, the vast majority of whom do not have scientific training."[98] Only recently has the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST) taken steps to "right the ship" by recommending a minimum level of education for latent print examiners.[99] SWGFAST recommendations suggest a bachelor's degree in the hard sciences, but these recommendations have no binding power; assent is voluntary.[100] Training standards still vary across jurisdictions.[101] Additionally, efforts to assess the proficiency of latent print examination have been "incomplete and inadequate."[102] In spite of these shortcomings, as Cole points out, not only is the technique accepted by a limited community, courts go out of their way, "actively endeavor[ing] to exclude research scientists from the 'relevant scientific community'" when assessing the admissibility of latent print evidence.[103] Similar shortcomings exist in forensic odontology.

Unlike fingerprint identification, which has been around since the turn of the twentieth century, forensic odontology, in the context of matching bite marks found on objects and remains to exemplars, did not come into popular use until the latter half of the twentieth century.[104] However, like latent fingerprint

[98] Simon A. Cole, *Out of the* Daubert *Fire and into the Fryeing Pan? Self-Validation, Meta-Expertise and the Admissibility of Latent Print Evidence in* Frye *Jurisdictions*, 9 MINN. J. L. SCI. & TECH. 453, 477 (2008).

[99] *Id.* at 477 n.101.

[100] *Id.*

[101] *See* Lyn Haber & Ralph Norman Haber, *Scientific Validation of Fingerprint Evidence Under* Daubert, 7 L., PROBABILITY & RISK 87, 94 (2008).

[102] *Id.* at 95.

[103] Simon A. Cole, *Comment on Scientific Validation of Fingerprint Evidence Under* Daubert, 7 L., PROBABILITY & RISK 119, 124 (2008).

[104] C. Michael Bowers, *Problem-Based Analysis of Bitemark Misidentifications: The Role of DNA*, 159S FORENSIC SCI. INT'L S104, S105 & n.LR4 (2006). In 1954, bite-mark identification was used for the first time in published legal history. In *Doyle v. State*, a piece of cheese was discovered that possessed tooth marks, against which Doyle's dentition, from an exemplar bite mark in a piece of cheese, was compared. At trial, a dentist concluded that the sample matched that in the unknown. Doyle v. State, 263 S.W.2d 779, 779 (Tex. Crim. App. 1954).

identification, bite-mark evidence "was rapidly admitted . . . throughout the United States."[105] In contrast to latent fingerprint examination, we find a particularly interesting situation when looking at the history of the field's acceptance of the technique. In the case of forensic odontology, the courts made the first move to validate the science in the minds of the scientists.[106] While the "science" of matching dentition has been confidently and correctly used for quite a while to identify unknown remains based on comparison between dentition and dental records, skepticism pervaded until very recently, and still does exist to some extent, about forensic odontologists' ability to identify bite marks on the skin.[107] Initial levels of skepticism were much higher than today, but rapid judicial acceptance seems to have decreased the profession's reflection on its practitioners' own ability.[108] However, over the last few years a vocal minority has published numerous papers questioning the science.[109] Latent fingerprint analysis and forensic odontology should make it clear that when the legal system *wants* a technique for use in the courtroom, the standards for the general acceptance and the constitution of the relevant scientific community will be crafted in a way that makes the technique admissible.

B. Validity of The Scientific Foundation

According to some courts and critics, the scientific underpinnings for polygraph are flawed. The machine does not directly detect lies.[110] Even the staunchest supporters of polygraph would likely concede this proposition.[111] Instead, the polygraph works on the assumption that certain physiological

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[105] 5 MODERN SCIENTIFIC EVIDENCE, *supra* note 78, at § 37:4.

[106] *Id.*

[107] *See* Erica Beecher-Monas, *Reality Bites: The Illusion of Science in Bite-Mark Evidence*, 30 CARDOZO L. REV. 1369, 1379–80 (2009).

[108] 5 MODERN SCIENTIFIC EVIDENCE, *supra* note 78, at § 37:4.

[109] *See* Beecher-Monas, *supra* note 107, at 1380 & n.59; Bowers, *supra* note 104, at S105 & n.7.

[110] Giannelli, *supra* note 95, at 904 ("The instrument . . . detects neither deception nor the fear of detection; it provides only a recording of physiological responses.").

[111] NATIONAL RESEARCH COUNCIL, *supra* note 9, at 212–13. In fact, in *United States v. Orians*, Dr. David Raskin, a major polygraph proponent, admits that you cannot directly measure lying. This brings about interesting questions for the future admissibility of fMRI lie detection, which *does* purport to measure lying directly, or at least more directly than polygraph. United States v. Orians, 9 F. Supp. 2d 1168, 1171, 1173 (D. Ariz. 1998).

responses occur in an individual when he or she lies.[112] The modern polygraph measures these psychological and physiological responses, including heart rate, blood pressure, respiration rate, and galvanic skin response.[113] As the court in Alexander summarized,

> The polygraph machine is an electromechanical instrument which measures and records these physiological fluctuations that are detected with the aid of three basic components: (1) the pneumograph which monitors the respiration rate of the examinee; (2) the cardiosphygmograph which gauges blood pressure and pulse rate; and (3) the galvanometer which measures the galvanic skin reflex or electrodermal response-skin resistance to electrical current (perspiration on the palmar surfaces of the hands will increase the flow of electrical current).[114]

Critics in a variety of capacities have long questioned whether these measures accurately detect deception or whether they may be implicated in other emotional responses, yielding false positive results.[115] In 1964, the Committee on Government Operations of the House of Representatives looked into the issue.[116] The committee found that "[t]he machine records physical responses which may or may not be connected with an emotional reaction—and that reaction may or may not be related to guilt or innocence."[117]

In light of these facts, courts applying the *Daubert* standard often find that the polygraph fails to meet the standards of validity testing. The Court's opinion in *State v. Fain*,[118] reflects the widespread assertion that the scientific underpinnings for polygraph examination lack validity.[119] "The foregoing authorities reflect the prevailing judicial view that the physiological and psychological bases for the polygraph examination have not been sufficiently established to assure the validity or reliability of test results."[120] The court's decision in *Alexander* recognized the indirect nature of the polygraph's

112 Giannelli, *supra* note 95, at 903–04.

113 *Id.*

114 United States v. Alexander, 526 F.2d 161, 163 (8th Cir. 1975).

115 PAUL EKMAN, TELLING LIES: CLUES TO DECEIT IN THE MARKETPLACE, POLITICS, AND MARRIAGE 198–99 (2009) ("Innocents, not just liars, may become emotionally aroused when they know they are suspected of lying.").

116 *Alexander*, 526 F.2d at 164.

117 H.R. REP. NO. 89-198, at 13 (1965).

118 774 P.2d 252 (Idaho 1989).

119 *Id.* at 257.

120 *Id.*

efforts to detect lies.[121] The court writes, "[i]t is clear, therefore that the polygraph does not detect lies, but merely records physiological phenomena which are assumed to be related to conscious deception."[122] In *U.S. v. Orians*,[123] two polygraph experts testified: Dr. David Raskin and Dr. Gordon Barland.[124] According to the court's opinion, both experts conceded that there is no direct test measuring lies, and that the polygraph measures only physiological reactions to stress.[125] As the 2003 NAS report on polygraph states, "the responses measured by the polygraph do not all reflect a single underlying process: a variety of psychological and physiological processes . . . can affect polygraph measures and test results."[126] There is simply no denying that polygraph does not directly measure deception. However, the lack of validation has not kept other forensic assays out of the courtroom.

As Ralph and Lyn Haber point out, there has been no empirical validation of friction ridge analysis as a technique, or any of its component steps. They write, "[a] recent FBI publication reported failure to find a single peer reviewed study that tested the validity of ACE-V."[127] The Habers' systematic argument about the validation of fingerprint evidence goes hand in hand with the works of both Jennifer Mnookin and Simon Cole. Mnookin puts the perceptions surrounding fingerprint evidence in an interesting way. She writes,

> [i]n short, if our diligent student B had begun his research assuming that fingerprinting was a technique that was well tested and virtually error free, he would, by now, be quite shaken in this belief. Indeed, in the course of his search, apart from articles written by fingerprint examiners themselves, he would be hard-pressed to find any contribution to the academic literature that did not bewail the lack of adequate information about latent fingerprint identification's error rate and scientific validity.[128]

Cole goes so far as to say, "the courts' attitude does not merely fail to encourage practitioners to take an interest in validating

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121 *Alexander*, 526 F.2d at 163.

122 *Id.*

123 9 F. Supp. 2d 1168 (D. Ariz. 1998).

124 *See id.* at 1169 n.1, 1171.

125 *Id.* at 1171.

126 NATIONAL RESEARCH COUNCIL, *supra* note 9, at 212–13.

127 Haber & Haber, *supra* note 101, at 95.

128 Jennifer L. Mnookin, *The Validity of Latent Fingerprint Identification: Confessions of a Fingerprinting Moderate*, 7 L., PROBABILITY &RISK 127, 130 (2008).

the claims they make in sworn testimony, it actively discourages them."[129] He concludes that, "[a]s long as courts permit practitioners to express unvalidated claims with absolute confidence in sworn testimony, those practitioners and the prosecutors who employ their testimony have a strong disincentive to perform any validation research as this can only result in diminishing the strength of their testimonial claims."[130] Instead, courts have decided that de facto validation is sufficient to prove the scientific validity of latent print examination.[131] As Cole writes, "[i]n place of empirical validation data, the proponents of this technique and the attorneys who employ it . . . [argue for its] valid[ity] because it has been accepted by courts and its own practitioners for 100 years[.]"[132] Cole likely had in mind *United States v. Havvard*,[133] which held that the use of fingerprints in courts for approximately the last one hundred years is sufficient to establish validity.[134] Similarly, handwriting analysis has never been validated.

As Michael Risinger and Michael Saks tell the story, in 1836 "Massachusetts became the first common law jurisdiction to" admit handwriting "expert " testimony.[135] However, over the next fifty to seventy-five years, while the majority of jurisdictions admitted testimony from so-called experts, the courts remained skeptical of the value of this expert evidence.[136] In 1935, after many years of campaigning by John Henry Wigmore and Albert S. Osborn on behalf of the "scientific" handwriting expertise, the Charles Lindbergh baby kidnapping case solidified handwriting identification's place in the courtroom as a "legitimate" investigative tool.[137]

The underlying principle of document examination is that

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129 Cole, *supra* note 103, at 124.

130 *Id.*

131 Simon A. Cole, *More Than Zero: Accounting for Error in Latent Fingerprint Identification*, 95 J. CRIM. L. & CRIMINOLOGY 985, 989 (2005) (explaining how despite finding that "latent print identification is non-scientific expert evidence . . . courts frequently treat it as a de facto litmus test for admissibility").

132 Cole, *supra* note 103, at 119.

133 117 F. Supp. 2d 848 (S.D. Ind. 2000).

134 *Id.* at 854.

135 D. Michael Risinger & Michael J. Saks, *Science and Nonscience in the Courts:* Daubert *Meets Handwriting Identification Expertise*, 82 IOWA L. REV. 21, 24 (1996).

136 *Id.* at 24–25.

137 *Id.* at 26–27.

there is a high probability that no two persons form their letters in the same way.[138] However, this "science," like latent fingerprint analysis, suffers from lack of validation.[139] There is little evidence to validate the underlying principle of this forensic assay beyond forensic documents examiners' own assertions.[140] In his 1989 article in University of Pennsylvania Law Review, Risinger's thorough research on empirical evaluation of handwriting identification yielded little in the way of validation studies to support the examiners' claims.[141] He found one questionable fifty year old study, one 1973 paper giving anecdotal evidence of inconsistency among examiners, and a summary of a 1978 study of the underlying principles of handwriting analysis.[142] In the approximately twenty years since Risinger's article, several studies have been conducted.[143] These studies are riddled with methodological issues, some of which are associated with a failure to break down the various subtasks of questioned documents examination, which vary greatly from simple to complex identifications.[144] Despite the questionable validity, handwriting expertise is routinely admitted in criminal proceedings.[145] A brief look at opinions assessing handwriting analysis suggests that Simon Cole's discussion of the self-perpetuating admissibility of fingerprint seems to apply equally to handwriting analysis, a fact Risinger notes. In discussing changing the tides of admissibility, Risinger writes, "[t]hey are likely to continue admitting such evidence just because it has always been admitted, at least within living memory."[146]

As is the case for fingerprint and handwriting analysis, forensic odontology has never been validated. Just as we saw

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138 *Id.* at 39.

139 *See id.* at 39–40.

140 *Id.* at 40–42.

141 D. Michael Risinger et al., *Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification "Expertise"*, 137 U. PA. L. REV. 731, 738 (1989).

142 *Id.*

143 *See* 4 MODERN SCIENTIFIC EVIDENCE, *supra* note 78, §§ 33:27–31, 35–37 (describing various tests and research conducted since Risinger's article).

144 *See id.* §§ 33:27–29, 35 (pointing out the inadequacies in tests designed for handwriting and signature analysis).

145 *See id.* § 33:7 (showing cases in which expert testimony of handwriting analysis was admitted).

146 Risinger, *supra* note 141, at 773; *see also* United States v. Prime, 220 F. Supp. 2d 1203, 1207 (W.D. Wash. 2002) (citing Robles v. United States, 279 F.2d 401, 404–05 (9th Cir. 1960)), *aff'd*, 363 F.3d 1028 (9th Cir. 2004), *vacated sub nom.* Prime v. United States,543 U.S. 1101 (2005).

with latent fingerprint identification, there is little empirical evidence regarding the validity of the underlying scientific principle of forensic bite-mark identification, which assumes that human dentition is unique from individual to individual.[147] Additionally, no studies have been conducted to determine what percentage of the population, or population subgroup, could have made the mark to create random match probabilities.[148] As the National Academies reports: "Although the majority of forensic odontologists are satisfied that bite marks can demonstrate sufficient detail for positive identification, no scientific studies support this assessment, and no large population studies have been conducted."[149] Erica Beecher-Monas quite aptly summarizes the "science" of bite-mark identification, "[t]he underlying theory, that a mark found on a dead victim can be traced to the dentition of the perpetrator, is dubious."[150] Yet, this questionable science continues to be widely admitted in courts across the U.S.[151]

C. Reliability—Having a Known or Established Error Rate

Courts applying the *Daubert* standard often find that the polygraph fails to meet the standards of validity testing and having a known or established error rate.[152] Courts upholding the exclusion rely on two general arguments relating to reliability (1) the error rate is unknown/debated/unacceptable, and (2) the studies of polygraph's error rate lack ecological validity and thus are insufficient to establish reliability.[153] Several courts have

147 *See* Beecher-Monas, *supra* note 107, at 1371–72, 1378.

148 *See id.* at 1377–78, 1380–81 (describing various flawed attempts to prove uniqueness of bite-mark evidence).

149 NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 176 (2009) [hereinafter NRC REPORT] (citations omitted).

150 Beecher-Monas, *supra* note 107, at 1371.

151 *Id.* at 1372 & n.18.

152 S*ee, e.g.*, United States v. Orians, 9 F. Supp. 2d 1168, 1171 (D. Ariz. 1998) (discussing the difficulty in determining a polygraph's error rate since mock situations do not necessarily duplicate real-life situations).

153 Ecological validity is a type of validity in a research study that is established when the study's methods, participants, and setting approximate the real-life situation the study is designed to understand. *See infra* notes 163, 166, 170 and accompanying text (discussing cases involving claims that polygraph studies lack ecological validity); Report and Recommendation, United States v. Williams, No. 1:03-CR-636-5-JEC at 20 (N.D. Ga. 2005); NATIONAL RESEARCH COUNCIL, *supra* note 9, at 3 ("The lack of understanding of the processes that underlie polygraph responses makes it very difficult to generalize from the results obtained in specific research settings or with particular subject

taken a "generalist" approach to uphold the exclusion of polygraph evidence, meaning they simply state, as if an obvious and unavoidable conclusion, that polygraph evidence is too unreliable for court.[154] For example, the court in *State v. Wright*[155] held, "[g]enerally, the results of polygraph examinations are inadmissible because the reliability of the polygraph is questionable."[156] In *Scheffer*, the Supreme Court's first case involving the ban on polygraph evidence, the Court upheld a per se ban on polygraph evidence in military courts.[157] In his concurrence, Justice Thomas, along with three of his colleagues, held that "there is simply no consensus that polygraph evidence is reliable. To this day, the scientific community remains extremely polarized about the reliability of polygraph techniques."[158] The opinion mentions S. Abram's book, *The Complete Polygraph Handbook*, which reports the overall accuracy of the Control Question Technique[159] at approximately 87 percent, while other scientific studies suggest that the accuracy of the technique is "little better than [chance]."[160] Particularly, the opinion cites the Office of Technology Assessment's 1983 report that states that the error rate for the polygraph is significant.[161] The report, which reports the error rates claimed in twenty-eight contemporary studies of the

populations to other settings or populations, *or from laboratory research studies to real-world applications*.") (emphasis added).

154 *See, e.g.*, Morgan v. Commonwealth, 809 S.W.2d 704, 706 (Ky. 1991).

155 471 S.E.2d 700 (S.C. 1996).

156 *Id.* at 701.

157 United States v. Scheffer, 523 U.S. 303, 305–08 (1998).

158 *Id.* at 309.

159 *Id.* at 310. The examiner compares responses to relevant questions with responses to control questions that are intended to generate physiological reactions, even in nondeceptive examinees. The control questions are designed and selected to create a temptation to deceive. Truthful examinees level of concern is presumed to be higher on irrelevant questions than for the relevant questions about which an examinee can be truthful without much anxiety. For examinees who may be deceptive about the events under investigation, it is presumed that the relevant questions create greater levels of concern and thus a stronger physiological response. *See The Truth About Lie Detectors (aka Polygraph Tests)*, AM. PSYCHOL. ASS'N (Aug, 5, 2004), http://www.apa.org/research/action/polygraph.aspx.

160 *Scheffer*, 523 U.S. at 310. Other courts have also held that being better than chance is not sufficient to establish reliability. *See, e.g.*, State v. Perry, 81 P.3d 1230, 1234 (Idaho 2003) (holding that while the National Academies found that the polygraph is significantly better than chance does not mean it *is* reliable, it simply indicates the technique *may* be reliable).

161 *Scheffer*, 523 U.S. at 310 n.6.

polygraph, offered error rates ranging from 0 to 83 percent.[162] While this report ignores numerous other studies, Justice Thomas gave the report its place in the history books as part of the rationale for excluding polygraph evidence.[163] Other courts, and polygraph opponents, have criticized lie detection validation studies for lacking ecological validity.[164]

Some courts express concern over the translation of error rates established in controlled lab experiments to real-world situations. For example, the trial court in *Cordoba* found that "the error rate for real-life polygraph tests is not known and is not particularly capable of analyzing."[165] Lie detection studies typically take place in labs with subjects who are instructed to lie, sometimes offered incentives if they can "beat" the machine, and who face no consequences if they are caught lying.[166] This is in stark contrast to criminal investigations and trials where life and liberty are at stake. Given these facts, courts considering asserted error rates question the ability to translate the error rates determined in those lab studies to the courtroom.[167] Other courts, including the District Court for the Central District of California, the Court of Appeals for the Ninth Circuit, and the District Court for the Southern District of Texas, also address the applicability of measurements of error rate in a laboratory setting measurements to the real-world use of forensic polygraph.[168] In 1995, the District Court for the Southern District of Texas found that while the error rate for "polygraphs in laboratory research has been shown to be very low, the rate of error in 'real life' situations is not known to a reasonable degree

[162] *See* Giannelli, *supra* note 95, at 913 ("OTA's own review of 28 studies meeting minimum acceptable scientific criteria found that, for example, correct guilty detections ranged from 17 to 100 percent.").

[163] *See Scheffer*, 523 U.S. at 310 n.6, 310–12; *id.* at 912–13 (noting drastic differences between the results of previous studies of the average validity of guilty detections and the results of the OTA study).

[164] *See* United States v. Cordoba, 991 F. Supp. 1199, 1203–04, 1203 n.12 (C.D. Cal. 1998) (illustrating how both the court and opponents note the differences in error rates between real-life examinations and controlled tests), *aff'd*, 194 F.3d 1053 (9th Cir. 1999); *see supra* note 153 for definition of ecological validity.

[165] *Cordoba*, 991 F. Supp. at 1204.

[166] NATIONAL RESEARCH COUNCIL, *supra* note 9, at 109, 116, 146.

[167] *See Cordoba*, 991 F. Supp. at 1204.

[168] United States v. Cordoba, 194 F.3d 1053, 1059 (9th Cir. 1999); *id.* at 1203–04; United States v. Ramirez, No. CRIM. H-93-252, 1995 WL 918083, at *2 (S.D. Texas 1995).

of scientific certainty."[169] In Louisiana, the court in *State v. Catanese*[170] wrote, "the modern polygraph examination achieves a high degree of accuracy when conducted by well qualified examiners under proper test conditions."[171] Because of the lack of licensing statutes for polygraph examiners in Louisiana at the time and the lack of a controlled situation in the course of a criminal investigation, the court found the technique inadmissible.[172] Yet, a lack of a known, real-world error rate seems to be of little to no concerns for courts evaluating other forensic techniques.

Work is just now beginning in an effort to determine the accuracy of latent fingerprint analysis. The first empirical studies investigating the accuracy and reliability of latent fingerprint analysis have been published in early 2011.[173] Prior to these studies, little was known of the true error rate of latent print examination.[174] Yet, "[l]atent print examiners have long claimed that fingerprint identification is 'infallible.'"[175] Meaning, if examiners carry out the ACE-V technique properly, the examination produces 100 percent accurate results (an error rate of zero).[176] Based on this assertion, these "scientists" often testify in court to individualization to the exclusion of all others, meaning that the match between the latent print and the exemplar is sufficient to rule out anyone but the suspect.[177] However, there is no scientific support for these assertions.[178] In addition to his own work on latent fingerprint identification, in which he concludes the assay has no known error rate, Cole summarizes

169 *Ramirez*, 1995 WL 918083, at *2.

170 368 So. 2d 975 (La. 1979).

171 *Id.* at 980.

172 *Id.* at 982–83.

173 *See, e.g.*, Jason M. Tangen et al., *Identifying Fingerprint Expertise*, 22 PSYCHOL. SCI. 995, 995–97 (2011) (describing a study of latent fingerprints, the results of which showed that "qualified, court-practicing fingerprint experts are exceedingly accurate compared with novices, but are not infallible"); Bradford T. Ulery et al., *Accuracy and Reliability of Forensic Latent Fingerprint Decisions*, 108 PROC. NAT'L ACAD. SCI. 7733, 7733–34 (2011) ("Key objectives of this study [of latent fingerprints] were to determine the frequency of false positive and false negative errors, the extent of consensus among examiners, and factors contributing to variability in results.").

174 Tangen, *supra* note 173, at 995; Ulery, *supra* note 173, at 7733.

175 Cole, *supra* note 131, at 987.

176 *Id.* at 1035.

177 *Id.* at 993.

178 *Id.* at 993–94.

> Mnookin stated that "[i]n the case of fingerprinting, the general rate of error is simply not known." Faigman added that fingerprinting had "not been seriously tested." Haber and Haber put it most starkly: "no data have [sic] been collected on how accurately latent print examiners match different images of the same finger."[179]

As Cole writes, "even when confronted with known cases of . . . misattribution," fingerprint "examiners defend the claim of a zero error rate."[180] Apparently, even the grave errors of misidentification in the cases of Brandon Mayfield and Stephan Cowans have done little to convince latent print examiners of the importance of understanding error rates.[181] Simon Cole sums up judicial assessments of latent print examination's history in court—for the last one hundred years fingerprint evidence has been "accepted on trust."[182] Similarly, few studies have been conducted to investigate the error rate of forensic odontology, yet courts have done little to reign in the admissibility of the evidence.

The National Academy of Science reported, "[a]lthough the majority of forensic odontologists are satisfied that bite marks can demonstrate sufficient detail for positive identification, no scientific studies support this assessment, and no large population studies have been conducted."[183] Research reveals that only three validation studies have examined bite-mark analysis, with reported error rates ranging from 11.9 percent to 91 percent.[184] On average 63.5 percent of bite-mark examiners committed false positive errors across the test cases, which if reflective of the examiners' performance in real cases, means that inculpatory opinions, claiming a match between the bite mark and the defendant's dentition, are more likely to be wrong than correct.[185] The assertion is at least to an extent supported in practice by the fact that there are known cases of wrongful

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179 Simon A. Cole, *Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse*, 28 LAW & POL'Y 109, 114 (2006).

180 Cole, *supra* note 131, at 990.

181 *Id.* at 985–87, 1065.

182 UCIrvineNews, *Simon Cole: Problems with Fingerprint Evidence*, YOUTUBE (June 30, 2009), http://www.youtube.com/watch?v=P62jSB9IzPI.

183 NRC REPORT, *supra* note 149, at 176.

184 *Cases Where DNA Revealed that Bite Mark Analysis Led to Wrongful Arrests and Convictions*, INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Cases_Where_DNA_Revealed_that_Bite_Mark_Analysis_Led_to_Wrongful_Arrests_and_Convictions.php (last visited Apr. 15, 2012).

185 4 MODERN SCIENTIFIC EVIDENCE, *supra* note 78, at § 38:12 tbl.2.

convictions that can be attributed, at least in part, to incorrect bite-mark identification.[186] Yet, courts still deem bite-mark evidence fit for court.[187]

D. Usurpation of the Jury Function

"Often clearly articulated and equally often implicit, there is a pervasive apprehension in the exclusionary opinions that the introduction of polygraph evidence would wreak some fundamental change in the American judicial system of determining truth."[188] This stance has been taken in both federal and state courts in favor of excluding lie-detection evidence.[189] Discerning what courts mean, when they claim that the polygraph would "usurp" the jury function, is a difficult task.[190] Many of the exclusionary opinions offer only vague justification for how the polygraph could usurp the jury function. For example, the court's opinion in *United States v. Call*[191] captures the ambiguity of the "usurpation" argument. Judge Baldock, referring to the polygraph, wrote, "[s]uch testimony [assessing the credibility of the witness] is often excluded because it *usurps* a critical function of the jury."[192] On this reason, though not this reason alone, the court in *Call* concludes that polygraph testimony is inadmissible at trial.[193]

The argument that polygraph evidence usurps the jury function may take several forms. First, courts may, and often do, assert that the strength of the evidence and the polygraph examiner's power to sway the jury usurps the jury's function in assessing credibility.[194] For example, the court in *Call* relied on this form of the argument. Following his use of the word "usurps," Judge Baldock writes, "[t]here is also the danger that the jury may overvalue polygraph results as an indicator of

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[186] *See* Beecher-Monas, *supra* note 107, at 1373–74; INNOCENCE PROJECT, *supra* note 184.

[187] *See* Beecher-Monas, *supra* note 107, at 1372 & n.18.

[188] Daniels, *supra* note 1, at 14.

[189] *See id.* at 14 & nn.18–19 & 25.

[190] *See id.* at 14.

[191] 129 F.3d 1402 (10th Cir. 1997).

[192] *Id.* at 1406 (emphasis added).

[193] *Id.* at 1405–06. The court generally determined that the lower court did not err in excluding the evidence because any probative value was outweighed by the prejudicial effect and the polygraph evidence would not assist the jury. *Id.*

[194] Daniels, *supra* note 1, at 14.

truthfulness because of the polygraph's scientific nature."[195] Further exemplifying this form of the argument, Judge Gibson, in *Alexander*, writes,

> When polygraph evidence is offered in evidence at trial, it is likely to be shrouded with an aura of near infallibility, akin to the ancient oracle of Delphi. . . . To the extent that the polygraph results are accepted as unimpeacheable [sic] or conclusive by jurors, despite cautionary instructions by the trial judge, the jurors' traditional responsibility to collectively ascertain the facts and adjudge guilt or innocence is preempted.[196]

While Justice Thomas does not make clear that he adopts this first form of the usurpation argument in *Scheffer*, Justice Kennedy's concurrence assumes that Justice Thomas adopts the first form of the usurpation argument. Justice Kennedy interprets Justice Thomas' opinion as holding, at least in part, that the evidence will be weighed so heavily by members of the courts' martial that it will replace their own judgment with that of the polygraph examiner.[197] Citing *United States v. Barnard*,[198] Justice Thomas asserts that a fundamental premise of our justice system is that "the *jury* is the lie detector[,]" which the very nature of the polygraph would undermine.[199] Therefore, to allow the polygraph into the courtroom would cause a drastic change in the fundamental principles of the criminal justice system. Interestingly, the four-judge concurrence sided with the lone dissenter to reject the portion of Justice Thomas' plurality opinion that polygraph evidence would fundamentally alter the jury's role in assessing credibility.[200] Justice Kennedy wrote, "The basis usually assigned for [Rule 704], to prevent the witness from 'usurping the province of the jury,' is aptly characterized as 'empty rhetoric.'"[201] Explicating this conclusion, Justice Kennedy writes,

> Any supposed need to protect the role of the finder of fact is diminished even further by this specific acknowledgment that

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195 *Call*, 129 F.3d. at 1406.

196 United States v. Alexander, 526 F.2d 161, 168 (8th Cir. 1975).

197 United States v. Scheffer, 523 U.S. 303, 318 (1998) (Kennedy, J., concurring in part).

198 490 F.2d 907 (9th Cir 1973).

199 *Scheffer*, 523 U.S. at 313 (emphasis in original).

200 *Id.* at 318 (Kennedy, J., concurring in part) ("[I]t seems the principal opinion overreaches when it rests its holding on the additional ground that the jury's role in making credibility determinations is diminished when it hears polygraph evidence."); *id.* at 336–37 (Stevens, J., dissenting).

201 *Id.* at 319 (quoting FED. R. EVID. 704 advisory committee's note.)

> members of military courts are not likely to give excessive weight to opinions of experts or otherwise to be misled or confused by their testimony. Neither in the federal system nor in the military courts, then, is it convincing to say that polygraph test results should be excluded because of some lingering concern about usurping the jury's responsibility to decide ultimate issues.[202]

Yet, it is Justice Thomas' opinion, rather than Justice Kennedy's opinion, that is routinely cited in lie detection cases, ignoring the fact that a majority disagreed with Justice Thomas on the usurpation argument. Numerous state courts have also excluded polygraph evidence based on the assertion that the evidence would be so convincing admitting it would usurp the jury's role as fact finder.

In Connecticut, upholding its per se ban on polygraph evidence, the court in *State v. Porter*[203] held that the jury is the sole arbiter of credibility, and that this function would be usurped were the court to allow polygraph evidence at trial.[204] In *State v. Mitchell*,[205] the Connecticut Supreme Court held,

> Credibility as an issue is committed to the sole determination of the trier of fact[,] and the admission of the results of polygraph examinations, rather than serving as an aid to that determination, would tend to cloud the issue with an aura of scientific conclusiveness of the examinder's [*sic*] opinion that could foreclose a true consideration of the issue.[206]

In Louisiana, the court in *State v. Cantanese*,[207] establishing Louisiana's per se ban on polygraph evidence, asserted "the trier of fact [would] give almost conclusive weight to the polygraph expert's opinion," thereby relinquishing its role in the trial.[208] The court in *Catanese* also cites cases in Michigan, New York and Ohio adopting an exclusionary position based on a fear that the polygraph would have tremendous weight in the minds of a jury.[209] The Court of Appeals of New York in *People v. Leone* wrote, "[w]e are all aware of the tremendous weight which such

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[202] *Id.* at 320.

[203] 698 A.2d 739 (Conn. 1997).

[204] *Id.* at 769.

[205] 362 A.2d 808 (Conn. 1975), *overruled in part on other grounds by*, State v. Higgins 518 A.2d 631, 636 (Conn. 1986).

[206] *Id.* at 813 (citations omitted).

[207] 368 So. 2d 975 (La. 1979).

[208] *Id.* at 981.

[209] *Id.* (citing People v. Barbara, 255 N.W.2d 171 (Mich. 1977); People v. Leone, 255 N.E.2d 696 (N.Y. 1969); State v. Smith, 178 N.E.2d 605 (Ohio Ct. App. 1960)).

tests would necessarily have in the minds of a jury."[210] In *People v. Barbara*, the Michigan Supreme Court expressed concern that to allow the polygraph would "substitut[ing] a trial by machine for a trial by jury."[211] The court writes, "[t]he concern persists that the possibility of the jury treating polygraph evidence as conclusive proof of guilt or innocence may give such evidence an overbearing prejudicial effect. . . . 'The exclusion seems to rest more upon a judicial estimate of the weight that the trier of fact will give to the opinion . . . .'"[212] The argument that forensic evidence usurps the jury function has rarely been offered against other forms of forensic evidence in U.S. Courts.[213]

In the early twentieth Century, defense counsel in *State v. Steffen*[214] contended that the testimony of a fingerprint expert, who claimed his assertion about the relatedness of the latent print and the exemplar was fact, rather than expert opinion, was improper.[215] Counsel argued "it was improper to allow the state's experts to testify to the 'ultimate fact,'" as opposed to their conclusion about the source of the fingerprint as an opinion.[216] "[T]he fingerprint match was such damning evidence that it was tantamount to declaring the defendant guilty . . . , a job for the jury, not an expert witness."[217] The court agreed with defense counsel and held that the expert could testify, but it must be clear that it was a matter of opinion, albeit expert opinion, rather than fact.[218] Fingerprint examiners backed down from the position that their testimony was fact, adopting the view that it was well-informed expert opinion and their testimony continues to be routinely admitted today.[219]

Scholarly work debunking the argument that evidence could usurp the jury function because of the significant weight given to

[210] *Leone*, 255 N.E.2d at 700.

[211] *Barbara*, 255 N.W.2d at 194.

[212] *Id.* at 194 n.36 (quoting MCCORMICK'S HANDBOOK OF THE LAW OF EVIDENCE § 207 (Edward W. Cleary ed., 2d ed. 1972)).

[213] *See* Daniels, *supra* note 1, at 12 ("There is no single category of evidence in the history of American law that has been subjected to stricter scrutiny by the courts . . . than polygraph evidence.").

[214] 230 N.W. 536 (Iowa 1930), *overruled in part on other grounds* by Grismore v. Consol. Prods. Co., 5 N.W.2d 646 (Iowa 1942).

[215] *Id.* at 537. For a discussion of the issues presented in *State v. Steffen*, *see* SIMON A. COLE, SUSPECT IDENTITIES: A HISTORY OF FINGERPRINTING AND CRIMINAL IDENTIFICATION 208–10 (2001).

[216] COLE, *supra* note 215, at 209.

[217] *Id.*

[218] *Id.*

[219] *See id.* at 4, 210.

an experts' testimony can be traced back to John Henry Wigmore's 1904 *A Treatise on the System of Evidence in Trials at Common Law*, and its subsequent updates.[220] In his work, Wigmore, discussing expert testimony generally wrote, regarding the usurpation of the jury, "[t]his phrase is made to imply a moral impropriety or a tactical unfairness in the witness' expression of opinion. . . . [The expert] could not usurp it if he would, because the jury may still reject his opinion and accept some other view . . . ."[221] Additionally, in his concurrence in *Scheffer*, Justice Kennedy emphasizing his point about jurors not overvaluing polygraph emphasis wrote:

> [w]ith all respect, moreover, it seems the principal opinion overreaches when it rests its holding on the additional ground that the jury's role in making credibility determinations is diminished when it hears polygraph evidence. . . . I had thought this tired argument had long since been given its deserved repose as a categorical rule of exclusion.[222]

Even if one were to concede that polygraph examiners would, as the court in *Alexander* asserted, be viewed akin to the Oracle at Delphi, the argument that a juror will overvalue evidence could be said of any forensic evidence—particularly DNA identification.[223]

If the *Alexander* court was correct in its presumption that a polygraph examiner would be akin to the Oracle at Delphi, for which it had no empirical support, would it not stand to reason that the strongest evidence, that which can implicate an individual with a random match probability in the one in billions range, would be most criticized for usurping the jury function? Seemingly, with evidence that has a margin for error in the discernible and comprehensible percentage range—the concept of a 10 percent or 20 percent error rate is far easier for juries to comprehend than those associated with DNA evidence—the jury could more readily reject the polygraph evidence in favor of their own opinion based on the rest of the evidence in the case than

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[220] 3 JOHN HENRY WIGMORE, A TREATISE ON THE SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 1920, (1904).

[221] *Id.* § 1920.

[222] United States v. Scheffer, 523 U.S. 303, 318 (1998) (Kennedy, J., concurring).

[223] *See* United States v. Alexander, 526 F.2d 161, 168 (8th Cir. 1975) ("When polygraph evidence is offered in evidence at trial, it is likely to be shrouded with an aura of near infallibility, akin to the ancient oracle of Delphi.").

they could a DNA match.[224] However, DNA evidence is routinely admitted, and even hailed for its ability to identify suspects with such high degree of certainty.[225] Additionally, examiners in other forensic disciplines are allowed to explicitly make claims about their own infallibility.

Fingerprint examiners, testifying to the individualization of latent print routinely claim that their identifications are "infallible."[226] For example, one fingerprint examiner testified that the rate of error is zero for identifying the source of latent prints.[227] Yet, courts do not object to fingerprint examiner's unjustified characterization of themselves as "oracles."[228] Furthermore, the court in *Alexander* was incorrect in asserting that jurors would blindly accept and overvalue polygraph evidence.

Jury research conducted over the last thirty years shows that jurors do not simply accept experts' opinions, particularly in the case of polygraph evidence.[229] For example, a study by Spanos et

[224] *See* McCall, *Misconceptions and Reevaluation*, *supra* note 43, at 376–77 (stating that juries are able to consider scientific evidence, specifically evidence about polygraph results, without "giving it undue weight").

[225] *See* George Bundy Smith & Janet A. Gordon, *The Admission of DNA Evidence in State and Federal Courts*, 65 FORDHAM L. REV. 2465, 2465, 2478, 2481 (1997).

[226] Simon A. Cole, *Forensics Without Uniqueness, Conclusions Without Individualization: The New Epistemology of Forensic Identification*, 8 LAW, PROBABILITY & RISK 233, 237 (2009).

[227] *Id.*

[228] Courts have likened polygraphists to "oracles" and limited the admissibility of polygraph evidence because their tests have a high rate of error but do not subject fingerprint examiners to the same type of scrutiny. *See Alexander*, 526 F.2d at 167–69 ("[A] polygraph examination embraces a number of complexities not present in the areas of fingerprint . . . analysis."). More recently, challenges have been made to the reliability of fingerprint evidence, but it remains readily admissible. *See* United States v. Havvard, 260 F.3d 597, 601 (7th Cir. 2001) (allowing fingerprint evidence based on the fact that the rate of error is "exceptionally low" and allowing the accompanying fingerprint examiner's opinion that the print belonged to the defendant without "more elaboration"); Jennifer L. Mnookin, *The Courts, the NAS, and the Future of Forensic Science*, 75 BROOK. L. REV. 1209, 1212–13, 1221–22 (2010) (explaining that challenges have been made to fingerprint evidence but courts continue to allow it "without limit" and pointing out the subjective aspects of forensic fingerprint analysis to demonstrate its ignored unreliability).

[229] *See* Bryan Myers & Jack Arbuthnot, *Polygraph Testimony and Juror Judgments: A Comparison of the Guilty Knowledge Test and the Control Question Test*, 27 J. APPLIED SOC. PSYCHOL. 1421, 1423–25 (1997) (explaining that early studies showing juries to be heavily influenced by polygraph evidence and testimony were poorly conducted and inaccurate, and providing examples of more recent studies, which were executed properly and found polygraph tests to

al., found that "polygraph testimony had little influence on jury verdicts[,]" particularly when compared to other forms of evidence, such as eyewitness testimony.[230] Another study by Myers and Arbuthnot found that "both juries[, as a group,] and individual jurors are not influenced to any significant degree by polygraph testimony."[231] Furthermore, the value in a juror's mind is not dependent on whether the subject passes or fails polygraph test.[232] According to Myers et al., when one group of subjects was provided a description of a subject who passed the polygraph and another was provided a description of a subject who failed the polygraph, both groups ranked the polygraph as having an average effect of somewhere between "not at all influential" and "somewhat influential."[233] In addition to the self-report of the impact of the polygraph evidence, there was no statistically significant difference between the conviction rate of those in the passed polygraph group, failed polygraph group, and no-polygraph group.[234] Despite this research, courts readily cite *Alexander* and offer the argument that polygraph evidence would usurp the jury function based on the overwhelming weight jurors would give it.[235] Additionally, courts continue to cite the principal opinion in *Scheffer* in support of continued exclusion of lie-detection technology, regardless of the fact that a majority of the justices rejected the usurpation argument.

In addition to the argument that the jury would overvalue the polygraph examiners opinion because of the aura of infallibility, courts offering "usurpation of the jury" for the exclusion of polygraph evidence may intend to suggest that a definitive statement about a defendant's honesty or deceptiveness is a matter beyond the scope of his/her expertise. Stating whether someone is truthful or deceptive, using conclusory terminology, is a task for the jury.[236] Again, no court frames the objection in

have little influence on juries' decisions).

230 *Id.* at 1425.

231 *Id.* at 1432.

232 Bryan Myers et al., *The Court of Public Opinion: Lay Perceptions of Polygraph Testing*, 30 L. & HUM. BEHAV. 509, 516, 522 (2006).

233 *Id.* at 516.

234 *Id.* at 515 ("Of those participants receiving failed-polygraph evidence, 71.9% voted to convict, 59.1% voted to convict when they received evidence of a passed polygraph test, and 70.0% in the no-polygraph condition voted to convict.").

235 *Id.* at 510.

236 *See* United States v. Barnard, 490 F.2d 907, 912 (9th Cir. 1973) ("Credibility, however, is for the jury—the jury is the lie detector in the

exactly this manner.[237] However, the Louisiana Court of Appeals wrote,

> The polygraph has been coined as a "lie detector." In other words, its very purpose serves to determine whether a person is telling the truth. In our legal system, this function is precisely within the trier of fact's role. In fact, we call upon fact finders to use their personal life experience, common knowledge, and intuition to determine credibility—whether a litigant or witness is telling the truth. Impliedly, we treat our fact finders as "experts" in the truth telling arena and give the utmost respect to their ultimate findings.[238]

Implicitly, to definitively claim that a person is lying or telling the truth requires a polygraph examiner to weigh the other evidence in the case. Without offering a quantifiable probability that an individual is deceptive or truthful, the polygraph examiner is implicitly claiming that the subject's physiological responses to the questions outweighs or corroborates the other evidence available to such an extent as to be able to offer a definitive conclusion on the ultimate issue.[239] This argument takes a more legally justifiable stance, however examiners in various "toolmark[]" and "pattern matching" disciplines routinely testify to individualization, to the exclusion of all others.[240]

Claims of individualization, to the exclusion of all others infringe on the province of the jury in much the same was as definitive conclusions regarding the veracity of the accused. For example, in a murder case a fingerprint is likely one among many pieces of evidence. To claim that the accused's fingerprint matches a latent print found at the scene, to the exclusion of all others, double counts other evidence in the case and tells the jury that the fingerprint evidence trumps all other circumstantial or other forensic evidence that may exculpate the accused. Whether the examiner's conclusion is grounded in *science* is another issue. However, the jury is the fact finder, tasked with weighing *all* of

courtroom.").

[237] *See infra* Part VI.D.

[238] Evans v. DeRidder Mun. Fire & Police Civil Serv. Bd., 789 So. 2d 752, 758 (La. Ct. App. 2001), *rev'd sub nom.* Evans v. DeRidder Mun. Fire., 815 So. 2d 61 (La. 2002).

[239] For an example of these psychological responses and how they affect polygraph results, see *United States v. Alexander*, 526 F.2d 161, 165 (8th Cir. 1975).

[240] Michael J. Saks & Jonathan J. Koehler, *The Individualization Fallacy in Forensic Science Evidence*, 61 VAND. L. REV. 199, 200, 205–06 (2008) ("Even practitioners from areas where the inability to individuate is recognized might offer testimony that borders on individualization.").

the evidence and determining what the totality of that evidence amounts to, particularly whether the state has proven its case beyond any reasonable doubt. However, claims of individualization are not rare, and they are routinely admitted at trial.[241] As Saks and Koehler write:

> To practicing forensic scientists, individualization is more than an abstraction or an idealization; it is the state of their art. For example, a firearms examiner testifying in a federal court claimed to be able to identify the unknown weapon "to the exclusion of every other firearm in the world." Similar claims are made by examiners of other kinds of toolmarks, as well as of fingerprints, bite marks, handwriting, shoeprints, tiremarks, and other objects of forensic interest.[242]

Specifically, latent print examiners have been testifying that an individual is *the* source of the fingerprint to the exclusion of all others.[243] In fact, according to the SWGFAST guidelines, latent print examiners only have three options for characterizing their findings (1) individualization, (2) inconclusive, (3) exclusion.[244] As Simon Cole writes:

> When latent print examiners make a "match," however, they *always* testify that the defendant *is* the source of the latent print to the exclusion of all other possible sources in the universe. Latent print examiners are, in fact, ethically bound to only testify to source attributions; they are banned from offering probabilistic opinions in court.[245]

The tides have changed slightly. In February 2008, the Superior Court of Bibb County Georgia precluded a latent print examiner from claiming to have identified the right middle fingerprint of the defendant to the exclusion of all others.[246] The court found that conclusions of individualization were subjective, not supported by any scientific studies.[247] The examiner was therefore limited to testifying that the fingerprint was "'consistent with' the known fingerprint found on the right

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[241] *Id.* at 206.

[242] *Id.*

[243] Cole, *supra* note 131, at 992–93.

[244] *Id.* at 992–93, 993 n.36; SWGFAST, FRICTION RIDGE EXAMINATION METHODOLOGY FOR LATENT PRINT EXAMINERS § 3.3 (2002), *available at* http://www.swgfast.org/documents/methodology/Friction_Ridge_Examination_Methodology_for_Latent_Print_Examiners_1.0.pdf.

[245] Cole, *supra* note 131, at 992 (emphasis added).

[246] Order on Defense Motion #90, State v. Pope, No. 07CR62135 (Ga. Super. Ct. Feb. 9, 2008).

[247] *Id.*

middle finger of [the defendant]."[248] In 2010, several courts limited fingerprint examiners testimony, preventing them from testifying in absolute terms. The Superior Court of the District of Columbia ruled, "[c]onclusions drawn from fingerprint examiners should no longer be stated in absolute terms, i.e., testimony from an examiner that a print is unique to . . . the exclusion of all others."[249] An Oregon court, by stipulation of both parties, granted a motion to exclude the phrases "100 percent match," "zero-percent error rate," and identification "to the exclusion of all others."[250] However, these few opinions are the exception.[251] The great majority of the examiners in the tool mark and pattern matching disciplines continue to testify to individualization.[252] Yet, as Cole claims, these limiting opinions likely do very little to overcome the "cultural assumption" of fingerprint infallibility, which as discussed could lead to latent print examiner's usurpation of the jury function.[253]

Additionally, the problem of "overclaiming" does not make exclusion necessary. Instead, the solution would be to require a different framing of the testimony. Rather than offering a definitive conclusion about the truthfulness of the witness, the examiner could frame his/her testimony in the language of probability. The examiner could, using the Bayesian likelihood ratio, testify that the result of the test, saying the defendant was truthful, is "*n*" times more likely to be seen if the defendant is telling the truth than if the defendant were not telling the truth.[254] Limiting the examiner's use of definitive language, as several courts done with latent print testimony, would allow the jury to consider all of the evidence together and determine, for themselves, how the polygraph examiner's assessment of the defendant fits into the greater framework of the case.

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[248] *Id.*

[249] Order, United States v. Faison, No. 2008 CF2 016636 (D.C. Super. Ct. Sept. 21, 2010).

[250] Order, State v. Angius, No. 200924231 (Or. Cir. Ct. July 2, 2010).

[251] *See* Simon A. Cole, *Where The Rubber Meets The Road: Thinking About Expert Evidence as Expert Testimony*, 52 VILL. L. REV. 803, 824–28, 830–32 (2007) (determining from a broad sample of transcripts across 12 different states that the majority of expert testimony results in rhetoric where the identification of the forensic evidence is in absolute terms).

[252] *See id.* at 820–21.

[253] *Id.* at 832.

[254] *See id.* at 832–33; Charles Yablon, *The Meaning of Probability Judgments: An Essay on the Use and Misuse of Behavioral Economics*, 2004 U. ILL. L. REV. 899, 928 n.168 (2004).

VII. THE RATIONALE BEHIND EXCLUSION

Courts and critics cite the unacceptably high or unknown error rate, the lack of proper validation studies, and the lack of agreement among the relevant scientific community to justify the routine exclusion of polygraph evidence and, more recently, fMRI lie detection. Unrelated to the quality of the science, courts contend that to allow polygraph evidence would usurp the jury function, and that in usurping the jury function it would fundamentally alter the American criminal trial.

The preceding sections demonstrate that these arguments do not explain the exclusion of polygraph evidence. Systematic analysis demonstrates that lie detection is not unique among forensic sciences, except in the way that courts have treated it. Even failed forensic assays have made it into the courtroom before the flaws became so obvious the scientific community and the courts had no choice but to abandon the technique. Latent fingerprint analysis, and a variety of other pattern matching evidence, is routinely admitted without having been properly validated, with unknown error rates, without concern for outsiders' opinions of the "science," and without contention that allowing the evidence would "usurp the jury function." Courts have simply taken experts at their word and accepted most forensic evidence on "trust." Furthermore, while DNA evidence is fundamentally sound, for the most part, it is routinely admitted and often accompanied by assertions that the "random match probability" is in the realm of "one in *x* billions." If anything were to usurp the jury's judgment, it would be evidence that is accompanied by statistics that tell these men and women that the probability of a random individual matching the unknown sample is one in a billion.

So, what truly distinguishes lie detection technology from all other forms of forensic science? Why has the bar for admissibility been set so high? The answer seems quite obvious. Yet, in its simplicity, and perhaps its controversiality, it is rarely considered seriously. Lie detection scholarship tends to focus on how judges misunderstood the science or the purpose of the evidence or suggest that the standard should be altered.[255] But, no one has asked, "Why do these judges treat polygraph with such hostility?" The admissibility decisions appear to be based

[255] Leo Kittay, Note, *Admissibility of fMRI Lie Detection: The Cultural Bias Against 'Mind Reading' Devices*, 72 BROOK. L. REV. 1351, 1393–94 (2007).

more on which party is proffering the evidence than any scientific or legal factors. Among the technologies of similar scientific validity, lie detection is the *only* technique offered almost exclusively by defense counsel. For nearly one hundred years, this fact has been cloaked in fancy legal and scientific justifications. A legal realist scholar may suggest that the exclusion of lie detection represents judges' efforts to aid the prosecution, excluding exculpatory evidence that may change the outcome of a trial, undermining the just conclusion—the defendant is guilty!

VIII. WHAT THE FUTURE HOLDS

The twenty-first century has seen efforts to move beyond the use of polygraphs for lie detection. Researchers have attempted to detect lies at the source—the brain. Brain based lie-detection technologies have included Electroencephalography (EEG), near-infrared spectroscopy, and, most notably, functional magnetic resonance imaging (fMRI).[256] With the new wave of lie detection

[256] *See* Daniel D. Langleben, *Detection of Deception with fMRI: Are We There Yet?*, 13 LEGAL & CRIMINOLOGICAL PSYCHOL. 1, 2–3 (2008). The technological and biological bases for fMRI scanning were explored by a team of researchers at Bell Laboratories, led by Seiji Ogawa, in the late 1980's. Stacey A. Tovino, *Functional Neuroimaging Information: A Case for Neuro Exceptionalism?*, 34 FLA. ST. U. L. REV. 415, 421 (2007). Generally, "[fMRI] relies on the fact that cerebral blood flow and neuronal activation are coupled." Joseph R. Simpson, *Functional MRI Lie Detection: Too Good to Be True?*, 36 J. AM. ACAD. PSYCHIATRY L. 491, 492 (2008). As activity increases in a particular region of the brain, so does the blood flow to that region. *Id.* These changes can be detected due to a phenomenon known as the blood-oxygen-level-dependent (BOLD) effect. *Id.* As Seiji Ogawa observed, the oxygenation state of hemoglobin has a detectable effect on the MR signal as a result of magnetic field inhomogeneities. *See* Tovino, *supra* at 421. Relative to brain tissue, deoxyhemoglobin is slightly paramagnetic, while oxyhemoglobin is isomagnetic. *See id.* Therefore, blood vessels with primarily oxygenated blood have little effect on magnetic field while deoxygenated blood has a distorting effect. *Id.* at 420. BOLD fMRI can detect these changes on a scale of one to two seconds, essentially allowing the operator to watch a subject think in real time. *Id.* at 492. The initial discovery of the applicability of fMRI to lie detection was quite by accident. Daniel Langleben, a psychiatrist at the University of Pennsylvania studying children with Attention Deficit Disorder (ADD), noted that research indicated that children with ADD were terrible liars. Faye Flam, *Your Brain May Soon Be Used Against You*, PHILA. INQUIRER, Oct. 29, 2002, at A1. Dr. Langleben surmised this might have to do with their lack of impulse control and thought it was possible that lying was harder than telling the truth. *See id.* He began to study whether there was a biological difference between truth and lying. *Id.* Langleben and several colleagues at Penn published a study in 2002, written up in *Neuroimage*, in which twenty-three subjects were given an

technologies, particularly fMRI lie detection, there has been a revival of interest in lie detection scholarship.[257]

In 2010, several individuals sought to offer the results of fMRI lie detection as evidence at trial. These first forays into courtrooms were unsuccessful. Judges in both cases excluded the evidence based on justifications almost identical to those cited for the exclusion of polygraph evidence.[258] In *United States v. Semrau*,[259] magistrate Tu Pham ruled that fMRI lie detection fails to meet the *Daubert* test, citing many of the same arguments that have been offered against the admissibility of polygraph evidence.[260] Magistrate Pham found that there was no known error rate outside of the laboratory for the technique.[261]

envelope containing a twenty-dollar bill and a playing card. D.D. Langleben et al., *Brain Activity During Simulated Deception: An Event-Related Functional Magnetic Resonance Study*, 15 NEUROIMAGE 727, 728–29 (2002). The subjects were told they could keep the money if they could conceal the card's identity when asked about it while being scanned in an MRI machine. *Id.* at 729. After assembling the data from the study, Langleben and his colleagues concluded that lying involved more cognitive effort than truth telling. *See id.* at 731. Research and published studies conducted by Langleben and others have narrowed the area of increased activity to several regions, including the anterior cingulated cortex, which is associated with heightened attention and error monitoring; the dorsal lateral prefrontal cortex, which is involved in behavioral control; and the parietal cortex, which processes sensory input. *Id.* at 730–31. As a result of the research, fMRI lie detection has gone commercial. Mark Harris, *MRI Lie Detectors: Can Magnetic-Resonance Imaging Show Whether People are Telling the Truth?*, IEEE SPECTRUM (Aug. 2010), http://spectrum.ieee.org/biomedical/imaging/mri-lie-detectors/0. Two companies are currently offering fMRI lie detection services: No Lie MRI, based in San Diego, California and Cephos Corporation, based in Tyngsboro, Massachusetts. *Id.* No Lie MRI uses technology licensed by Langleben and the University of Pennsylvania to analyze the data gathered from an individual's fMRI scan and determines whether the responses are true or lies. *Id.* No Lie MRI charges approximately $1,800 a scan. *Market Opportunities*, NO LIE MRI, http://noliemri.com/investors/MarketOpportunity.htm (last visited Apr. 16, 2012).

257 *See, e.g.*, Archie Alexander, *Functional Magnetic Resonance Imaging Lie Detection: Is a 'Brainstorm' Heading Toward the 'Gatekeeper'?*, 7 HOUS. J. HEALTH L. & POL'Y. 1 (2007); Kevin A. Johnson et al., *The Neuroscience of Functional Magnetic Resonance Imaging fMRI for Deception Detection*, AM. J. BIOETHICS, Sept. 2007, at 58; Kittay, *supra* note 255, at 1351; F. Andrew Kozel et al., *Detecting Deception Using Functional Magnetic Resonance Imaging*, 58 BIOLOGICAL PSYCHIATRY 605 (2005); Simpson, *supra* note 256, at 491.

258 *See* United States v. Semrau, 2010 WL 6845092, at *16 (W.D. Tenn. June 1, 2010); Wilson v. Corestaff Services L.P., 900 N.Y.S.2d 639, 642 (N.Y. Sup. Ct. 2010). In *Semrau* the court cited the Court's opinion in *Scheffer* and held that the explanations for the exclusion of polygraph remained true for fMRI lie detection. *Semrau*, 2010 WL 6845092, at *15 n.21.

259 2010 WL 6845092 (W.D. Tenn. June 1, 2010).

260 *Id.* at *11, *16.

261 *Id.* at *11.

Additionally, citing the scholarly literature published about the use of fMRI lie detection, Magistrate Pham concluded the technique has not gained general acceptance in the scientific community.[262] He wrote, "experts . . . are of the opinion [it] 'is currently not ready to be used in real-world lie-detection.'"[263] He found that, "they haven't convinced the broader neuroscience community that the fMRI method is good enough yet to use in the real world."[264]

In *Wilson v. Corestaff Services L.P.*,[265] Brooklyn Judge Robert H. Miller, addressed the scientific issues associated with admissibility in a superficial manner.[266] The court found that "even a cursory review of the scientific literature demonstrates that the plaintiff is unable to establish that the use of the fMRI test to determine truthfulness or deceit is accepted as *reliable* in the relevant scientific community."[267] The primary rationale for exclusion was based on New York's interpretation of the *Frye* test.[268] Judge Miller concluded that fMRI lie detection would contravene the jury's right to assess a witness' credibility.[269] Judge Miller wrote, "[s]ince credibility is a matter solely for the

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[262] *Id.* at *13.

[263] *Id.*

[264] *Id.* (citing Ingfei Chen, *The Court Will Now Call Its Expert Witness: The Brain,* STANFORD U. NEWS (Nov. 19, 2009), http://news.stanford.edu/news/2009/november16/greely-neurolaw-issues-111909.html. For several years, academics have criticized the relatively few studies conducted on the use of fMRI for detecting deception. According to experts, the tests lack ecological validity and tell us very little about the ability to take fMRI lie detection to the real-world, e.g., a criminal investigation. According to these critics, the testing protocols do not mimic the real-world situations in which Laken attempts to use the technique. Typically, the scientific studies assessing the error rate involve a small group of individuals (approximately $n = 30$) who are instructed to either commit a mock crime, e.g., stealing a CD or to do nothing. Some of the participants are told to be deceptive about whether they committed the mock crime and are offered an incentive, e.g., fifty dollars, if they are able to conceal their deception. Researchers assessing the deceptiveness are blinded to which subjects were told to be deceptive and the algorithm ultimately determines which set of responses is deceptive. Critics of this technique suggest these tell us very little about how well this technique could detect deception. *See* Ishani Ganguli, *Watching the Brain Lie: Can fMRI Replace the Polygraph?*, THE SCIENTIST, May 1, 2007, at 40, *available at* http://classic.the-scientist.com/article/home/53137/.

[265] 900 N.Y.S.2d 639 (Sup. Ct., N.Y. County 2010).

[266] *Id.* at 642.

[267] *Id.* (emphasis added).

[268] *See id.* (explaining that witness credibility is an issue for the jury to decide and therefore failed to meet the *Frye* test).

[269] *Id.*

jury and is clearly within the ken of the jury, plaintiff has failed to meet this key prong of the *Frye* test and no other inquiry is required."[270]

Based on these early fMRI cases and the analysis detailed in the preceding sections of this paper, it seems unlikely that any lie detection technologies will be widely accepted in American courtrooms. Justice Hans Linde of the Oregon Supreme Court hints at this fact.[271] He suggests that lie detection will be forever excluded from courts, regardless of the progress made in refining the accuracy of the device.[272] In *State v. Lyon*,[273] Justice Linde wrote, "I doubt that the uneasiness about electrical lie detectors would disappear even if they were refined to place their accuracy beyond question. Indeed, I would not be surprised if such a development would only heighten the sense of unease and the search for plausible legal objections."[274]

[270] *Id.*

[271] *See* State v. Lyon, 744 P.2d 231, 234–35 (Or. 1987) (Linde, J., concurring).

[272] *Id.* at 235.

[273] 744 P.2d 231 (Or. 1987).

[274] *Id.* at 235.