A Critical Look at the Admissibility of Polygraph Evidence in the Wake of Daubert: The Lie Detector Fails the Test

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The polygraph and other deception detection instruments have suffered through a tumultuous seventy years in the American legal system. The issue of lie detector admissibility first arose in the landmark decision of Frye v. United States, in which a court held that the proffered expert scientific evidence must gain the “general acceptance” of the relevant scientific community prior to gaining admittance at trial. Since then, courts have struggled to determine the admissibility of “scientific” evidence that purported to distinguish between truths and lies. Over time,
three dominant approaches regarding the admissibility of polygraph testimony emerged. The first approach, which a majority of jurisdictions adopted, was a per se rule of inadmissibility barring the use of polygraph test results for any reason whatsoever. The second approach allowed the use of the evidence only when both parties stipulated in advance to its inclusion. Lastly, a few jurisdictions chose to allow the use of polygraph evidence at trial when specified conditions were met, even without stipulation. The vast majority of courts maintained a per se inadmissibility rule, citing, among other things, unreliability, undue jury influence, and lack of general acceptance in the relevant scientific community.

In 1993, in Daubert v. Merrell Dow Pharmaceuticals, Inc., the Supreme Court altered the standard that courts were to use in judging the

5. See United States v. Piccinonna, 885 F.2d 1529, 1533-34 (11th Cir. 1989); see also infra notes 6-8 and accompanying text.

6. See, e.g., United States v. Skeens, 494 F.2d 1050, 1053 (D.C. Cir. 1974) (upholding a per se rule of inadmissibility); Marks v. United States, 260 F.2d 377, 382 (10th Cir. 1959) (rejecting polygraph evidence); Grant v. State, 374 S.W.2d 391, 392 (Tenn. 1964) (choosing to exclude polygraph test results).

7. See, e.g., Anderson v. United States, 788 F.2d 517, 519 n.1 (8th Cir. 1986) (admitting only stipulated polygraph results); State v. Valdez, 371 P.2d 894, 900 (Ariz. 1962) (admitting polygraph evidence pursuant to a stipulation signed by both parties); Codie v. State, 313 So. 2d 754, 756 (Fla. 1975) (permitting the admission of polygraph results based on oral stipulation, so long as the defendant voluntarily submits to the polygraph test); State v. Roach, 576 P.2d 1082, 1086 (Kan. 1978) (allowing the admission of polygraph evidence if so stipulated on the record, provided defendant consents to the examination, the examiner is subject to cross-examination, and the court finds the examiner and test procedures acceptable); Cullin v. State, 565 P.2d 445, 457 (Wyo. 1977) (requiring cross-examination of the examiner and a showing of test reliability in addition to the stipulation).

8. See, e.g., United States v. Miller, 874 F.2d 1255, 1262 (9th Cir. 1989) (holding that polygraph evidence can be admissible if used for a limited purpose); United States v. Bowen, 857 F.2d 1337, 1341 (9th Cir. 1988) (admitting polygraph testimony in order to show that a test has been given, notwithstanding the results); United States v. Gipson, 24 M.J. 246, 253 (C.M.A. 1987) (holding polygraph evidence to be admissible to determine if the testee lied during the examination); State v. Dorsey, 539 P.2d 204, 204-05 (N.M. 1975) (allowing the admission of polygraph evidence provided the examiner is qualified, the testing process can be shown to be reliable, and the actual tests are valid).

9. See McCall, supra note 1, at 369. Professor McCall asserts that these grounds are “illogical and should no longer be invoked after Daubert.” Id. This Comment will cast significant doubt upon Professor McCall’s theory.

The last reason stated for rejecting polygraph testimony, lack of general acceptance, was derived from Frye v. United States. See 293 F. at 1014; see also infra Part II.A (describing the test set out in Frye). The general acceptance standard became the yardstick by which courts ascertained the admissibility of all scientific evidence. See Paul C. Gianelli, The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later, 80 COLUM. L. REV. 1197, 1205-06 (1980) (providing an in-depth analysis of the impact of the Frye decision); see also infra note 85.

admissibility of expert scientific testimony.11 According to Daubert, the Federal Rules of Evidence displaced the Frye test of general acceptance.12 General acceptance was no longer the crucial factor in determining the admissibility of expert scientific evidence.13 Instead, Rule 702, dealing with expert testimony,14 and the rest of the Federal Rules were controlling.15 Under Daubert, trial judges are responsible for assuring that proposed testimony is "scientific knowledge" capable of aiding the trier of fact in resolving an issue at hand.16 If so, the evidence is admissible.17

Many commentators predicted that the Daubert decision would have little long-term effect on the admissibility of proffered scientific testimony.18 The Daubert standard, however, has profoundly influenced recent rulings regarding polygraph testimony.19 Some jurisdictions main-
taining per se rules of inadmissibility have been compelled to re-evaluate their positions in the wake of the Daubert mandate. As a result, the potential for admissibility of polygraph evidence appears to be greater than ever before.

Yet, are such reassessments wise? Many of the arguments used to attack the sagacity of admitting polygraph data are still viable under the Daubert standard. Questions abound regarding the theory behind the polygraph, the test’s validity, the standards that control both the examiners and the actual tests themselves, the impact of polygraph results

See id. at 1361. One commentator predicted such reliance shortly after Daubert was decided. See Leading Cases, supra note 18, at 255. According to this theory, since trial judges lack the expertise to carry out the gatekeeping role, their ability to perform this function “will depend upon effective use of expert evaluations of scientific validity.” Id.


21. See, e.g., United States v. Posado, 57 F.3d 428, 434 (5th Cir. 1995) (removing the per se rule of inadmissibility for polygraph evidence); Chatwin v. Davis County, 936 F. Supp. 832, 834-35 (D. Utah 1996) (detailing the current trend in state and federal courts to reconsider the admissibility of polygraph testimony); Galbreth, 908 F. Supp. at 896 (admitting testimony by a polygraph expert); Crumby, 895 F. Supp. at 1364 (allowing polygraph evidence into trial for a “limited purpose”). See generally McCall, supra note 1, at 422 (concluding that “[t]he pariah status of polygraph evidence is obviously coming to an end”).

22. See generally infra Part IV (applying the Daubert criteria to the question of polygraph admissibility). For instance, Daubert encourages the trial judge to analyze the “standards controlling the technique’s operation.” Daubert, 509 U.S. at 594. “[G]eneral observations” such as these are designed to guide the judge in reaching a decision as to admissibility. Id. at 593. Thus, assaults on the standards controlling the polygraph’s application are still vital in determining if the evidence is to be admitted. See infra Part IV.B (explaining that, at present, polygraph standards would fail under Daubert).

23. See, e.g., H.R. REP. No. 100-208, at 7 (1987) (questioning the theory that an analysis of physiological stress is in any way correlated with deceptive statements); Lykken, supra note 2, at 26 (arguing that there exists no physiological response unique to lying); Benjamin Kleinmuntz & Julian J. Szucko, On the Fallibility of Lie Detection, 17 L. & Soc’y REV. 85, 87 (1982) (“[T]here is no reason to believe that lying produces distinctive physiological changes that characterize it and only it.”).

24. See, e.g., UNITED STATES CONGRESS OFFICE OF TECHNOLOGY ASSESSMENT, SCIENTIFIC VALIDITY OF POLYGRAPH TESTING: A RESEARCH REVIEW AND EVALUATION 97 (1983) [hereinafter OTA REPORT] (citing polygraph studies that revealed validity rates of approximately 60%); 1 Paul C. Giannelli & Edward J. Imwinkelried, SCIENTIFIC EVIDENCE § 1-5(B), at 14 (2d ed. 1993) (highlighting the difficulties inherent in identifying the proper field to be used in field studies); David T. Lykken, The Validity of Tests: Caveat Emptor, 27 JURIMETRICS J. 263, 265 (1987) (revealing polygraph validity rates of only 70%). But see David C. Raskin, The Polygraph in 1986: Scientific, Professional and Legal Issues Surrounding Application and Acceptance of Polygraph Evidence, 1986 UTAH L. REV. 29, 43 (relying on studies which reveal polygraph results of 95% in accuracy upon compliance with certain conditions).

25. See, e.g., Honts & Quick, supra note 3, at 989 (noting that there is “no one specific technique or test that is used for psychophysiological credibility assessment”);
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on juries, and the time squandered in determining admissibility. In addition, the trial judge still must consider Frye's general acceptance test in reaching his final determination.

This Comment examines the admissibility of polygraph evidence in light of Daubert. First, this Comment describes the function, techniques, and theoretical notions behind the polygraph machine itself. Second, this Comment examines the prior history of the polygraph in the American judicial system, including Daubert, the decision that changed the standards by which courts determined polygraph admissibility. Focusing on the initial applications of Daubert, this Comment concludes that polygraph evidence fails the Daubert admissibility test due to unreliable rates of error, lack of standardized examinations and examiner testing, lack of general scientific acceptance, and problems associated with unfair jury prejudice.

I. THE SCIENCE BEHIND THE POLYGRAPH

A. Technical Analysis of the Polygraph

The polygraph is a device that measures physiological reactions of humans in an attempt to determine the veracity of statements they make. It consists of an assortment of different scientific instrumentalities: a pneumograph tube, a cardio-cuff, and a number of sensitive elec-

McCall, supra note 1, at 415 (stressing the need for national standards governing polygraph exams and examiners); Raskin, supra note 24, at 66 (criticizing current polygraph standards); see also infra Part IV.B (attacking the current level of training for polygraph examiners).

26. See Morris D. Forkosch, The Lie Detector and the Courts, 16 N.Y.U. L. Q. REV. 202, 229-30 (1939) (determining that polygraph evidence has a profound prejudicial impact on jury decisions); Giannelli, supra note 9, at 1240 & n.319 (noting that some studies analyzing the effects of polygraph evidence reveal prejudicial impacts on juries); Alan Markwart & Brian E. Lynch, The Effect of Polygraph Evidence on Mock Jury Decision-Making, 7 J. POLICE SCI. & ADMIN. 324, 324 (1979) (concluding that certain polygraph evidence may be a crucial factor in deciding cases); see also infra Part IV.D (discussing the application of Rule 403 to the question of polygraph admissibility).

27. See Brown v. Darcy, 783 F.2d 1389, 1396 n.13 (9th Cir. 1986) (discussing the time dissipated in ascertaining polygraph admissibility).

28. See Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 594 (1993). The Court in Daubert recognized the Frye test as one of the factors to be considered when determining the question of expert scientific evidence admissibility. See id.

29. See, e.g., GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 217-18 (defining the polygraph's function as the "recording of physiological responses"); MCCORMICK, supra note 2, § 206, at 373 (describing the polygraph's purpose as the recording of "autonomic physiological functions"); Raskin, supra note 24, at 31 (recognizing the function of the polygraph as the measuring of physiological reactions).

30. See H.R. REP. NO. 100-208, at 3 (1987) (describing the instrumentalities of the
trodes. After an examiner attaches these instruments to the subject, the devices continually monitor changes in respiration, blood pressure and flow, pulse, and galvanic skin resistance (palmar sweating). As the examiner asks questions of the subject, a polygraph chart measures the physiological shifts produced.

Although there are many hypotheses allegedly validating the polygraph, the general theory rests on the notion that when a person lies, the physiological fluctuations that the polygraph measures can be analyzed to display deception. Proponents of the polygraph concede that no single physiological reading is automatically indicative of deception. They believe, however, that polygraph examiners can analyze patterns of physiological shifts to determine the veracity of statements. Thus, the act of correctly ascertaining deception from the physiological results rests entirely upon the examiner, not the polygraph itself.

The examiner is therefore the most essential component of the polygraph testing process. This individual is responsible for almost every polygraph machine. A pneumograph is an instrument that records the "thoracic movements or volume changes [of a subject] during respiration." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1746 (3d ed. 1961).

31. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 217.
32. See Honts & Quick, supra note 3, at 990. The cardio-cuff is placed on the subject's arm around the bicep muscle and serves to monitor his blood pressure. See id. The pneumograph tubes, also referred to as volumetric sensors, are attached to the subject's chest and/or abdomen area so as to chart the individual's respiration patterns. See id. The blood flow reading is obtained by placing a photoelectric plethysmograph on one finger of the subject. See id. Lastly, palmar sweating, also called galvanic skin resistance, is determined by electrodes attached to the testee's fingers. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 217; see also infra note 33 and accompanying text (explaining the physiological measurements of the polygraph).
33. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 217 (describing the physiological responses measured by the polygraph). Even critics of the polygraph concede that the instrument is effective at accurately recording these physiological reactions. See id.
34. See id.
35. See Honts & Quick, supra note 3, at 989 (explaining the basic theory behind the polygraph and similar credibility assessment devices).
36. See Raskin, supra note 24, at 31 ("No known physiological response or pattern of responses is unique to deception.").
37. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 218 (discussing how a polygraph examiner analyzes the physiological responses in order, allegedly, to detect deception).
38. See Raskin, supra note 24, at 31 (observing the significance of the polygraph examiner in determining a subject's veracity or dishonesty).
39. See, e.g., People v. Anderson, 637 P.2d 354, 360 (Colo. 1981) ("[T]he most important factor in the proper use of a polygraph is the ability, experience, education, and integrity of the examiner."); JOHN E. REID & FRED E. INBAU, TRUTH AND DECEPTION 5 (2d ed. 1977) (describing the examiner as "the most important factor involved")
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variable vital to the examination's success: properly screening the subject,\(^{40}\) establishing a trusting relationship with the subject,\(^{41}\) thwarting attempts to manipulate the polygraph results through physical countermeasures,\(^{42}\) stimulating physiological changes,\(^{43}\) and accurately analyzing the test results.\(^{44}\) The failure to execute properly any of the above tasks seriously undermines the precision of the test results.\(^{45}\)

In addition, the examiner must conduct a pre-test interview with the subject.\(^{46}\) The interview serves to introduce the subject to the science of polygraphy and, hopefully, to instill trust in the examiner's abilities and objectivity.\(^{47}\) This pre-test screening also permits the examiner to become acquainted with the subject.\(^{48}\) This is significant because it allows

\(^{40}\) See Giannelli & Imwinkelried, supra note 24, § 8-2(A), at 218 (acknowledging the importance of the examiner in assessing the subject prior to testing and in stimulating the subject to react physiologically during testing).

\(^{41}\) See Raskin, supra note 24, at 35 (explaining that the examiner must maintain a positive relationship with the subject because doubt and suspicion on the subject's part will adversely affect the accuracy of the test).

\(^{42}\) See Giannelli & Imwinkelried, supra note 24, § 8-2(A), at 218 (listing the detection of countermeasures as a task of the polygraph examiner). Physical countermeasures are any acts undertaken by a guilty subject in an effort to distort the final polygraph result. See id. § 8-2(C), at 230. The idea is "to create reactions to the control questions stronger than the reactions that occurred when [the individual] lied to the relevant questions." Raskin, supra note 24, at 51. Spontaneous countermeasures, or those attempted without special training, have proven to be unsuccessful in defeating the polygraph machine. See id.

However, individuals given minimal training in certain physical countermeasures have been remarkably successful in producing false negative results. See id.; see also Giannelli & Imwinkelried, supra note 24, § 8-2(C), at 230; Lykken, supra note 24, at 267 (discussing the prevalence of easily learned countermeasures). Simple examples include biting the tongue or pressing one's toes to the floor during questioning so as to influence the physiological measurements transcribed on the polygraph chart. See Raskin, supra note 24, at 51.

\(^{43}\) See Giannelli & Imwinkelried, supra note 24, § 8-2(A), at 218.

\(^{44}\) See id. (listing the various tasks of the examiner in polygraph testing).

\(^{45}\) See Raskin, supra note 24, at 35 (noting the importance of the examiner in arriving at an accurate test result).

\(^{46}\) See Giannelli & Imwinkelried, supra note 24, § 8-2(B), at 219 (discussing the importance of a pre-test interview).

\(^{47}\) See id. The pre-test interview is also vital because it gives the examiner an opportunity to recognize any physical or mental disabilities of the subject. See id. Failure to recognize such infirmities may lead to skewed test results. See Raskin, supra note 24, at 35; see also supra note 24 and accompanying text (discussing the validity of polygraph tests).

\(^{48}\) See Giannelli & Imwinkelried, supra note 24, § 8-2(B), at 219.
the examiner to formulate a means of questioning that will best ensure accurate results. It also grants the examiner a chance to determine if any physical or psychological infirmities of the subject may impact the validity of the test. A poor pre-test interview increases the risk of error and decreases the chance of accuracy.

B. Polygraph Techniques and Scoring Methods

The theories that support polygraphy can best be explained by analyzing the different techniques employed by examiners. Currently, only three tests are utilized to any great extent: the relevant-irrelevant technique, the control question technique (CQT), and the directed lie control question technique.

The relevant-irrelevant test is the oldest polygraph technique still in use today. This method assumes that a stronger physiological response will be produced when a subject answers a relevant question deceptively than when the subject responds to any other relevant or irrelevant query truthfully. According to this theory, the greater the physiological re-

49. See id. According to Giannelli and Imwinkelried, the subject actually assists the examiner in the formulation of the questions to be asked during the examination. See id.

50. See REID & INBAU, supra note 39, at 233, 247 (describing how information pertaining to physical ailments or low intelligence may alter the validity of a test result).

51. See Raskin, supra note 24, at 35. According to Raskin, "psychologically insensitive and abusive" examiners often conduct polygraph tests. Id. Such practitioners profoundly impact the subject's state of mind, frequently resulting in inaccurate exam results. See id. In addition, some examiners simply ignore standard testing procedures, choosing instead to rely on their subjective interpretations of the subject's demeanor in arriving at their final conclusions. See Underwood, supra note 2, at 632.

52. See generally Honts & Quick, supra note 3, at 989 (noting that the many deception detection tests rest upon different rationales).

53. See Raskin, supra note 24, at 32-33. The relevant-irrelevant theory rests upon the notion that false responses to "crime-relevant" questions will produce a stronger physiological reaction than other questions answered truthfully. Id.

54. See Honts & Quick, supra note 3, at 990-92 (describing the control question technique).

55. See United States v. Galbreth, 908 F. Supp. 877, 885 (D.N.M. 1995) (describing the directed lie control question technique). The concealed knowledge test (CKT) is another form of polygraph testing currently administered in some areas. See Honts & Quick, supra note 3, at 992. This test relies upon the examiner to ascertain if the subject has knowledge of any facts which only the perpetrator of the crime would know. See id. Although used in Japan and Israel, few American agencies or criminal justice systems employ the CKT. See id.

56. See Honts & Quick, supra note 3, at 990. For a brief discussion of the scientific community's views on the relevant-irrelevant technique, see Raskin, supra note 24, at 33-34 (finding that most scientists reject the technique for use in criminal cases).

57. See Raskin, supra note 24, at 32. Raskin illustrates the theory behind the relevant-irrelevant technique with an example. See id. If Y exerts a stronger physiological
sponse, the greater the chance that the subject is lying. Although still employed by the Federal Bureau of Investigation and some local government agencies, the technique is subject to a very high rate of error. Most disturbing is its tendency to manifest a large percentage of false positive errors, or errors that tend to show a truthful person has lied. As a result, very few individuals consider the relevant-irrelevant technique to be an accurate form of polygraph testing.

The most popular form of testing is the CQT. Here, the examiner asks three different types of questions: neutral, control, and relevant questions. The neutral questions are asked to ascertain the subject’s chart readings when answering honestly. The control questions are intentionally stress-inducing, designed to elicit a sharp increase in the subject’s physiological response. Control questions usually are closely related to the type of crime of which the subject is accused, and are

reaction when answering “Did you shoot X?” than when asked “Is your name Y?”, then the examiner assumes deception. 58. See id. It should be remembered when evaluating the authenticity of these theories that no one has ever proven that any one physiological response is automatically indicative of deception. See supra note 36 and accompanying text (explaining that even polygraph proponents concede that no single physiological reading is automatically indicative of deception).

59. See Raskin, supra note 24, at 31-32 (commenting on the shortcomings of the relevant-irrelevant technique).

60. See Honts & Quick, supra note 3, at 990. Polygraph examinations may result in two different types of error. See Raskin, supra note 24, at 33, 42. The first is a false positive error, or an error where a truthful response is deemed to be untruthful. See id. at 42. The second is a false negative error, or a mistake which labels an untruthful test subject as being honest. See id.

61. See Honts & Quick, supra note 3, at 990. In their 1995 study on the state of the polygraph, Honts and Quick’s cursory analysis of the relevant-irrelevant technique concludes that it is “now generally considered to be invalid because it produces an extremely high false positive rate.” Id. But see Gordon H. Barland, The Polygraph Test in the USA and Elsewhere, in THE POLYGRAPH TEST: LIES, TRUTHS AND SCIENCE 73, 80 (Anthony Gale ed., 1988) (arguing that the relevant-irrelevant technique may be helpful in detecting truth from falsehoods).

62. See Honts & Quick, supra note 3, at 990 (identifying the control question test as the most popular in the United States).

63. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(B), at 221 (providing examples of the three types of questions asked by the examiner during the control question technique).

64. See id. For example, a subject would be asked, “Is this paper white?” when it clearly was in fact white. See id. The subject would answer in the affirmative, and the examiner would have a physiological readout relating how the individual responds when answering truthfully. See id.

65. See McCall, supra note 1, at 378.

66. See David C. Raskin, Science, Competence, and Polygraph Techniques, CRIM. DEF., May-June 1981, at 11, 13 (demonstrating the principle that a control question is to be of a similar subject matter as the crime charged against the subject); see also
designed to result in an untruthful response. The polygraph measures the stress produced by the uncertainty of how to answer the control question. Finally, relevant questions are those that go directly to the issue at hand.

Upon completion of the oral component of the test, the examiner compares the physiological readings of all the questions, but examines more closely the physiological responses of the subject during the relevant and control questions. The control question theory posits that a truthful individual will more likely exhibit a stronger physiological reaction to the control questions, while a deceptive individual is more prone to respond physiologically to the relevant questions. Despite its popularity, the scientific community is still divided regarding the reasonableness of the principles that underlie the CQT technique.

GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(B), at 221 (stating that “[c]ontrol questions concern ‘an act of wrongdoing of the same general nature as the main incident under investigation’”) (citing Reid & Inbau’s Truth and Deception). The question, “Did you ever intentionally harm another human being?” could serve as a control question for one accused of assault. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(B), at 221. This control question is usually designed so that it would be virtually impossible to answer the question in the negative. See id. The examiner, however, actually must influence the examination in such a way that the subject feels as if he has no choice but to lie and answer “no” to the question. See id.; see also Honts & Quick, supra note 3, at 991 (explaining the purpose behind the control question technique).

Prior to conducting the polygraph test, the examiner tells the subject that honest answers to the control questions are of the utmost importance. See Honts & Quick, supra note 3, at 991. However, the examiner is actually attempting to maneuver the subject into answering the control questions falsely in order to create a greater physiological response. See id.

If X was accused of raping Y, then the relevant question to X would be “Did you rape Y?” See id.

This theory rests on the notion that the greater the threat a question poses to an individual, the greater the physiological response. See id. If the subject is guilty of the crime charged, the relevant question should elicit a greater physiological shift. See id. Likewise, if the individual is innocent, the control question, and not the relevant question, should produce the higher physiological change. See id.

There has been no general consensus in the scientific community regarding the notion that the CQT or any other technique can accurately detect deception. See Kleinmuntz & Szucko, supra note 23, at 87 (attacking the general theory behind the polygraph that “lying produces distinctive physiological changes”). In addition, at least one commentator has noted that the control question technique is not easily implemented because “it is extremely difficult to devise control questions that would ensure the eliciting of stronger reactions in an innocent person than would the relevant questions relating to the crime of which they had been accused.” Ray H. Bull, What Is the Lie-detection Test?, in THE POLYGRAPH TEST: LIES, TRUTH AND
The third form of polygraph testing used today is known as the directed lie control question technique. According to polygraph expert Dr. David Raskin, the directed lie test rests upon the same theory as the CQT, but is less complex and easier to use. After the subject is administered a test in which he is told to lie, the examiner tells the individual that these responses can be used as a baseline to determine the veracity of future statements. The theory is that a guilty subject thus will become overly concerned during relevant questions, believing the examiner will know when he or she is lying. The chart readings, if the subject is lying, allegedly will soar at this point. Those who are innocent, however, will show a greater physiological reaction to the control questions (or directed lie questions) for the same reason as in the control question technique. As with the CQT, the results are compared to determine the truthfulness of the subject. The directed lie technique is considered easier to employ because it does not require as much psychological manipulation of the subject.

Regardless of whether the examiner employs the CQT or the directed lie control question technique, the subject is usually responsible for scoring the results of the test. The most widely used systems involve numerical evaluations that factor in only the subject's chart readings.

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73. See United States v. Galbreth, 908 F. Supp. 877, 885 (D.N.M. 1995). The Galbreth court relied upon the expert testimony of Dr. David C. Raskin in finding the directed lie control technique a more popular method of testing. See id.

74. See id. (describing Dr. David Raskin's theory of the directed lie test).

75. See id. (explaining the manner in which the directed lie control technique is administered).

76. See id.

77. See id.

78. See supra note 71 and accompanying text (describing the theory behind the control question technique).

79. See Galbreth, 908 F. Supp. at 885. Just as in the CQT, the examiner compares the physiological measurements of the relevant and control (directed lie) questions in order to determine if the subject is being truthful or dishonest. See id.

80. See id.

81. See Raskin, supra note 24, at 36. In some circumstances, more than one examiner may score the chart readings. See id. at 39. Also, a computerized system of scoring has been developed whose primary benefit is its complete objectivity. See id. at 40.

82. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(B), at 223. The oldest method of scoring was known as global evaluation. See Raskin, supra note 24, at 37. There, the examiner would analyze not only the chart measurements but also the facts of the case and his or her subjective impressions of the subject's demeanor to arrive at a score. See id. The global method is not widely used today, and has been referred to as "inferior" by at least one polygraph authority. Id. For most numerical scoring systems, examiners classify individuals who score plus six or higher as being truthful, while scores of negative six and below signal deception. See GIANNELLI & IMWINKELRIED, supra
The glaring weakness of examiner numerical scoring is that qualified "experts" in polygraphy may analyze the same physiological results and arrive at completely different conclusions. This unacceptable result has led many to favor a completely new form of numerical scoring that uses a computer to evaluate test results.

II. THE QUESTION OF POLYGRAPH ADMISSIBILITY: FROM FRYE TO DAUBERT

A. Frye v. United States: The General Scientific Acceptance Test

Prior to 1993, the standard for determining the admissibility of most expert scientific evidence was the general acceptance test described in Frye v. United States. Frye was the first case to confront the issue of lie detector admmissibility. This seemingly insignificant three-page decision became the touchstone for not only the admissibility of polygraph

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note 24, § 8-2(B), at 223. Scores between negative six and plus six are considered inconclusive. See id.

83. See Raskin, supra note 24, at 40. In the case of Floyd Fay, five different polygraph examiners tested Fay and disagreed with each other's test results. See id. at 39-40. At trial, two different examiners characterized Fay as having lied during the polygraph tests, and he was convicted of murder. See id. The polygraph evidence comprised almost the entire case against the defendant. See Hugo Adam Bedau & Michael L. Radelet, Miscarriages of Justice in Potentially Capital Cases, 40 Stan. L. Rev. 21, 113 (1987). The tests were later proven to have been "incorrectly interpreted." Id. Fay eventually was freed some two years after his arrest when the actual murderers were apprehended. See Adrian Cimerman, The Fay Case, CRIM. DEF., May-June 1981, at 7, 10. Had the state of Ohio not repealed its death penalty in 1978, Fay very likely would have been executed prior to his release. See Bedau & Radelet, supra, at 113.

84. See Raskin, supra note 24, at 40. In the standard numerical scoring approach, the examiner compares the physiological readings of the subject during the relevant and control portions of the test. See id. at 37. Each comparison is assigned a score by the examiner. See id. In the computer assisted method of scoring, the physiological fluctuations (galvanic skin resistance or blood pressure) are separated into their individual measurements and automatically read into the computer. See id. at 40 n.32. A series of calculations designed to balance the importance of each measurement takes place, resulting in a single discriminant score. See id. This score is then entered into a theorem designed to predict the probability of the subject's truthfulness. See id.

85. 293 F. 1013 (D.C. Cir. 1923); see also Giannelli, supra note 9, at 1205 (characterizing Frye as the dominant standard when determining the admissibility of expert scientific testimony). As Frye became the standard for the admissibility of expert scientific testimony in general, it was most consistently applied in cases involving polygraph testimony. See Mark McCormick, Scientific Evidence: Defining a New Approach to Admissibility, 67 IOWA L. REV. 879, 884 (1982) [hereinafter Scientific Evidence].

86. See McCall, supra note 1, at 366; see also infra note 89 (describing the systolic blood pressure machine at issue in Frye).

87. See Frye, 293 F. at 1013.
results, but also the standard for the admissibility of expert scientific evidence in general.88

In Frye, the petitioner appealed a conviction of second degree murder, contending that the lower court erred in excluding testimony by an expert who used systolic blood pressure measurements to conduct deception testing.89 In upholding the decision to exclude the testimony, the appellate court recognized that there existed a “twilight zone” that separated experimental theories from scientifically proven principles.90 Announcing the test of general acceptance, the court concluded that an experimental theory becomes scientific fact only when it is “sufficiently established to have gained general acceptance in the particular field in which it belongs.”91 General acceptance may be shown by producing scientific publications, judicial decrees, or testimony from scientific peers vouching for the theory at issue.92 Thus, to gain admittance, the court required that expert scientific evidence be generally accepted by the related scientific community.93

B. Attacking the Question of Polygraph Admissibility

In the seventy years between Frye and Daubert, most jurisdictions grappled with the question of polygraph admissibility.94 Prior to 1973, 88. See Scientific Evidence, supra note 85, at 884 (noting the frequent application of Frye to the question of polygraph admissibility); see also Giannelli, supra note 9, at 1205 (describing Frye as the primary test in gauging the admissibility of expert scientific testimony).
89. See Frye, 293 F. at 1013. The basic premise behind the test applied in Frye was that “utterance of a falsehood requires a conscious effort, which is reflected in the blood pressure.” Id. at 1014. By analyzing the blood pressure fluctuations, an examiner could allegedly determine when a subject spoke falsehoods. See id.
90. See id. at 1014.
91. Id. In an oft-quoted passage, the court stated:
   Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.
Id.
92. See MCCORMICK, supra note 2, § 203, at 363.
93. See Frye, 293 F. at 1014.
94. See, e.g., United States v. Kampiles, 609 F.2d 1233, 1244 (7th Cir. 1979) (allowing the admission of polygraph evidence due to special circumstances); State v. Valdez, 371 P.2d 894, 900 (Ariz. 1962) (allowing polygraph evidence to be admitted pursuant to signed stipulation); Commonwealth v. Vitello, 381 N.E.2d 582, 596-97 (Mass. 1978) (partially overruling a previous contradictory case and holding that polygraph evidence was
federal and state courts almost unanimously refused to admit the results of polygraph tests. It was clear that the courts were not yet ready to allow the "electrical-oath helper" to invade the criminal justice system.

1. The Majority Rule: Inadmissibility

From 1973 to 1993, federal courts and many state courts simply applied the Frye test and decided that the lack of general acceptance was sufficient to warrant exclusion of polygraph evidence. Others courts, while still denying the results' entrance into trial, noted the test's unreliability or tendency to waste time.

The United States Court of Appeals for the Eighth Circuit crystallized many of these anti-polygraph arguments in United States v. Alexander. In Alexander, the issue was whether the lower court erred in refusing to

inadmissible to prove guilt in the Government's case-in-chief), overruled in part by Commonwealth v. Mendes, 547 N.E.2d 35 (Mass. 1989); State v. Biddle, 599 S.W.2d 182, 185 (Mo. 1980) (upholding a per se rule of inadmissibility).

95. See, e.g., United States v. Salazar-Gaeta, 447 F.2d 468, 469 (9th Cir. 1971) (refusing to admit polygraph evidence); Marks v. United States, 260 F.2d 377, 382 (10th Cir. 1958) (adopting a per se rule of inadmissibility); United States v. Bando, 244 F.2d 833, 841 (2d Cir. 1957) (same); Pulakis v. State, 476 P.2d 474, 479 (Alaska 1970) (declaring a need for further proof of reliability before accepting polygraph evidence); Kaminski v. State, 63 So. 2d 339, 340 (Fla. 1952) (holding lie detection testimony inadmissible); see also McCall, supra note 1, at 375 (discussing the general consensus of inadmissibility for polygraph evidence in the wake of Daubert).

96. United States v. Jenkins, 470 F.2d 1061, 1064 (9th Cir. 1972). In Jenkins, one issue involved the admissibility of polygraph evidence. Id. The defendant, Robert Jenkins, underwent a private polygraph examination in order to prove his innocence. See id. When this experimental test, referred to by the court as a "dry run," exculpated Jenkins, he attempted to force the prosecution into stipulating to another polygraph exam conducted by an operator of the Government's choice. See id. When the Government refused, Jenkins sought to introduce the results of his practice test into trial. See id. The trial judge refused the evidence, and the Ninth Circuit affirmed. See id.

97. See, e.g., Marks, 260 F.2d at 382 (applying the Frye test and flatly denying admissibility); Kaminski, 63 So. 2d at 340 (citing Prye in denying admissibility to lie detector evidence); People v. Welke, 68 N.W.2d 759, 761 (Mich. 1955) (reaffirming Michigan's refusal to allow polygraph evidence into trials).

98. See, e.g., United States v. Helton, 10 M.J. 820, 824 (A.F.C.M.R. 1981). In Helton, the Air Force Court of Military Review rejected the proffered polygraph testimony until such time that "it [could] be demonstrated that the opinion testimony resulting from polygraph testing [was] generally more reliable than the court-martial fact-finder in determining truthfulness." Id.

99. See Brown v. Darcy, 783 F.2d 1389, 1397 (9th Cir. 1986). In Brown, the district court entertained oral arguments on the admissibility issue and examined the detailed opinions of five polygraph experts. See id. Attorneys for both sides then spent two days of testimony in front of the jury detailing the intricacies of their polygraph positions. See id. The Ninth Circuit noted that the precious judicial resources consumed in an earlier trial could be conserved in future cases with a per se rule of inadmissibility. See id.

100. 526 F.2d 161 (8th Cir. 1975).
allow a defendant to introduce favorable polygraph evidence at trial. The court first applied the Frye general acceptance test and found that the unreliable nature of polygraph evidence precluded its admittance. In addition, the court relied heavily on the highly prejudicial impact that the testimony would likely have on the jury. For these reasons, the court affirmed the lower court decision to exclude the proffered test results.

As time passed, distinctions among jurisdictions and even within jurisdictions became more common. Many courts continued to adhere to a per se rule of inadmissibility. While maintaining a steadfast rule

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101. See id. at 162. At trial, the police claimed that the defendant, Steven Alexander, attempted to conceal a weapon as he stepped from his car. See id. Alexander vehemently denied the accusation. See id.

102. See id. at 166. The court cited not only the high rate of error associated with the polygraph, but also a lack of confidence in the examiners who conduct the tests. See id.

103. See id. at 168. The court found that the polygraph evidence would threaten the jury's traditional role as factfinders:

> 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 unimpeachable 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. Id.

104. See id. at 170.


106. The First, Second, Fifth, and District of Columbia Circuits have upheld a complete exclusion of all polygraph evidence. See, e.g., deVries v. St. Paul Fire & Marine Ins. Co., 716 F.2d 939, 945 (1st Cir. 1983) (excluding expert polygraph testimony and questioning its scientific value); United States v. Gloria, 494 F.2d 477, 483 (5th Cir. 1974) (refusing to admit polygraph testimony because it lacked scientific reliability); United States v. Skeens, 494 F.2d 1050, 1053 (D.C. Cir. 1974) (acknowledging unity among the federal circuits in their rejection of polygraph testimony); United States v. Bando, 244 F.2d 833, 841 (2d Cir. 1957) (refusing to admit polygraph evidence due to its unreliability).

Virtually all state courts refused to admit polygraph test results as well. See, e.g., Peo-
against admittance, some courts left unanswered the question of future admissibility in the event of technical advancements in polygraphy.\textsuperscript{107} Other courts decided to allow polygraph testimony only when the parties stipulated to its use before trial.\textsuperscript{108} Some courts, instead of applying a per se rule of inadmissibility, stated that the admissibility decision rested within the discretion of the trial judge.\textsuperscript{109} Despite the disparity regarding which standard to apply, polygraph testimony was still inadmissible in a majority of jurisdictions.\textsuperscript{110}

2. The Minority View: Attempts at Admissibility

In 1975, New Mexico broke from the norm, becoming the only jurisdiction to embrace polygraph results fully,\textsuperscript{111} complete with a rule of evidence, Rule 707, that detailed the criteria for admittance.\textsuperscript{112} In \textit{State v. Dorsey},\textsuperscript{113} the New Mexico Supreme Court overruled earlier precedent that required signed stipulations as a prerequisite to polygraph admissibility.\textsuperscript{114} The court followed the weight of national authorities and refused to admit the polygraph evidence.

\textsuperscript{107} See, e.g., \textit{United States v. Clark}, 622 F.2d 917, 917 (5th Cir. 1980). The Fifth Circuit agreed that it would be willing to reconsider the issue of polygraph admissibility, provided a party proffered “evidence tending to show advances in the state of polygraph art.” \textit{Id.}

\textsuperscript{108} See, e.g., \textit{United States v. Oliver}, 525 F.2d 731, 736-37 (8th Cir. 1975) (prohibiting polygraph test results absent a signed stipulation by both parties); \textit{State v. Souel}, 372 N.E.2d 1318, 1323 (Ohio 1978) (admitting stipulated polygraph results provided certain requirements are met); \textit{Cullin v. State}, 565 P.2d 445, 458 (Wyo. 1977) (accepting stipulated polygraph testimony when certain “foundational” requirements are met).

\textsuperscript{109} See \textit{Webster}, 639 F.2d at 186. The court in \textit{Webster} held it was within the trial court’s discretion to determine the admissibility of polygraph test results. \textit{Id.} The court followed national authorities and refused to admit the polygraph evidence. See \textit{id.}

\textsuperscript{110} See \textit{McCall}, supra note 1, at 375 (explaining that the majority of appellate opinions between \textit{Frye} and \textit{Daubert} denied the admission of polygraph results).

\textsuperscript{111} See \textit{State v. Dorsey}, 539 P.2d 204, 204-05 (N.M. 1975).

\textsuperscript{112} See \textit{N.M. STAT. ANN.} § 11-707 (Michie 1995). Passed by the New Mexico Supreme Court, this rule of evidence was more strict than the requirements of \textit{Dorsey}. See \textit{McCall}, supra note 1, at 386-87. The evidence could now only be used to impeach or corroborate certain witness testimony. See \textit{N.M. STAT. ANN.} § 11-707(C). To prevent abuses, the court required either an audio or visual recording of the entire polygraph examination. See \textit{id.} § 11-707(E). The examiner, in addition to adequately proving his qualifications, had to follow a number of requirements as established in other provisions of the code. See \textit{id.} § 11-707(B). The party seeking to introduce the evidence was required to give thirty days written notice to the opposition, including copies of the polygraph charts and any previous test results. See \textit{id.} § 11-707(D). Lastly, the rule declared witnesses could not be forced to undergo a polygraph examination. See \textit{id.} § 11-707(G); \textit{see also} \textit{McCall}, supra note 1, at 385-88 (analyzing New Mexico’s statute).

\textsuperscript{113} 539 P.2d 204 (N.M. 1975).
The court established three requirements in order for a polygraph test to be admitted into evidence. First, the polygraph examiner must be well-qualified. Second, the reliability of the machine must be proven by authorities in the field to be adequate. Lastly, the test made on the subject must be valid.

In addition to New Mexico, two other states experimented with a policy admitting polygraph testimony. A California decision, *Witherspoon v. Superior Court*, attempted to follow suit, but was overridden when the California state legislature intervened and refused to admit polygraph evidence or any other testimony pertaining to a polygraph examination, unless stipulated to by the parties. Massachusetts also tinkered with the idea of polygraph admissibility, only to overrule its experiment some thirteen years later due to the polygraph's failure to develop into a reliable scientific tool.

114. See id. at 205.
115. See id. The trial court was left to make the determination as to whether or not a party had sufficiently met these three burdens. See id.
116. See id. Unfortunately, the court did not state any minimum qualifications for determining which examiners were well-qualified. See id.
117. See id. The court chose to rely upon the testimony of "authorities in the field" to determine the machine's reliability. Id.
118. See id.
120. 183 Cal. Rptr. 615 (Ct. App. 1982). In *Witherspoon*, the court criticized the "'knee jerk' response[s]" of jurisdictions applying *Frye* that automatically excluded the polygraph testimony. Id. at 618. The court found that "no sound legal basis" existed for a per se rule of inadmissibility, and allowed polygraph evidence into trial subject to the judge's discretion. Id. at 620-21. In upholding the basic theory behind polygraphy, the *Witherspoon* court compared a polygraph machine to the detection skills of any observant human, finding the polygraph to be nothing more than a more finely tuned deception detector. Id. at 621. In making this comparison, the court stated, "[w]ho... can honestly say that they have never experienced the rapid breathing, sweating in the palms of the hands and the feeling of 'flushing' in the face connected with an attempt to deceive[?]"
121. See *Witherspoon v. Superior Court*, 183 Cal. Rptr. 615 (Ct. App. 1982). In *Witherspoon*, the court criticized the "'knee jerk' response[s]" of jurisdictions applying *Frye* that automatically excluded the polygraph testimony. Id. at 618. The court found that "no sound legal basis" existed for a per se rule of inadmissibility, and allowed polygraph evidence into trial subject to the judge's discretion. Id. at 620-21. In upholding the basic theory behind polygraphy, the *Witherspoon* court compared a polygraph machine to the detection skills of any observant human, finding the polygraph to be nothing more than a more finely tuned deception detector. Id. at 621. In making this comparison, the court stated, "[w]ho... can honestly say that they have never experienced the rapid breathing, sweating in the palms of the hands and the feeling of 'flushing' in the face connected with an attempt to deceive[?]"
123. See *Commonwealth v. Mendes*, 547 N.E.2d 35, 41 (Mass. 1989). In 1989, the Supreme Judicial Court of Massachusetts re-evaluated the *A Juvenile* decision which allowed for limited admissibility of polygraph testimony. See id. at 36. The court recognized that the admission of polygraph testimony has always been problematic: its reliance upon examiners; the subjective nature of the testing; the unreliability of test results; the opportunity for jury confusion and prejudice; the possibility of usurping the role of the jury; and the extra weight it placed on trial judges. See id. at 41. In overruling *A Juvenile*,
While most jurisdictions were not so liberal, as the polygraph began to be perceived as more reliable, two federal circuit courts which had been staunchly opposed to admitting polygraph testimony reconsidered their per se rules of inadmissibility. These courts permitted polygraph evidence if special circumstances existed. Sensing that the trend in the federal circuits was toward an abolition of the per se rule, the Eleventh Circuit took a large step toward admitting polygraph results in United States v. Piccinonna.

In Piccinonna, the Court of Appeals for the Eleventh Circuit chose to allow the introduction of polygraph evidence at trial. The sole issue was the admissibility of the defendant's expert polygraph testimony. In a comprehensive opinion, the Piccinonna court analyzed polygraph standards and procedures, determining that the polygraph was a reliable and beneficial instrument. The court outlined two instances in which the evidence would be admissible. The first was in the case of stipula-

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the court expressed its views regarding the current and future states of polygraphy:

[T]he evidentiary shortcomings of polygraphy have not been alleviated in the slightest way. In addition, it is clear from the extensive record in this case and the available literature that our hope that polygraphy would mature to the point of general scientific acceptance has not materialized. Further hope or expectation in that regard is no longer warranted.

Id.

124. See supra note 95 and accompanying text (discussing the per se rules of inadmissibility in many jurisdictions).

125. See United States v. Kampiles, 609 F.2d 1233, 1244-45 (7th Cir. 1979) (holding that polygraph evidence may be admissible to rebut assertions that a confession was coerced); United States v. Johnson, 816 F.2d 918, 923 (3d Cir. 1987) (relying on Kampiles to admit polygraph evidence).

126. See Wolfel v. Holbrook, 823 F.2d 970, 972 (6th Cir. 1987). In Wolfel, the United States Court of Appeals for the Sixth Circuit found polygraph testimony to be admissible provided the proffered evidence passed a two-pronged test. Id. The trial court must first determine whether the proffered testimony is relevant. See id. Next, if relevant, the court may admit the evidence only if its probative value outweighs its prejudicial impact. See id.

127. 885 F.2d 1529 (11th Cir. 1989).

128. See id. at 1536.

129. See id. at 1530. The defendant, Julio Piccinonna, claimed that the trial judge erred in refusing to admit polygraph testimony that would have buttressed his plea of innocence. See id.

130. See id. at 1535. The court noted that improved reliability, combined with evidence tending to show that juries were not swayed by polygraph testimony, led to the conclusion that a per se rule of inadmissibility was improper. See id. The court failed to cite any source supporting the proposition that juries were not influenced by exam results.

131. See id. The court's test applied only if the proffered testimony was relevant to resolving an issue of fact. See id. at 1531. If not relevant, then the evidence was inadmissible under Rule 402 of the Federal Rules of Evidence. FED. R. EVID. 402.
tion. The second was in situations in which the testimony was to be used to impeach or corroborate a witness at trial.

In the latter instance, the testimony could be used only if three conditions were met prior to trial. First, the party using the evidence must give adequate notice to the opposing party. Next, the opposing party must be given a reasonable time to initiate its own polygraph examination by a qualified expert. Lastly, testimony that otherwise violated the Federal Rules of Evidence would be inadmissible. These three conditions were designed to minimize the danger of unfair prejudice.

A strong dissent attacked the *Piccinonna* majority, questioning the theory behind polygraphy, detailing the effectiveness of countermeasures, and citing low polygraph reliability rates. The dissent also objected on the grounds that the introduction of polygraph evidence would

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132. See *Piccinonna*, 885 F.2d at 1536.
133. See id.
134. See id.
135. See id. The court never defined the term "adequate notice." Id.
136. See id. The determination of what constituted a reasonable opportunity for an opposition's expert to conduct a similar polygraph examination was apparently left within the discretion of the court. See id.
137. See id. For example, it would violate the Federal Rules to include evidence that was considered irrelevant pursuant to Rule 402 or hearsay pursuant to Rule 801(c). See FED. R. EVID. 402, 801(c).
138. See *Piccinonna*, 885 F.2d at 1536. The *Piccinonna* court was most concerned with potential violations of Rule 403 of the Federal Rules of Evidence. Id. Under Rule 403, the court applies a balancing test in which evidence is excluded if its "probative value is substantially outweighed by the danger of unfair prejudice." FED. R. EVID. 403. The court sought to admit polygraph evidence only when the potential for prejudice was reduced. See *Piccinonna*, 885 F.2d at 1537. This prejudicial impact often served as the primary reason for the exclusion of the evidence. See Brown v. Darcy, 783 F.2d 1389, 1396 (9th Cir. 1986) (discussing the polygraph's "overwhelming potential for prejudice").
139. See *Piccinonna*, 885 F.2d at 1537-42 (Johnson, J., concurring in part and dissenting in part). The dissent illuminated the controversy in the scientific community over whether the physiological responses the polygraph measured were actual indicators of deception. See id. at 1539.
140. See id. at 1538. The dissenting opinion cited the OTA Report in concluding that countermeasures could be successful in producing invalid polygraph test results. See id.
141. See id. at 1540. The opinion referred to the results of six prior field studies. See id. In them, false positive rates averaged 19.1%, false negative rates averaged 10.2%, and average guilty detection averaged 86.3%. See id. False negative errors occur when the polygraph results incorrectly label a dishonest person as one telling the truth. See supra note 60 and accompanying text. False positive errors result when the examiner incorrectly classifies a truthful individual as being deceitful. See supra note 60 and accompanying text.
have a tremendously prejudicial impact on the jury.\textsuperscript{142} These arguments remain persuasive today.\textsuperscript{143}

3. The Federal Rules of Evidence

The Federal Rules of Evidence became effective on July 1, 1975.\textsuperscript{144} In determining the issue of polygraph admissibility, only two rules are of considerable importance: Rule 702, dealing with expert testimony,\textsuperscript{145} and Rule 403, pertaining to the exclusion of relevant evidence on the basis of unfair prejudice.\textsuperscript{146} Rule 702 allows experts to testify in both opinion and non-opinion form in order to assist the trier of fact in resolving issues in dispute.\textsuperscript{147} While at least one court interpreted Rule 702 to signal the end of the \textit{Frye} general acceptance test,\textsuperscript{148} Congress made no reference in the rule itself nor in the attached Advisory Committee's Note that Rule 702 was intended to displace \textit{Frye}.\textsuperscript{149} Rule 403 demands that relevant evi-

\textsuperscript{142} See Piccinonna, 885 F.2d at 1541. Such objections rest upon the belief that the polygraph examiner's testimony will be accepted without question by the jury. \textit{See id.}; \textit{see also infra} notes 283-99 and accompanying text (discussing the potential prejudice of polygraph testimony); \textit{see also infra} notes 300-02 and accompanying text (describing the differences between polygraph testimony and other forms of expert evidence admissible in court).

\textsuperscript{143} See \textit{generally infra} Part IV (describing the many compelling reasons for excluding polygraph evidence under \textit{Daubert}).


\textsuperscript{145} See Fed. R. Evid. 702; \textit{see also supra} note 14 (providing the text of Rule 702).

\textsuperscript{146} Fed. R. Evid. 403. The complete rule states: "Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." \textit{Id.}

\textsuperscript{147} See Fed. R. Evid. 702 advisory committee's note.

\textsuperscript{148} See United States v. Williams, 583 F.2d 1194, 1198, 1200 n.11 (2d Cir. 1978).

\textsuperscript{149} In holding that Rule 702 was the appropriate standard with which to determine the admissibility of alleged scientific evidence, the Supreme Court stressed that both the rule itself and the legislative history of the rule make no reference to the \textit{Frye} test of general acceptance. \textit{See Daubert v. Merrell Dow Pharm., Inc.,} 509 U.S. 579, 588 (1993). The fact that \textit{Frye} was not mentioned was an indicator to the Court that Rule 702 was drafted simply to replace the general acceptance test. \textit{See id.} It seems more reasonable, however, to presume that the inverse of this argument is true: that because \textit{Frye} was not alluded to, the omission is a signal that the drafters of the Federal Rules intended it to be left untouched.

A close analysis of the Federal Rules Advisory Committee's Notes, amendments, and legislative histories bolsters this argument. It is clear when studying these histories that the Rules' drafters often intentionally \textit{included} the leading cases that were to be overturned upon passage of the Federal Rules. \textit{See, e.g., Fed. R. Evid. 608(b) advisory committee's note} ("The final sentence constitutes a rejection of the doctrine of such cases as
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Evidence be prohibited if its probative value is substantially outweighed by any one of six listed bases for exclusion. Since these bases must “substantially outweigh” the evidence’s probative value for exclusion to result, Rule 403 operates under a presumption of admissibility. Nonetheless, numerous cases have cited Rule 403 when excluding polygraph testimony from trial.

C. Altering the Frye Standard: Daubert

The Frye test of general scientific acceptance, some seventy years old, continued to provide a model for analyzing the admissibility of novel scientific evidence until 1993. Daubert v. Merrell Dow Pharmaceuticals, Inc. allowed the Supreme Court to alter this historic standard. The Court granted certiorari solely to re-evaluate the validity of the general acceptance test. The Court held that Rule 702 and the rest of the Federal Rules of Evidence, not the Frye test, are the standards for determining the admissibility of expert scientific testimony at trial.

People v. Sorge; ...); FED. R. EVID. 609(a) (1990 Amendment) (citing two federal circuit court cases before stating “[t]his approach also is rejected by the amendment”); FED. R. EVID. 613(a) advisory committee’s note (rejecting the doctrine of The Queen’s Case, leading precedent on the subject of examining witnesses with prior statements). Since the Frye test was such a popular standard for determining the admissibility of expert scientific testimony, it seems logical that had the Federal Rules drafters intended Frye to be displaced, they would have incorporated it into Rule 702’s history.

150. See FED. R. EVID. 403; see also supra note 146 (listing the grounds).

151. See SALTZBURG, supra note 144, at 217. Despite this presumption, because of the potential prejudice inherent in admitting expert testimony, Daubert granted trial judges undertaking 403 analyses “more control over experts than over lay witnesses.” Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 595 (1993) (citation omitted). Indeed, some have predicted that trial courts will more assertively apply Rule 403 to exclude relevant expert testimony, “especially where the testimony is based on questionable methodology.” See SALTZBURG, supra note 144, at 223.

152. See, e.g., United States v. Sherlin, 67 F.3d 1208, 1217 (6th Cir. 1995) (finding polygraph results excludable under Rule 403), cert. denied, 116 S. Ct. 795 (1996); United States v. Kwong, 69 F.3d 663, 668 (2d Cir. 1995) (holding that polygraph evidence is inadmissible under Rule 403 because of its potential to mislead and confuse the jury), cert. denied, 116 S. Ct. 1343 (1996); Conti v. Commissioner, 39 F.3d 658, 662-63 (6th Cir. 1994) (excluding polygraph results because of their prejudicial influence on the jury); Palmer v. City of Monticello, 31 F.3d 1499, 1506 (10th Cir. 1994) (upholding a lower court decision to exclude polygraph testimony because its prejudicial impact outweighed its probative value).

153. See Daubert, 509 U.S. at 585.


155. See id. at 585.

156. See id. at 582. The court began the opinion by stating that, “[i]n this case we are called upon to determine the standard for admitting expert scientific testimony in a federal trial.” Id.

157. See id. at 588; see also supra note 14 (providing the full text of Rule 702).
In *Daubert*, two families brought suit against Merrell Dow Pharmaceuticals alleging that the mothers' ingestion of the drug Bendectin caused severe birth defects in their children. An expert for Dow testified to the scientifically accepted view that Bendectin was never found to increase the risk of human birth defects when taken in the first trimester of pregnancy. The plaintiffs responded by proffering the testimony of eight experts of their own, each of which sought to draw a connection between the drug and the plaintiffs’ subsequent birth defects.

The United States District Court for the Southern District of California denied their proffer, holding that the lack of epidemiological studies supporting the experts' conclusions made their testimony inadmissible. The United States Court of Appeals for the Ninth Circuit, citing Frye's general acceptance test, affirmed. The techniques and methodologies the experts used in arriving at their conclusions had not yet been subjected to publication and peer review and, therefore, were not generally accepted in the scientific community. Absent this general acceptance,

158. See *Daubert*, 509 U.S. at 582. The children, Jason Daubert and Eric Schuller, were born with reduced limbs. See *Daubert v. Merrell Dow Pharm., Inc.*, 727 F. Supp. 570, 571 (S.D. Cal. 1989), aff'd, 951 F.2d 1128 (9th Cir. 1991), rev'd, 509 U.S. 579 (1993). The plaintiffs believed that Bendectin, which Dow marketed, caused these birth defects. See id.

159. See *Daubert v. Merrell Dow Pharm., Inc.*, 951 F.2d 1128, 1129 (9th Cir. 1991), rev'd, 509 U.S. 579 (1993). The expert, Doctor Steven Lamm, cited thirty published studies chronicling Bendectin's effects on over 130,000 patients. See id. According to his analysis, no connection could be drawn between the drug and eventual birth malformations. See id.; see also *Daubert*, 727 F. Supp. at 575.

160. See *Daubert*, 509 U.S. at 583. The experts each argued that scientifically valid experiments clearly demonstrated a connection between Bendectin and birth defects in certain animal species. See id. They also saw similarities in the chemical structures of Bendectin and drugs already known to be causes of birth abnormalities. See id. In light of these findings and a “reanalysis” of the previously published Bendectin statistics, they sought to testify as to what they perceived to be an actual link between Bendectin and the reduced limbs of Jason Daubert and Eric Schuller. See id.

161. See *Daubert*, 727 F. Supp. at 575. The lower court applied a standard set out in an earlier Ninth Circuit case, *Brock v. Merrell Dow Pharm.*, 874 F.2d 307, 315 (5th Cir. 1989), which held that epidemiological evidence was necessary to support the admission of certain scientific testimony. See *Daubert*, 727 F. Supp. at 575. The experts in *Daubert* relied primarily upon “*in vitro* studies, chemical structure analyses and animal studies” to arrive at their conclusion that Bendectin was a “teratogen,” or a drug which may cause birth defects in humans. Id. The district court found these sources were not sufficiently based on epidemiological studies to warrant admittance. See id.

162. See *Daubert*, 951 F.2d at 1131.

163. See id. In reaching its decision, the court relied heavily upon other circuit court decisions that excluded expert testimony due to a lack of epidemiological testing. See generally *Brock v. Merrell Dow Pharm., Inc.*, 874 F.2d 307 (5th Cir. 1989) (rejecting the testimony of the expert witnesses); *Richardson v. Richardson-Merrell, Inc.*, 857 F.2d 823 (D.C. Cir. 1988) (preventing the petitioners' experts from testifying); *Lynch v. Merrell-
the evidence was to be excluded.\footnote{See Daubert, 509 U.S. at 587; see also McCall, supra note 1, at 394 (stating the consensus among commentators that in the wake of Daubert, "the Frye general acceptance standard is no longer the test for admissibility of scientific evidence in federal courts").}

The Supreme Court rejected this reasoning, holding for the first time that the adoption of Federal Rules of Evidence supplanted the \textit{Frye} test.\footnote{See Daubert, 951 F.2d at 1130.} Trial judges were to apply Rule 702 and the other Federal Rules of Evidence, not \textit{Frye}, to determine the admissibility of expert scientific testimony at trial.\footnote{See Daubert, 509 U.S. at 588.} The Court then proceeded to analyze Rule 702, the Federal Rule concerning scientific evidence.\footnote{See Daubert, 509 U.S. at 588.}

First, the Court detailed how the proffered testimony must be considered "scientific knowledge" prior to admission.\footnote{See Daubert, 951 F.2d at 1138.} Such knowledge need not be known to a certainty, but may be based merely on "good grounds" and supported with "appropriate validation."\footnote{Id. at 590.} This scientific knowledge requirement was to serve as the standard for determining the validity of the proposed testimony.\footnote{See id. at 591.}

Rule 702 also required that the proffered evidence be relevant.\footnote{See id. at 591.} Under \textit{Daubert}, relevancy was measured by the closeness of the "fit" between the offered expert opinion and the facts at issue.\footnote{See id. at 591-92.} If the testi-
mony could assist the trier of fact in resolving an issue of the case, it was relevant under Rule 702.173

The Court enumerated a series of general observations designed to aid trial judges in making initial admissibility determinations.174 While not sine qua non factors of admissibility,175 it was understood that lower courts were to consider the Court's suggestions in applying Daubert.176 In ascertaining whether the proposed testimony is scientific knowledge, trial judges first must determine if the theory has been scientifically tested.177 The second element considers whether others in the scientific

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173. See Daubert, 509 U.S. at 591. In addition, the Court upheld the usual interpretation of Rule 702 and afforded the expert a great deal of latitude with respect to those opinions specific to his or her area of expertise. See id. at 592. It is assumed that the experts' opinions are based on more than mere conjecture or subjective feelings, a concern when debating the admissibility of lay opinions. See id.; see also FED. R. EVID. 702 advisory committee's note ("[T]he expert is viewed, not in a narrow sense, but as a person qualified by 'knowledge, skill, experience, training or education.'").

174. See Daubert, 509 U.S. at 592-93. The Court did not create these general observations to serve as prerequisites to admissibility. See id. Rather, the Court designed the observations to guide trial court judges in analyzing an expert's testimony. See id. Chief Justice Rehnquist, dissenting in part, sharply criticized the observations. See id. at 598-99 (Rehnquist, C.J., concurring in part and dissenting in part). He referred to the suggestions as "vague and abstract," especially when judges were to apply the observations to complex areas of science far beyond the comprehension of most laymen. Id.

175. See id. at 593. The Court declared that it "[d]id not presume to set out a definitive checklist or test." Id.

176. See id. at 598 (Rehnquist, C.J., concurring in part and dissenting in part). Chief Justice Rehnquist stated that "'[g]eneral observations' by this Court customarily carry great weight with lower federal courts." Id. Indeed, many of the cases that apply the Daubert standard to the issue of polygraph admissibility refer to the Court's observations as factors in their final determinations. See Meyers v. Arcudi, 947 F. Supp. 581, 584 (D. Conn. 1996) (applying the five Daubert factors to the question of polygraph admissibility); United States v. Galbreth, 908 F. Supp. 877, 880 (D.N.M. 1995) (same). With this in mind, it will be assumed for the purposes of this Comment that the "general observations" are as much a part of the Daubert opinion as the decision to overrule the Frye test.

177. See Daubert, 509 U.S. at 593. The Court reasoned that testing and validating hypotheses "distinguish[ed] science from other fields of human inquiry." Id. The opinion went on to add that "[t]he scientific status of a theory is its falsifiability, or refutability, or testability." Id. (citations omitted). This requirement of "falsifiability" or testing concerned Chief Justice Rehnquist. In his partial dissent, Chief Justice Rehnquist warned that compelling trial court judges to partake in determining the falsifiability of scientific theories "imposes on them either the obligation or the authority to become amateur sci-
community have published and critiqued the proposed concept. Third, when examining measurable scientific techniques, trial judges should study the known rates of error. In addition, courts are to consider the standards governing the use of the novel scientific theories. Lastly, the trial court is to appraise the theory's general acceptance, the displaced Frye test, prior to admitting or denying the evidence. The presence or absence of any single Daubert criterion was not to be dispositive in determining the admissibility or inadmissibility of the evidence. Although admissible under Rule 702, the evidence still could be excluded if it violated any other Federal Rule of Evidence, including the unfair

178. Daubert, 509 U.S. at 593. The Court believed that a survey of the relevant scientific community was important in determining “good science.” See id. (citation omitted). Subject to peer review was aimed at decreasing the likelihood of blatant errors being pledged as scientific theories. See id.

179. See id. at 594. When applying this factor to polygraphs, it becomes apparent that no real known rate of error can ever be ascertained. See OTA REPORT, supra note 24, at 4. According to the OTA Report, there are two reasons for this. See id. First, the complex nature of the polygraph process includes a number of different factors that can vary widely from test to test. See id. Such variables include the “individuals tested, training of the examiner, purpose of the test, and types of questions asked.” Id. Second, different studies, many of which are scientifically valid, produce sharply contrasting results. Compare Raskin, supra note 24, at 60 (approximating a 95% accuracy rate for certain lab studies), with Lykken, supra note 24, at 264 (arriving at an average of 68.5% accuracy).

180. See Daubert, 509 U.S. at 594. Even the most ardent supporters of the polygraph admit that perhaps the most glaring flaw of the polygraph technique lays in the “state of training and competence of polygraph examiners.” Raskin, supra note 24, at 66; see also Honts & Quick, supra note 3, at 998. In their 1995 assessment of the polygraph, Professors Honts and Quick concluded that there existed a “poor general state of examiner training in the polygraph profession.” Id. Such conclusions take on even greater significance in light of the vital role the polygrapher plays in the administration of the polygraph exam. See supra notes 39-51 and accompanying text (explaining the significance of a competent and properly trained examiner).

181. See Daubert, 509 U.S. at 594. At least one lower court applying the Daubert test has given weight to the first four general observations of the Court, while brushing aside the factor of general acceptance. See United States v. Crumby, 895 F. Supp. 1354, 1360 (D. Ariz. 1995) (holding that Daubert’s adoption of Rule 702 leaves little room for a general acceptance analysis).

182. See Daubert, 509 U.S. at 592-93. The Court stated that its intentions in creating the general observations were not “to set out a definitive checklist or test.” Id. at 593. Rather, it was merely to aid the trial court in ascertaining if the proffered testimony was scientific knowledge that could aid the jury in resolving an issue of the case. See id. at 592. Nevertheless, federal judges do not treat elements as mere observations, but rather as weighty mandates to be appraised and evaluated fully. See id. at 598 (Rehnquist, C.J., concurring in part and dissenting in part) (describing the weight lower courts apply to such observations); see also United States v. Galbreth, 908 F. Supp. 877, 891 (D.N.M. 1995) (holding that the Daubert factors must be considered when addressing the admissibility of polygraph evidence).
prejudice prong of Rule 403.183

_Daubert_ concluded by addressing two issues raised by Merrell Dow.184 Merrell Dow argued that the abandonment of the _Frye_ test would subject juries to a flood of confusing and complex scientific theories.185 The Court insisted that cross-examination and jury instructions would allow parties to attack admissible yet questionable expert evidence.186 Next, Merrell Dow contended that allowing the judge to screen and evaluate the admissibility of the expert evidence would exclude scientific theories worthy of recognition from the trier of fact.187 The Court, while recognizing that such exclusions would occur, nonetheless believed that the trial system required quick and speedy determinations of disputes.188

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183. _See Daubert_, 509 U.S. at 595-96. This portion of the opinion was included as a reminder to trial judges that there is more to admissibility than satisfying Rule 702. _See id._ The most important of these rules is Rule 403, which allows trial judges to exclude evidence if its probative value is substantially outweighed by unfair prejudice or confusion of the issues. _See generally infra_ notes 283-315 and accompanying text (arguing for exclusion under Rule 403).

184. _See Daubert_, 509 U.S. at 595-96.

185. _See id._ at 596. Such confusing theories would likely mislead and dazzle juries, unjustly influencing their decisions one way or the other. _See id._

186. _See id._ At least one court has questioned the sagacity of relying upon cross-examinations to decrease the prejudicial effects of shaky but admissible evidence. _See United States v. Wilson_, 361 F. Supp. 510, 513 (D. Md. 1973). In _Wilson_, the court held that the use of cross-examination for this purpose is "of dubious validity, as a rule," primarily due to the fact that few attorneys are as knowledgeable as the expert in his or her chosen field. _Id._ A poor cross-examination in turn causes the court to rely solely upon the expert testimony, a risky proposition in light of the fact that experts often overstate their testimony. _See Giannelli, supra_ note 9, at 1238. For discussion of the ineffectiveness of limiting instructions in lessening the prejudicial effects of expert polygraph testimony, _see infra_ note 307.

In addition to these solutions, the _Daubert_ court commented that judges would still be free to direct verdicts or grant summary judgments if the jury results conflicted with the substantial weight of the evidence. _See Daubert_, 509 U.S at 596. Such procedural measures would exist only in the civil, and not criminal, context. _See id._

187. _See Daubert_, 509 U.S. at 596.

188. _See id._ at 597. The Court acknowledged that allowing the judge to screen expert scientific evidence would "prevent the jury from learning of authentic insights and innovations." _Id._ The Court determined, however, that time constraints necessitated that this be the case. _See id._ It is interesting to note that lower courts applying _Daubert_ have interpreted it to require a fact-specific inquiry every time a party seeks to introduce polygraph testimony. _See Galbreth_, 908 F. Supp. at 881 (finding that "[s]uch scrutiny is imperative to a faithful application of _Daubert_"). Apparently this exhaustive and time-consuming inquiry is meant to ensure the reliability of the polygraph techniques and procedures. _See id._ Ironically, _Daubert_ recognizes the necessity of prompt judicial determinations, while courts applying _Daubert_ have interpreted it to require an exhaustive, fact-specific inquiry. The contradiction appears obvious.
Swift justice required that some scientifically valid theories be excluded.\textsuperscript{89}

III. INITIAL APPLICATIONS OF DAUBERT

While it would be premature to speculate as to the full impact \textit{Daubert} will have on the question of polygraph admissibility, courts' initial applications of \textit{Daubert} reveal divergent approaches and results.\textsuperscript{90} A few courts have interpreted \textit{Daubert} as requiring a complete re-evaluation of their previous rules against admissibility.\textsuperscript{91} This re-evaluation resulted in the admission of polygraph evidence in three circuits.\textsuperscript{92} Another court applied \textit{Daubert} and determined that the evidence fell short of meeting

\begin{itemize}
  \item \textsuperscript{89} See \textit{Daubert}, 509 U.S. at 597. Assuming arguendo that polygraph evidence successfully passes \textit{Daubert}'s interpretation of Rule 702, it seems that valid theories may be excluded because the determination of admissibility may take too long for a trial. See \textit{FED. R. EVID. 403 (allowing for exclusion of evidence if "its probative value is substantially outweighed ... by considerations of undue delay").}
  \item \textsuperscript{90} Compare Galbreth, 908 F. Supp. at 896 (applying the \textit{Daubert} criteria and determining that polygraph evidence was admissible), with Meyers v. Arcudi, 947 F. Supp. 581, 590 (D. Conn. 1996) (utilizing the \textit{Daubert} factors to flatly reject polygraph evidence). Rather than apply \textit{Daubert} and Rule 702 to questions of polygraph admissibility, at least one circuit has utilized Rule 403 alone in refusing polygraph evidence. See United States v. Sherlin, 67 F.3d 1208, 1217 (6th Cir. 1995) (employing Rule 403 in finding that polygraph evidence was too overtly prejudicial to be admitted), cert. denied, 116 S. Ct. 795 (1996).
  \item \textsuperscript{91} See, e.g., United States v. Cordoba, 104 F.3d 225, 227-28 (9th Cir. 1997) (holding that \textit{Daubert} is inconsistent with a per se rule of inadmissibility); Chatwin v. Davis County, 936 F. Supp. 832, 838-39 (D. Utah 1996) (applying \textit{Daubert} in determining that the former circuit rule of inadmissibility was no longer acceptable); \textit{Galbreth}, 908 F. Supp. at 878 (requiring a fresh analysis of polygraph admissibility in light of \textit{Daubert}); United States v. Crumby, 895 F. Supp. 1354, 1357 (D. Ariz. 1995) (re-examining the question of polygraph admissibility in light of \textit{Daubert} and other factors); cf. United States v. Posado, 57 F.3d 428, 429 (5th Cir. 1995) (holding that a per se rule of inadmissibility for polygraph testimony is no longer acceptable after \textit{Daubert}). In \textit{Posado}, the court noted that until this point the Fifth Circuit had recognized a per se rule of inadmissibility. \textit{Id}. at 436. \textit{Daubert}, however, mandated a re-evaluation of the per se rule. \textit{See id}. The \textit{Posado} court chose to rescind the per se rule of inadmissibility "with a high degree of caution" to allow district court judges the opportunity to assess the reliability and relevance of proffered polygraph evidence in pre-trial hearings. \textit{Id}. at 429, 436. A Fifth Circuit district court, however, later extended this holding to allow polygraph evidence at trial provided the evidence satisfied \textit{Daubert}. See Ulmer v. State Farm Fire & Cas. Co., 897 F. Supp. 299, 302 (W.D. La. 1995) (extending the rule set forth in \textit{Posado}). Another district court in the Fifth Circuit also applied \textit{Posado} and \textit{Daubert}, and determined that the proffered polygraph evidence was inadmissible at that particular trial. See United States v. Dominguez, 902 F. Supp. 737, 740 (S.D. Tex. 1995).
  \item \textsuperscript{92} See, e.g., Galbreth, 908 F. Supp. at 896 (admitting polygraph evidence in the wake of \textit{Daubert}); Ulmer, 897 F. Supp. at 304 (applying \textit{Posado} and \textit{Daubert} and admitting polygraph test results); Crumby, 895 F. Supp. at 1364 (allowing "polygraph evidence [if used] for a limited purpose").
\end{itemize}
the *Daubert* criteria, and failed separately under Rule 403. Other jurisdictiions, while acknowledging *Daubert* and its applicability, chose to ignore it and excluded proffered evidence solely on the grounds of unfair prejudice under Federal Rule 403. Two other courts disregarded *Daubert* altogether, electing instead to exclude the evidence solely under Rule 403. This lack of uniformity exemplifies an obvious gap in the treatment of polygraph evidence since *Daubert*. Despite the inconsistent decisions, the potential for admitting polygraph testimony seems more conceivable than ever before. Most jurisdictions that recently rejected the proffered polygraph testimony did not hold that the evidence was never to be admitted. Rather, these courts held that admission of polygraph evidence under the facts as submitted would have resulted in unfair prejudice to a party, and that the test results, therefore, were ex-


194. See, e.g., United States v. Kwong, 69 F.3d 663, 668 (2d Cir. 1995) (holding that the polygraph results were excludable under Rule 403), *cert. denied*, 116 S. Ct. 1343 (1996); *Sherlin*, 67 F.3d at 1217 (excluding polygraph testimony solely on the basis of Rule 403); United States v. Lech, 895 F. Supp. 582, 584-86 (S.D.N.Y. 1995) (same). These courts refused to apply *Daubert* for similar reasons. In *Sherlin*, the Sixth Circuit maintained that courts had the authority to exclude polygraph evidence on the basis of Rule 403, regardless of the results of a *Daubert* analysis. 67 F.3d at 1217. In both *Kwong* and *Lech*, the courts decided that a *Daubert* analysis would be necessary provided the facts of future cases warranted such a test. See *Kwong*, 69 F.3d at 668; *Lech*, 895 F. Supp. at 584-86. In both instances, the facts were such that an application of *Daubert* was not necessary, and Rule 403 was used independently to exclude the proffered evidence. See *Kwong*, 69 F.3d at 668; *Lech*, 895 F. Supp. at 584-86.

195. See Conti v. Commissioner, 39 F.3d 658, 663 (6th Cir. 1994) (relying on Rule 403 as "an independent basis" for excluding polygraph test results); see also Palmer v. City of Monticello, 31 F.3d 1499, 1506 (10th Cir. 1994) (upholding a district court's prohibition of polygraph testimony because its prejudicial impact outweighed its probative value).

196. See McCall, *supra* note 1, at 422. McCall's study of the state of the polygraph in the American legal system concludes by noting "that polygraph evidence will now be admitted in American trial courts on a greater scale than was conceivable before *Daubert." Id.; see also Galbreth, 908 F. Supp. at 896 (allowing polygraph evidence at trial); *Ulmer*, 897 F. Supp. at 304 (admitting polygraph testimony); *Crumby*, 895 F. Supp. at 1364 (admitting polygraph testimony in limited circumstances).

197. See, e.g., *Kwong*, 69 F.3d at 668 (implying that if Rules 702 and 403 are satisfied by the specific facts of the case, polygraph evidence may be admissible); United States v. Dominguez, 902 F. Supp. 737, 740 (S.D. Tex. 1995) (hypothesizing as to potential instances in which polygraph evidence is admissible); *Lech*, 895 F. Supp. at 584-86 (hinting that if the hurdles of Rules 702 and 403 are cleared, polygraph results will be admitted). If a profferer could decrease the prejudicial impact of the proposed polygraph testimony, courts that chose to exclude the polygraph results solely for Rule 403 reasons appear to be receptive to the notion of potential admissibility. See, e.g., *Kwong*, 69 F.3d at 668; *Dominguez*, 902 F. Supp. at 740; *Lech*, 895 F. Supp. at 584-86.
Accordingly, *Daubert* appears to be incompatible with any sort of per se rule of polygraph inadmissibility.\(^{199}\)

If a specific inquiry is required in every instance, what factors allow for the inclusion of the polygraph evidence?\(^{200}\) In *United States v. Galbreth*,\(^{201}\) a federal district court judge found polygraph evidence admissible only after an exhaustive analysis of *Daubert* and its application to the specific facts at issue.\(^{202}\) In determining that the polygraph was in fact "scientific knowledge" under *Daubert*, the district court judge relied heavily on the testimony given at the pre-trial hearing by eminent poly-

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198. See, e.g., *Kwong*, 69 F.3d at 668; *Dominguez*, 902 F. Supp. at 740; *Lech*, 895 F. Supp. at 584-86. These decisions did not undertake a *Daubert* analysis since the facts pointed squarely to exclusion under Rule 403. See *Kwong*, 69 F.3d at 668; *Dominguez*, 902 F. Supp. at 740; *Lech*, 895 F. Supp. at 584-86. For example, in *Kwong*, a polygraph expert sought to testify about three specific questions that he believed demonstrated the defendant to be not guilty of attempted murder. 69 F.3d at 668. The Second Circuit held all polygraph testimony to be properly excluded. See *id*. The court found that two of the questions, even if answered honestly, in no way exculpated the defendant because of their ambiguous phrasing. See *id*. The last question, which was worded "[d]o you know for sure . . ." was not ambiguous, but nevertheless could be answered truthfully while still not proving innocence in any way. *Id*. (alteration in original).

199. See, e.g., *United States v. Cordoba*, 104 F.3d 225, 227-28 (9th Cir. 1997) (forsaking a per se rule of inadmissibility in the wake of *Daubert*); *United States v. Posado*, 57 F.3d 428, 434 (5th Cir. 1995) (removing a per se rule of inadmissibility); *Chatwin v. Davis County*, 936 F. Supp. 832, 838 (D. Utah 1996) (modifying the general rule of inadmissibility in the wake of *Daubert*); *Galbreth*, 908 F. Supp. at 878 (rejecting a per se rule of inadmissibility).

Even those jurisdictions which excluded polygraph testimony based on Rule 403 never acknowledged per se rules of inadmissibility, further strengthening the argument that *Daubert* destroyed such a hard-line stance. See *Kwong*, 69 F.3d at 668 (refraining from an analysis of *Daubert* as it applies to polygraph admissibility until a later date); *Dominguez*, 902 F. Supp. at 740 (recommending factors in addition to the *Posado* requirements that should be followed in order to admit polygraph testimony); *Lech*, 895 F. Supp. at 584-86 (leaving open the question of future admissibility until proper factual circumstances dictate a *Daubert* analysis).

200. See *Galbreth*, 908 F. Supp. at 893 ("[W]here a party seeks to introduce testimony concerning the results of the [polygraph] test, the Court must embark upon a case specific inquiry . . ."); see also *Posado*, 57 F.3d at 436 (replacing the per se rule of polygraph inadmissibility with a requirement of a specific inquiry by the trial judge).

201. 908 F. Supp. 877 (D.N.M. 1995). In *Galbreth*, the defense sought to introduce the testimony of preeminent polygraph expert Dr. David Raskin. *Id.* at 878. Based on his interpretation of a polygraph test he administered to the defendant, William Galbreth, Dr. Raskin intended to testify that Galbreth did not willfully evade his taxes as the Government claimed. See *id*. The court chose to undertake an analysis of the admissibility of such testimony in light of *Daubert*. See *id.* at 879.

202. See *id.* at 878-95. The Court found that Galbreth sufficiently had proven the proposed testimony to be scientific knowledge compatible with the five general observations of *Daubert*, and that Rule 403 was not violated. See *id.* at 890-95. Thus, the polygraph evidence was admissible. See *id.* at 895.
graph expert Dr. David Raskin.\textsuperscript{203} When the prosecution produced evidence that ran contrary to admitting the polygraph results, the trial judge refuted the testimony by quoting Dr. Raskin.\textsuperscript{204}

In addition, the trial judge avoided conflicts with \textit{Daubert} solely because Dr. Raskin was the individual who had conducted the polygraph examination.\textsuperscript{205} Many of the problems normally attributed to polygraph examiners which could potentially serve to exclude the test results were avoided due to Dr. Raskin’s status in his field.\textsuperscript{206} For instance, while the court noted that many errors occur when a polygraph examination is not properly conducted, it held that since Dr. Raskin, an expert in polygraphy, administered this particular exam, such errors were not likely.\textsuperscript{207} Also, the court sidestepped the \textit{Daubert} factor which called for procedural standards governing the scientific technique in question by holding that the regulations Dr. Raskin followed in this particular case were sufficient.\textsuperscript{208} While Dr. Raskin may well have followed the proper proce-

\textsuperscript{203} See id. at 891-95. The court obviously was influenced by the impressive credentials and extensive experience of Dr. Raskin. See id. at 883. Indeed, Sections IV through VIII of the \textit{Galbreth} opinion were devoted almost entirely to the oral testimony of the defense’s polygraph expert, Dr. Raskin. See id. at 882-83.

\textsuperscript{204} See id. at 883-95. For example, the court chose to rely on Dr. Raskin regarding the accuracy rates of the directed lie control polygraph technique, despite the fact that only two studies supported its accuracy. See id. at 884-85. When confronted with contrary studies conducted by the Office of Technology and Assessment of the United States Congress that recorded validity rates substantially lower than those of Dr. Raskin, the court dismissed them solely because Raskin questioned their reliability. See id. at 887 n.12. The trial court used Dr. Raskin’s testimony to rebut questions regarding polygraph accuracy, the success of physical and drug-related countermeasures, the weak standards of polygraph examiners, the impact of polygraph evidence on juries, and the notion that certain personality types can defeat polygraph tests. See id. at 885-86, 888-90, 895.

\textsuperscript{205} See id. at 893. The Court completely avoided conflicts with the general observation made in \textit{Daubert} regarding the standards that control the scientific technique at issue. See id. at 891, 893. While admitting that nationwide standards governing polygraph examiners are weak, the court ignored this fact since the highly regarded Dr. Raskin conducted the particular polygraph examination in question. See id. at 894. One commentator warns against such dependence on experts, stating “[o]verstatements by experts about the conclusions that can be drawn from various scientific techniques are not uncommon.” Giannelli, \textit{supra} note 9, at 1238.

\textsuperscript{206} See \textit{Galbreth}, 908 F. Supp. at 882-90. Such problems include extremely poor examiner training, the lack of nationwide standards governing polygraph examiners, examiners’ tendency to manipulate or mislead subjects through coercion, and the minimal level of scientific competence which exists throughout the industry. See infra Part IV.B.

\textsuperscript{207} See \textit{Galbreth}, 908 F. Supp. at 894.

\textsuperscript{208} See id. at 892. The district court judge first noted that twenty states, including New Mexico, have regulations to control the quality of polygraph exams and examiners. See id. In \textit{Galbreth}, Dr. Raskin complied with the New Mexico’s strict Rule of Evidence 11-707. Id.; see also \textit{supra} note 112 and accompanying text (describing Rule 11-707). Since Dr. Raskin personally followed these rigid guidelines, the judge found that \textit{Daubert}
dures, the court's ruling nonetheless was contrary to *Daubert's* call to analyze the validity of the proposed scientific technique as a whole, rather than the specific results of the case at issue. By selectively relying upon the validity of the polygraph technique and standards implemented in this particular case alone and not for the polygraph industry as a whole, the *Galbreth* court avoided problems associated with *Daubert's* application. These difficulties potentially could have led to the inadmissibility of the proposed polygraph testimony.

Many post-*Daubert* decisions refuse to admit expert polygraph evidence at trial for different reasons, such as the dangers of unfair prejudice as defined under Federal Rule 403. In *United States v. Crumby*, the district court judge who permitted the testimony's entry for a limited purpose recognized this reasoning. The judge, however, believed

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209. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 595 (1993). The *Daubert* opinion specifically stated that when determining the admissibility of expert scientific evidence, "[t]he focus, of course, must be solely on principles and methodology, not on the conclusions that they generate." *Id*. Thus, the theory as a whole must pass the *Daubert* test, not just the individualized case in question. *See id.* At one point in the opinion, the *Galbreth* judge recognized this by paraphrasing *Daubert's* "emphasis on the process of arriving at reliable conclusions rather than the conclusion itself." 908 F. Supp. at 881 (second emphasis added). The judge, however, chose not to follow this reasoning later in the opinion. *See id.* at 882. In referring to *Daubert*, the judge took the liberty to state that "this Court [sic] does not believe that such language was intended to apply in the context of the application of the polygraph technique." *Id.* at 882 n.7.


211. *See supra* note 204 (describing the *Galbreth* court's reliance upon the controversial testimony of Dr. Raskin). Dr. Raskin's testimony regarding polygraph validity, the likelihood of employing successful countermeasures, the impact of the testimony on the jury, and the standards controlling polygraph examiners are all subject to challenge. *See infra* notes 227-59, 292-302, and accompanying text (challenging Dr. Raskin's assertions).

212. *See Daubert*, 509 U.S. at 592-93 (describing the general observations that the lower courts could use to assess the admissibility of proffered scientific expert testimony).

213. *See supra* note 194 and accompanying text (discussing jurisdictions which have prohibited polygraph testimony based on Rule 403).


215. *See id.* at 1365. The judge allowed for the admission of the polygraph testimony, provided the profferer satisfied some strict requirements. *See id.* First, the evidence would be admissible only when used to impeach or corroborate the defendant's testimony. *See id.* Second, the defendant had to provide adequate notice to the opposing party, allowing them sufficient time to conduct their own separate polygraph examination. *See id.* Character witnesses could relate that the defendant had in fact passed a polygraph exam. *See id.* Such narrowly tailored rules were established pursuant to Rule 403's mandate that the prejudicial effect of the testimony not substantially outweigh its probative impact. *See id.* at 1364.

216. *See id.* at 1361. The court stated that "the potential prejudicial effects of permitting a jury to consider a polygraphy examination are enormous, and thus rather disturb-
that this prejudice could be minimized by restricting the expert's testimony to the validity of the polygraph technique itself and to the specific results of the individual test given. The court prohibited any testimony pertaining to the actual questions asked or responses given throughout the course of the examination. Thus, in this way the Crumby court believed it had successfully skirted a Rule 403 conflict. While such reasoning is dubious, this limited-purpose usage of the polygraph evidence nevertheless allowed for its admissibility.

IV. APPLYING DAUBERT TO THE QUESTION OF POLYGRAPH ADMISSIBILITY: WHY THE POLYGRAPH FAILS THE TEST

To gain admission as expert scientific evidence, Daubert stated that the judge must find the proffered testimony to be "scientific knowledge" under Rule 702 of the Federal Rules of Evidence. The Court provided five general observations that trial judges were to consider in assessing the admissibility of expert testimony. While these five observations are not talismanic, lower courts nevertheless have applied them as essential ingredients to polygraph admittance. In addition, even if Rule 702 is

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217. *See Crumby*, 895 F. Supp. at 1363. The polygraph expert was restricted to testifying as to the validity of the polygraph technique, and could not answer any queries regarding the specific questions or results of the examination. *See id.* Character witnesses were responsible for testifying that the defendant had in fact passed a polygraph examination. *See id.* In addition to the prejudices covered under Rule 403, the judge in *Crumby* was also concerned about the prejudices that could result if he allowed the polygraph expert to give an opinion regarding the ultimate issue of the case, namely the defendant's guilt or innocence. *Id.* at 1362-63. For a discussion of polygraph testimony as it relates to the ultimate issue of a case, see *infra* notes 300-02 and accompanying text explaining that polygraph evidence goes directly to the defendant's guilt or innocence, and, if believed by the jury, decides the case.

218. *See Crumby*, 895 F. Supp. at 1363. The *Crumby* court believed that by admitting the actual questions of the polygraph exam, the prejudicial value of the testimony would substantially outweigh its probative value. *Id.; cf. United States v. Miller*, 874 F.2d 1255, 1262 (9th Cir. 1989) (finding the prejudicial impact of admitting testimony concerning the specific questions asked and answers given during the test would substantially outweigh its probative worth).

219. *See Crumby*, 895 F. Supp. at 1361. The judge in *Crumby* believed that by demanding that the evidence be "narrowly tailored and admitted only for a limited purpose," the potential prejudicial effect of the polygraph testimony would not outweigh the probative value of the proffered evidence. *Id.*

220. *See id.* at 1364-65.


222. *See id.* at 592-95; *see supra* notes 174-83 and accompanying text (describing the five observations in more detail).

satisfied, the proffered testimony must fulfill the requirements of Rule 403 to be admissible at trial.\textsuperscript{224} Rule 403 is a balancing test which weighs the probative value of the proffered testimony against the prejudicial impact such evidence would have on the jury.\textsuperscript{225} \textit{Galbreth} and \textit{Crumby} are examples of courts' misapplication of \textit{Daubert} to the question of polygraph admissibility. Since an objective application of \textit{Daubert} to this question reveals difficulties with both \textit{Daubert}'s general observations and Rule 403, such testimony should be excluded from trial absent significant changes and improvements.\textsuperscript{226}

\textbf{A. Validity and Rates of Error: Beyond the Propaganda}

As \textit{Daubert} states, one factor trial courts should consider is the rate of error associated with the scientific technique in question.\textsuperscript{227} For the polygraph, the most accurate rate of error is calculated by analyzing the validity, and not the reliability, of the test results.\textsuperscript{228} In those cases in which \textit{Daubert} was applied to the question of polygraph admissibility and the evidence was admitted, the courts found approximately a 90\% to 95\% validity rate for a typical polygraph examination.\textsuperscript{229} For the following reasons, such findings are difficult to conceive.\textsuperscript{230}

\textsuperscript{224} See id.; see also supra note 183 and accompanying text (discussing \textit{Daubert}'s reminder that otherwise admissible evidence is excludable if found to conflict with Rule 403).

\textsuperscript{225} See FED. R. EVID. 403. As previously noted, countless courts have excluded polygraph evidence because the prejudicial impact of admitting the results substantially outweighed their probative worth. See supra notes 193-195 (listing numerous courts making such a determination).

\textsuperscript{226} See infra Part IV.D (arguing that Rule 403 should prohibit polygraph testimony from trial).

\textsuperscript{227} See \textit{Daubert}, 509 U.S. at 594. The Court stated that the "known or potential rate of error" should factor in the assessment of whether or not the proffered testimony is scientific knowledge. Id.

\textsuperscript{228} See Lykken, supra note 24, at 264-65. Reliability merely tells a party "the consistency with which the test produces the same result in the same circumstances." Id. at 264. Validity, however, relates "the probability that the test result is accurate or true." Id.; see also MCCORMICK, supra note 2, § 206, at 374 (recognizing Lykken's position that the "accuracy" figures quoted by polygraph proponents may not be true measures of validity).

\textsuperscript{229} See United States v. Galbreth, 908 F. Supp. 877, 885-86 (D.N.M. 1995). The trial judge found the figures Dr. Raskin quoted to be more persuasive than other studies, which the court brashly labeled "methodologically weaker" than those of Dr. Raskin. Id. at 885-86. The judge thus relied upon polygraph studies that found a 95\% accuracy rate for discerning guilty subjects and a 90\% rate for spotting innocent subjects. See id.; see also United States v. Crumby, 895 F. Supp. 1354, 1360 (D. Ariz. 1995). The \textit{Crumby} court, again relying upon expert witness Dr. Raskin, found an accuracy rate of approximately 90\%. Id.

\textsuperscript{230} See infra notes 231-44 and accompanying text (discussing the validity rate of the polygraph).
First, these conclusions simply disregard volumes of scientifically credible studies finding validity rates much lower than those the courts employ.\textsuperscript{231} The congressionally-supported Office of Technological Assessment concluded that the polygraph was capable of producing “significant error rates.”\textsuperscript{232} Polygraph expert Professor David Lykken analyzed scientifically plausible studies and arrived at a validity rate of roughly 70%.\textsuperscript{233}

Polygraph professionals’ studies revealed higher validity rates,\textsuperscript{234} but questions abound as to the examiners’ procedures\textsuperscript{235} and personal moti-
Only a handful of such studies have been found to be credible scientifically, and of those that are, the validity rates show polygraph results to be wrong nearly one-third of the time. In addition, almost all of the studies attempting to determine the validity of the polygraph failed to take into account the effectiveness of physical countermeasures in skewing test results. Subjects employing countermeasures such as frequent confessions by polygraph subjects. See id. at 44. This, however, has been criticized as producing a "sampling bias" that seriously undermines the reliability of using confessions. Charles R. Honts & Mary V. Perry, Polygraph Admissibility: Changes and Challenges, 16 Law & Hum. Behav. 357, 361 (1992). This sampling bias refers to the fact that law enforcement officials usually obtain confessions only from those that fail polygraph examinations. See Christopher J. Patrick & William G. Iacono, Validity of the Control Question Polygraph Test: The Problem of Sampling Bias, 76 J. Applied Psychol. 229, 229 (1991). The failed test "provides the incentive for an examiner to interrogate a subject, and if the subject confesses, the polygraph outcome is confirmed." Id. A sampling bias thus results. See id. Despite this bias in favor of proving polygraph validity, the results of the Carroll survey on the accuracy rates of field studies were "generally low, and the rate of false positive judgments staggeringly high." Carroll, supra note 231, at 27.

236. See Kleinmuntz & Szucko, supra note 23, at 93, 95. Most polygraph studies are conducted by actual polygraph examiners and professionals. See id. at 93. Authors Kleinmuntz and Szucko believe that this fact indicates a "strongly vested interest in demonstrating the reliability and validity of lie detection." Id. at 95. While not going so far as to label polygraph professionals as intentionally fraudulent, the authors nevertheless imply that their research results may be clouded in some way by their subjective prejudices. See id.; see also David T. Lykken, Reply to Raskin and Kirchner, 27 Jurimetrics J. 278, 281 (1987) (citing various associations and governments currently concerned about the invalidity of polygraph testing). Lykken, in a thinly veiled attack on Dr. Raskin and the polygraph profession, stated, "I have yet to encounter a scientist familiar with these issues but not personally involved in the polygraph business who endorses Raskin's position in this debate." Id.

237. See David T. Lykken, The Case Against Polygraph Testing, in The Polygraph Test: Lies, Truth and Science 111, 117 (Anthony Gale ed., 1988) (analyzing three scientifically credible field studies). In addition, Lykken points out that polygraph exams are "seriously biased against the truthful subject" because of their high rates of false positive errors. Id. at 124; see also Carroll, supra note 231, at 22 (researching lab studies in arriving at an accuracy rate of approximately 75%, with a 23% chance of an innocent person being misclassified as guilty).

238. See Gianelli & Imwinkelried, supra note 24, § 8-2(C), at 230; see also supra note 42 and accompanying text (defining physical countermeasures). According to Dr. Raskin, the key to beating the polygraph through physical countermeasures is "to create reactions to the control questions stronger than the reactions that occurred when [the individual] lied to the relevant questions." Raskin, supra note 24, at 51. Spontaneous countermeasures have proven to be unsuccessful in defeating the polygraph machine. See id. Individuals given minimal training in physical countermeasures, however, have been remarkably successful in producing false negative results. See id.; see also Gianelli & Imwinkelried, supra note 24, § 8-2(C) at 230; see also Lykken, supra note 24, at 267 (discussing the prevalent nature of easily learned countermeasures).

In addition to countermeasures, the OTA Report warned that factors such as the gender, intelligence, or race of the subject may negatively impact the validity of polygraph tests as well. See OTA REPORT, supra note 24, at 85-86. Further, at least one commenta-
gently biting their tongues or pressing their toes to the floor during questioning have been extremely successful in producing false negative results.\textsuperscript{239}

Polygraph proponents, while recognizing that physical countermeasures greatly may increase the number of false-negative errors, hold that such techniques require specialized and intense training of the subject.\textsuperscript{240} Yet, at least one study has shown that a group of subjects given a mere fifteen minutes of instruction on the proper physical countermeasure techniques were successful in producing false-negative results in nearly 89\% of the cases.\textsuperscript{241} Using the same simple countermeasures, almost one-half of students participating in a mock-crime study were able to defeat the polygraph.\textsuperscript{242} The utilization of easily taught and learned physi-
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B. Examiner Standards

In addition to analyzing rates of error, Daubert encourages trial courts to factor in the existing standards that regulate the scientific procedure being considered. A Daubert inquiry does not merely require courts to determine whether some standards exist, but rather whether such standards are indicators of the technique as valid scientific knowledge. Because current polygraph regulations allow for a large percentage of poorly trained and incompetent examiners, the standards on the whole fail a faithful application of Daubert.

243. See Lykken, supra note 24, at 267. Two studies revealed that the use of physical countermeasures “allowed subjects to ‘beat’ the polygraph.” See OTA REPORT, supra note 24, at 88. In addition, a test conducted by Dr. Raskin and others found a false negative rate of 78% when subjects utilized countermeasures. See id.

244. See Lykken, supra note 24, at 267 (“Any prudent defendant... will find the [countermeasure] method[s] explained in at least one book available in most public libraries.”).


246. See id. at 593. Daubert delineates five general observations in order to assist the trial judge in determining whether the proffered testimony is “scientifically valid and... whether that reasoning or methodology properly can be applied to the facts in issue.” Id. Merely ascertaining that some standards exist to regulate a certain technique, regardless of their effectiveness at controlling the procedures, does not assist the trial judge in making a determination regarding scientific knowledge. Therefore, Daubert implies that the standards be of sufficient quality to aid the judge in determining whether the proffered testimony is scientific knowledge. See id.

247. See, e.g., GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 218 (stating that polygraph “proponents acknowledge that there are serious problems” with examiners); Honts & Quick, supra note 3, at 998-99 (commenting on the “poor general state” of polygraph examiners nationwide); Raskin, supra note 24, at 66-67 (admitting the poor state of polygraph examiners). Honts and Quick clearly subscribe to the belief that the current training standards produce many inferior examiners. Honts & Quick, supra note 3, at 998-99. Since they believe that polygraph testimony should be admissible, Honts and Quick would avoid this problem of poor training by having the judge question “in detail... [the examiner’s] basic knowledge of psychology, psychophysiological measurement, validation problems, and the scientific literature that has directly addressed polygraph testing.” Id. at 998. Arguably, this would ensure that the particular examiner in the case was sufficiently skilled and trained. See id. 998-99. This alternative, however, would not only be time-consuming, but would also force the trial judge to analyze scientific data far beyond his capacity as a layman, and, in effect, to become the “amateur scientist” that Chief Justice Rehnquist warned of in his Daubert dissent. See Daubert, 509 U.S. at 601 (Rehnquist, C.J., concurring in part and dissenting in part).
As mentioned previously, the role of the examiner is the most critical variable in the entire polygraph process. Yet even the most ardent supporters of the polygraph concede that a great majority of American polygraph examiners are inadequately trained and educated. Some may resort to psychological mind games in order to induce the desired test results. As of 1996, at least twenty states had no regulations or standards controlling who can become a licensed polygraph examiner.

248. See supra notes 39-51 and accompanying text (explaining the critical role of the examiner in the polygraph process); see also GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 218 (proclaiming that "the examiner, and not the machine, is the crucial factor in arriving at reliable results").

249. See Raskin, supra note 24, at 66-67. Raskin openly admits that "a substantial proportion of those who conduct tests in the public and private sectors lack adequate training and competence." Id. In addition, the examiner inadequacies found in the private sector and in local law enforcement agencies far exceed those of the federal examiners. See id. at 68. Experts Honts and Perry attacked the unacceptable state of training polygraph examiners in their 1992 study. See Honts & Perry, supra note 235, at 375 ("Polygraph examiners in the United States, as a whole, are poorly trained."). Honts co-authored an article on the polygraph and reaffirmed that standards controlling the polygraph industry were sorely in need of revamping. See Honts & Quick, supra note 3, at 998 (citing a "poor general state of examiner training in the polygraph profession"). The authors encouraged courts to interrogate polygraph examiners thoroughly regarding their knowledge of psychology and other scientific practices prior to allowing them to testify as experts at trial. See id. at 998-99.

250. See Underwood, supra note 2, at 632. Underwood asserts that polygraph examiners may play "[s]uggestive and coercive games" when conducting tests. Id. One commentator described examiners as often "misleading the subject as to the efficacy of the test" and creating "anxiety to induce compliance." Anthony Gale, Introduction: The Polygraph Test, More Than Scientific Investigation, in THE POLYGRAPH TEST: LIES, TRUTH AND SCIENCE 2 (Anthony Gale ed., 1988). Underwood added that oftentimes the results of a test hinge on "subjective factors" the examiner generates by studying the testee's conduct. Underwood, supra note 2, at 632; see also Carroll, supra note 231, at 27 ("[D]ata strongly suggest that the subject's general demeanour offers more accurate grounds for attributing innocence than the polygraph chart .... ").

and of those that do, very few actually ensure that the examiner is in fact adequately trained.\textsuperscript{252}

Since 1983, proponents of polygraph admissibility have pointed to New Mexico's Rule 707 as a model for other jurisdictions to follow.\textsuperscript{253} The regulation has not been replicated in other states, however, and it seems that it will remain merely a local rule.\textsuperscript{254} Outside of New Mexico, standards existing in almost all states do not ensure the production of sufficiently skilled and trained examiners.\textsuperscript{255}

Since there is no uniformity among the states, no standardized rules exist to control the actual examination procedure and performance of the exam itself.\textsuperscript{256} This produces inaccurate and erroneous test results.\textsuperscript{257}


252. See Raskin, supra note 24, at 68-69 (noting that despite the license requirements in some states, many still produce examiners of “minimal competence”); see also McCall, supra note 1, at 415 n.365. McCall asserts that the “typical” licensing statute demands “that an examiner be of good moral character, have a bachelor’s degree and a six-month study course in polygraphy, and pass an examination.” Id. Thus, in six months, the individual apparently is capable of learning the voluminous scientific, physiological, psychological, and ethical elements that are a part of the study of the polygraph. See id.

253. See McCall, supra note 1, at 415 (calling for an adoption of the New Mexico rule in order to increase the reliability of polygraph examinations); Raskin, supra note 23, at 72 (encouraging states to model their licensing statutes after Rule 707 of New Mexico); see also supra note 112 and accompanying text (discussing Rule 707).

254. See generally Honts & Quick, supra note 3, at 1000. Rule 707 requires that all parts of the polygraph examination be either audio or videotaped in order to deter subject manipulation and examiner abuses. See N.M. STAT. ANN. § 11-707(E) (Michie 1996). Honts and Quick see this as a “minimum requirement” that states should impose on those conducting polygraph examinations. Honts & Quick, supra note 3, at 1000. No state has followed New Mexico’s lead on this issue. See id.

255. See Honts & Quick, supra note 3, at 998 (questioning the standards controlling examiner training); Raskin, supra note 23, at 66-68 (detailing the insufficient training of polygraph examiners nationwide). Another problem with polygraph examiners is that years of experience do not necessarily mean that they have improved their techniques or skills. See Lykken, supra note 24, at 269. Unlike other scientists, who could learn with certainty from their mistakes, the polygraph examiner very rarely has the chance to see whether his diagnosis was correct. See id. Thus, years of practice may teach one nothing new about his or her skills as a polygraph examiner. See id.

256. See McCall, supra note 1, at 415 (stating that standards to ensure accurate test results exist solely for examiner training and experience, and not for control of the actual examinations themselves).

257. See Raskin, supra note 24, at 66-67. Polygraph supporters have great confidence in the polygraph’s abilities when “employed by well-trained and competent examiners.” Id. at 66. Most examiners, however, lack the “minimal competence” to administer such
Attempts at improvements by polygraph administrator associations have not rectified the problem, nor are they expected to in the future. As a result, the existing polygraph standards completely fail a true application of Daubert.

C. General Acceptance

The Daubert decision did not completely abandon the general acceptance test of Frye. Rather, the general acceptance test remains a factor that the lower courts are to consider when assessing the admissibility of expert testimony. In applying Daubert to the question of expert polygraph evidence, it becomes apparent that no such general acceptance exists in the relevant scientific community.

The science of polygraphy is based upon a complex combination of psychological, neurological, and physiological assumptions. In ascertainment tests adequately. Id. at 66-69. Given the significance of the examiner in the entire polygraph process, the likely result of such poor training is invalid and unreliable test scores. See generally GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 218 (explaining that "the examiner, and not the machine, is the crucial factor in arriving at reliable results").

258. See Honts & Perry, supra note 235, at 370 (describing how internal forces in the polygraph industry prevented and will continue to prevent change in this field). In addition, one commentator states that "polygraph lie detection does not and, in the foreseeable future, probably cannot work well enough to justify its continued use in the field." Lykken, supra note 237, at 125.

259. See Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 594 (1993) (observing that appropriate standards must exist to control the technique in question). It is interesting to note how the courts applying Daubert to polygraph admissibility have handled the conflict between the Daubert factor regarding appropriate scientific standards and those standards unique to the polygraph profession. See Galbreth, 908 F. Supp. 877, 892 (D.N.M. 1995). In Galbreth, the profferer of polygraph testimony complied with New Mexico's Rule 707. Id. The Galbreth court reasoned that because the standards used by the individual polygrapher were acceptable and likely to produce accurate results, the evidence was admissible. Id. This rationale runs contrary to Daubert, which requires a trial court to focus on the overall "principles and methodology, not on the conclusions that they generate." Daubert, 509 U.S. at 595. Another court faced with the proffer of polygraph evidence avoided conflicts with this Daubert factor by not mentioning polygraph standards in the opinion. See United States v. Crumby, 895 F. Supp. 1354 (D. Ariz. 1995).

260. See Daubert, 509 U.S. at 594. The Court was reluctant to forsake the general acceptance test due to the important insight it offered with respect to how the scientific community viewed the proffered testimony. See id. Evidence that was well received in the community would tip the scales towards admissibility, while a technique or theory with little backing would "properly be viewed with skepticism." Id.

261. See id. (holding that the general acceptance test may "yet have a bearing on the inquiry").

262. See infra Part IV.C (commenting on the lack of general scientific acceptance of polygraph testing in the relevant scientific communities).

263. See United States v. Alexander, 526 F.2d 161, 164 (8th Cir. 1975). In Alexander,
taining general acceptance, the relevant scientific community should include, therefore, not only polygraphers but also psychologists, physiologists, psychophysicologists, and neurologists.264

Do these expert communities support the theories behind polygraphy? Polygraphers obviously endorse the instrument.265 More objectively, however, the American Medical Association strongly questioned the validity of polygraph results in choosing not to endorse the instrument’s use.266 Its one-time spokesman, Dr. John F. Beary, III, has sharply criticized the theories upon which the polygraph rests.267 The American and

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...
British Psychological Associations have voiced doubts as to the polygraph's accuracy and validity as well. Some behavioral scientists have attacked the underlying theories of polygraphy, concluding that humans can control the allegedly involuntary physiological changes that the polygraph measures.

To counter such imposing resistance, advocates of polygraph admissibility often cite two surveys as proof of general acceptance in the field of psychophysiology. These surveys found that, on average, 61% of a particular psychophysiological research group viewed the polygraph either to be helpful when taken with other evidence or reliable enough to judge credibility on its own. To polygraph proponents, this endorsement is sufficient to overcome the other denouncements and to prove general scientific acceptance.

268. See Lykken, supra note 24, at 281 (describing the lack of general scientific acceptance for polygraphy by those not directly affiliated with the science). In addition, a survey cited in a recent federal district court case found that nearly 65% of psychophysicists believed that the control question technique, the most popular method of polygraph testing in America, was not scientifically sound. See Meyers v. Arcudi, 947 F. Supp. 581, 588 (D. Conn. 1996). In addition, approximately 75% of psychophysicists disagreed with the proposition "that the CQT was at least 85% accurate." Id.


270. See Honts & Quick, supra note 3, at 1016. The Gallup Organization was responsible in 1982 for the first of these two surveys. See id. Susan Amato conducted the second as part of a master's thesis at the University of North Dakota. See id. The Galbreth court relied in large part upon these two surveys in finding that general scientific acceptance for polygraphy existed. United States v. Galbreth, 908 F. Supp. 877, 892-93 (D.N.M. 1995). The court considered psychophysicists involved in these surveys so "well-informed" on polygraph theory that they were the only relevant scientific community it considered when gauging general acceptance. Id. The court also boldly proclaimed that the polygraph had gained "acceptance amongst a majority of the community" and "enjoys substantial approval," all while never defining the scientific community or citing the sources of its proclamations. Id. at 893.

271. See Honts & Quick, supra note 3, at 1016. The Gallup survey of 1982 resulted in 62% agreement, while the Amato poll found only 60%. See Galbreth, 908 F. Supp. at 892.

272. See Honts & Quick, supra note 3, at 1016 (concluding based on the two surveys alone "that there is a great deal of acceptance of these techniques in the relevant scientific community"). The Crumby court also relied heavily on the two psychophysiological surveys. Crumby v. United States, 895 F. Supp. 1354, 1360 (D. Ariz. 1995). It, however, utilized the results in a different manner. The court implied that the percentage of psychophysicists surveyed that found the polygraph of questionable usefulness did not demonstrate general acceptance in the community. See id. To overcome this, the trial judge first disqualified the opinions of many of the psychophysicists because they "were not necessarily polygraphers, and thus their status in the relevant scientific community [was] questionable." Id. Furthermore, the judge decided to "not place much emphasis on Daubert's inclusion of the Frye 'general acceptance' test in the new Rule 702 analysis." Id. The result was admissibility. See id. at 1363.
Such reliance is misplaced for three reasons. First, a similar survey of psychophysiologists found that only 36% believed the CQT, the most popular form of polygraph testing in the United States, to be scientifically sound. Second, by relying solely on these studies to determine general acceptance, relevant scientific disciplines, whose experts are more than qualified to offer opinions on the complex polygraph, are completely ignored. Third, the survey itself is misleading. The question assumes that the individuals who conduct the examination have received adequate polygraph training. This of course is not the reality. In addition, two of the four potential answers in this multiple choice question were combined to arrive at the final acceptance percentage tal-

273. See generally supra notes 266-69 and accompanying text (noting the lack of acceptance by those not directly affiliated with polygraphy).

274. See supra note 62 and accompanying text.


276. See supra notes 263-64 and accompanying text (discussing the different fields of science that contribute to polygraph testing). Since polygraphy involves a "technique...premised upon a complicated interrelationship of psychological stress," one must analyze sciences such as neurology and psychiatry in order to understand the complex nature of the polygraph theory. United States v. Alexander, 526 F.2d 161, 164 & 164 n.6 (8th Cir. 1975).

277. See Honts & Quick, supra note 3, at 1016 & n.229. The survey results were based solely upon one multiple choice question posed to the psychophysiologists: "Which one of these four statements best describes your own opinion of polygraph test interpretations by those who have received systematic training in the technique, when they are called upon to interpret whether a subject is or is not telling the truth?" Id. at 1016 n.229. The scientists were asked to choose from four answers: "A) It is a sufficiently reliable method to be the sole determinant, B) It is a useful diagnostic tool when considered with other available information, C) It is of questionable usefulness, entitled to little weight against other available information, D) It is of no usefulness." Id. If one answered either A or B, then these two answers were combined to form the nearly two-thirds of experts who were found to accept the polygraph technique. See id. at 1016.

278. See id. at 1016 n.229. The question is phrased so as to assume that the polygraph examiners have received "systematic training in the technique," a statement that obviously implies a properly educated examiner. Id.

279. See supra notes 245-59 and accompanying text (explaining the poor state of polygraph examiners nationwide). To reiterate, the examiner is the most vital component of the entire examination process. See GIANNELLI & IMWINKELRIED, supra note 24, § 8-2(A), at 218. Even the most ardent supporters of the polygraph technique concede that the most pressing problem facing polygraphy today is the shortage of well-trained examiners. See id.; see also Raskin, supra note 24, at 66-67 (discussing the problem of poorly trained examiners). Since the survey question assumes this most vital of variables, its reliability is immediately brought into question.
lies.\textsuperscript{280} Moreover, one of the four choices was not a realistic option.\textsuperscript{281} As such, the survey reveals that approximately 60\% of psychophysicologists chose two potential choices, which were combined to show approval of the polygraph, over one choice that signaled disapproval.\textsuperscript{282} In all, such inflated and deceptive figures do not equate to general acceptance.

\textbf{D. Conflicts with Rule 403}

\textit{Daubert} encouraged trial judges to be mindful of relevant and otherwise admissible evidence that was nevertheless excludable due to conflicts with Rule 403.\textsuperscript{283} Prior to \textit{Daubert}, many jurisdictions ruling on the admissibility of polygraph testimony chose to prohibit such evidence based on the prejudice standard embodied in Rule 403.\textsuperscript{284} Even assuming arguendo that the polygraph evidence somehow passed the \textit{Daubert} criteria of Rule 702, such testimony should be excluded because of its inherent prejudicial effects on the jury and the trial system as a whole.\textsuperscript{285}

\begin{itemize}
\item \textsuperscript{280} See Honts & Quick, supra note 3, at 1016 n.229; see also note 270 and accompanying text (describing the composition of the surveys). According to the average of the two surveys, 39\% of those polled chose neither “A” nor “B.” See Galbreth, 908 F. Supp. at 892 (listing the exact results of the two surveys); Honts & Quick, supra note 3, at 1016 (describing the survey choices). Rather than refer to these opponents of the polygraph as “nearly forty percent,” the \textit{Crumby} court chose to label them as “approximately a third of the respondents.” United States v. Crumby, 895 F. Supp. 1354, 1360 (D. Ariz. 1995). By conveniently rounding down the totals of those opposing the polygraph, the judge was able to assert that the instrument was “generally accepted” in the scientific community.
\item \textsuperscript{281} See Honts & Quick, supra note 3, at 1016 n.229; Lykken, supra note 24, at 265. Lykken is perhaps the most vocal of all polygraph skeptics. See GIANNELLI \& IMWINKELRIED, supra note 24, § 8-2(C), at 227. Even Lykken grants polygraphs the distinction of being “a useful improvement over random guessing.” Lykken, supra note 24, at 265. Thus, if those openly opposed to the technique give it at least some measure of value, it is unrealistic to think that one moderately familiar with polygraphy, as the psychophysicologists from the survey claim to be, will ever choose “D,” “[the polygraph] is of no usefulness.” Honts & Quick, supra note 3, at 1016 n.229.
\item \textsuperscript{282} See Honts & Quick, supra note 3, at 1016 n.229.
\item \textsuperscript{283} See \textit{Daubert} v. Merrell Dow Pharm., Inc., 509 U.S. 579, 595 (1993) (vesting the power to exclude evidence if its prejudicial effects outweigh its probative value with the trial judge). At least one commentator predicted that \textit{Daubert} would result in an increased use of Rule 403 to attack scientific theories grounded upon questionable methodologies. See SALTZBURG, supra note 144, at 223.
\item \textsuperscript{284} See, e.g., United States v. Miller, 874 F.2d 1255, 1263 (9th Cir. 1989) (reversing a trial court’s decision to allow expert polygraph testimony based on its prejudicial impact); Brown v. Darcy, 783 F.2d 1389, 1396 (9th Cir. 1986) (stating that polygraph evidence could result in overwhelming prejudice); United States v. Falsia, 724 F.2d 1339, 1342 (9th Cir. 1983) (warning that admitting polygraph testimony could easily mislead the jury); United States v. Alexander, 526 F.2d 161, 168 (8th Cir. 1975) (holding that admission of polygraph evidence would greatly prejudice the party against whom it was offered).
\item \textsuperscript{285} See infra Part IV.D (describing the prejudicial impact polygraph testimony will
Rule 403 provides that evidence should be inadmissible if the trial judge finds its prejudicial impact substantially outweighs its probative value. Some courts have recognized the need for a more expansive reading of Rule 403 when dealing with questions of polygraph admissibility. In light of the low validity rates and weak examiner standards, the results of polygraph examinations are untrustworthy, and, thus, are of low probative value. Exclusion should result if the prejudicial value can be established to be substantially greater than the probative value of this inherently unreliable evidence.

The first conflict with Rule 403 arises out of the excess weight that juries attach to the proffered polygraph testimony. A scientifically valid study demonstrated that the addition of unfavorable polygraph evidence against a defendant caused 54% of jurors to change their not guilty ver-
This same study found that jurors over the age of twenty-three overwhelmingly agreed with whatever side was offering the expert polygraph testimony. A different survey found that five of nine jurors were so overwhelmed by lie detector testimony that they accepted its veracity without question. Yet another study found that 40% of prospective jurors would change their not guilty pleas to guilty based solely on the addition of harmful polygraph evidence characterized as being 85% accurate.

Polygraph advocates cite studies that allegedly support the notion that polygraph testimony does not unduly sway juries, yet even these findings reveal basic prejudicial impacts. In the post-Daubert era, at least

293. See Markwart & Lynch, supra note 26, at 328. The results of the study showed that 22 of 42 jurors changed their verdicts when the prosecution offered unfavorable polygraph evidence against the defendant at trial. See id.

294. See id. at 329. The study also found that 86% of those over the age of 23 voted with whichever side benefited from the polygraph examination. See id. Since most jurors in a jury pool would likely be above the age of 23, “then possibly a... greater impact could be expected in a real jury situation.” Id. at 331.

295. See Forskosch, supra note 26, at 229-30. The survey arose after a New York state judge admitted the results of a lie detector test into trial. See id. at 225. To ascertain the evidence’s impact and influence on the jury, the author of the article sent the jury a series of questions. See id. at 228. The questions ranged from “Until the testimony of the ‘lie detector’ did you think Kenny [the defendant] should have been convicted?” to “Did you base your vote upon such testimony alone?” Id. The question of concern was “Were you so impressed by the scientific value of the ‘lie detector’ that you accepted its testimony without question?” Id. Five of nine responded in the affirmative to this question. See id. at 229.

296. See Joseph H. Koffler, The Lie Detector—A Critical Appraisal of the Technique as a Potential Undermining Factor in the Judicial Process, 3 N.Y.L.F. 123, 138-46 (1957). In this study, Professor Koffler asked twenty students to read a hypothetical criminal case. See id. at 138-40. All 20 found the defendant not guilty. See id. at 140. When told that the same defendant had failed a polygraph exam recognized as 85% accurate, 8 of 20 changed their verdicts to guilty. See id. When told that the defendant had failed a test which was 99% accurate, a figure closer to the one polygraph experts often quote today, 17 of 20, or 85%, changed their verdicts from innocent to guilty. See id. The hypothetical jurors reached this result even though the polygraph testimony constituted the sole evidence implicating the defendant in the crime. See id. From this, Koffler concluded that “[i]t would appear that if a defendant is in fact truthful, but the results of a lie detector test indicate that he is lying, he will probably be found guilty.” Id. at 143.

297. See McCall, supra note 1, at 376-77 (referring to a 1979 study that claimed juries gave no extra weight to polygraph testimony).

298. See Stephen C. Carlson et al., The Effect of Lie Detector Evidence on Jury Deliberations: An Empirical Study, 5 J. POLICE SCI. & ADMIN. 148, 152 (1977). The authors’ studies revealed that 56% of potential jurors would change or would possibly change their votes based solely on the addition of 95% accurate polygraph testimony. See id. at 152. Given that experts at trial often cite this 95% accuracy rate for polygraph results, such a strong prejudicial impact on juries established exclusively by polygraph evidence is startling. See United States v. Galbreth, 908 F. Supp. 877, 891-92 (D.N.M. 1995) (citing Dr.
four federal opinions chose to exclude selected polygraph evidence because of its unfairly prejudicial nature.299

The danger of unfair prejudice is even more significant when polygraph testimony is studied in contrast with other forms of expert scientific evidence.300 Expert polygraph evidence is distinguishable from techniques such as DNA testing and voice identification testimony in that only polygraphy goes directly to the ultimate issue at trial: the defen-
dant’s guilt or innocence.\textsuperscript{301} If believed by the jury, the expert polygraph testimony decides the case.\textsuperscript{302}

The jury, and not the expert polygraph examiner or a machine, is legally entrusted with the power to determine truths from falsehoods.\textsuperscript{303} By allowing experts to comment on this issue, courts are basically surrendering the most central duty of the jury to the judgment of an expert.\textsuperscript{304} At best, this would serve to confuse the jury as to its proper role,

\textsuperscript{301} See id. In other scientifically reliable techniques, the expert may believe that the defendant’s blood was identified by DNA testing, or that his fingerprints match those on the murder weapon. See id. Such opinions are weighed by the juries against the “merits of any alternative explanations” or other facts that tend to contradict the expert testimony. Id.

On the other hand, the opinion of the polygraph examiner is offered to resolve one issue—the defendant’s guilt or innocence. See id. As Lykken points out, if the jury believes the testimony of the expert polygraph examiner, “their verdict is decided.” Id. All other evidence is irrelevant and superfluous. See id. Furthermore, many scientific processes such as DNA analysis and fingerprinting rely upon “conceptual models which explain and predict observable phenomena.” United States v. Wilson, 361 F. Supp. 510, 513 (D. Md. 1973). Such processes producing tangible results are “much more susceptible to controlled experimental verification.” Id. In laymen’s terms, the physical nature of the tests guarantees they can be verified. See id. Polygraphy, however, probes the inner sanctum of the human psyche, a fact that effectively “preclude[s] the probability of accuracy of a polygraph examination.” Id. at 514. Thus, the polygraph is fundamentally different from other forms of scientific evidence courts have previously deemed to be accurate and admissible. See id. at 513-14.

Rule 704 clearly states that, subject to part (b) of the rule, evidence is not excludable merely because it goes to the ultimate issue of the case. See FED. R. EVID. 704. Subdivision (b) of Rule 704, however, prohibits a witness from testifying as to a defendant’s mental state or condition that is an element of the charged crime. See id. Such issues are left solely for the jury to determine. See id. Since a polygraph examination probes the inner psyche of the mind to arrive at a conclusion of guilt or innocence, it seems as if this is the type of “mental” judgment subdivision (b) was attempting to reserve for the jury alone.

\textsuperscript{302} See Lykken, supra note 24, at 269. Some believe that because instruments such as breathalyzers and radar guns also go to the ultimate issue of the case and are admissible, the polygraph should be admissible as well. See United States v. Ridling, 350 F. Supp. 90, 96 (E.D. Mich. 1972). Since the polygraph is not nearly as accurate as these particular instrumentalities, this point is moot. See supra Part IV.A (explaining the inaccurate nature of polygraph examinations).

\textsuperscript{303} See United States v. Stromberg, 179 F. Supp. 278, 280 (S.D.N.Y. 1959) (holding that the jury, and not a polygraph machine, is entrusted with determining the truthfulness of witnesses).

\textsuperscript{304} See Commonwealth v. Seese, 517 A.2d 920, 922 (Pa. 1986). The Pennsylvania Supreme Court held that “to permit expert testimony for the purpose of determining the credibility of a witness ‘would be an invitation for the trier of fact to abdicate its responsibility to ascertain the facts relying upon the questionable premise that the expert is in a better position to make such a judgment.’” Id. (quoting Commonwealth v. O’Searo, 352 A.2d 30, 32 (Pa. 1976)); see also United States v. Helton, 10 M.J. 820, 824 (A.F.C.M.R. 1981) (describing factfinders as those responsible for determining the “ultimate issue of guilt or innocence”).
a violation potentially excludable under Rule 403. At worst, it would encourage jurors to merely "defer" on the question of the defendant's truthfulness to the expert polygrapher. Such prejudicial effects substantially outweigh the testimony's limited probative value in violation of Rule 403.

The second conflict with Rule 403 results from the Rule's exclusion of relevant evidence if it would result in an unnecessary waste of time. The specific inquiry needed to determine the admissibility of polygraph evidence could certainly be classified as wasteful. Such fact-specific in-

305. See Brown v. Darcy, 783 F.2d 1389, 1396-97 (9th Cir. 1986) ("Providing the jury with an all or nothing evaluation of credibility and then telling the jury that this evaluation has an eighty percent to ninety percent chance of being accurate ... interferes with, rather than enhances, the deliberative process."); see generally Seese, 517 A.2d at 922 (describing the potential effects of polygraph evidence on the role of juries if admitted).

306. See State v. Foret, 628 So. 2d 1116, 1128 (La. 1993) (holding that the exclusion of polygraph testimony was proper since it would infringe upon the province of the jury); see also Helton, 10 M.J. at 824 n.16 ("Presented with conflicting and unreconcilable evidence, the temptation would be great for the court to defer to the opinion of the polygraph examiner, and abrogate its factfinding responsibility.").

307. See FED. R. EVID. 403 (describing types of prejudicial impact on juries, including misleading and confusing the jury). To caution jurors as to the potentially prejudicial effects of "shaky" but admissible scientific evidence, Daubert suggested that the trial judge issue jury instructions. Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 596 (1993). At least one court deciding on polygraph admissibility has found this to be a prudent suggestion. See United States v. Crumby, 895 F. Supp. 1354, 1362 (D. Ariz. 1995). Some courts and commentators consistently have doubted the effectiveness of limiting instructions, however, especially with regard to the opinions of polygraph experts. See Bruton v. United States, 391 U.S. 123, 129 (1968) ("The naive assumption that prejudicial effects can be overcome by instructions to the jury ... all practicing lawyers know to be unmitigated fiction.") (citation omitted); see also United States v. Miller, 874 F.2d 1255, 1263 (9th Cir. 1989) (finding that the limiting instruction on the weight of the expert polygraph evidence was "not always sufficient to cure the effect of potential prejudice"); Giannelli, supra note 9, at 1238. Commentator Paul Giannelli, referring to all expert scientific testimony, states unless "the trial judge is knowledgeable about the technique ... he cannot appreciate the extent to which the jury is being misled." Id. This "lack of knowledge limits the efficacy" of a cautionary instruction, thereby failing to aid the triers of fact in removing the apparent prejudicial effects of the expert evidence. Id.; Fredric D. Woocher, Note, Did Your Eyes Deceive You? Expert Psychological Testimony on the Unreliability of Eyewitness Identification, 29 STAN. L. REV. 969, 1004 (1977) (noting the ineffectiveness of jury instructions in protecting the innocent from eyewitness identification testimony).

308. See FED. R. EVID. 403.

309. See, e.g., United States v. Posado, 57 F.3d 428, 432 (5th Cir. 1995) (rejecting the per se rule of inadmissibility and calling for a fact-specific determination of polygraph evidence by each trial judge); United States v. Galbreth, 908 F. Supp. 877, 881 (D.N.M. 1995) (requiring a specific inquiry in light of Daubert every time polygraph evidence is offered); Crumby, 895 F. Supp. at 1358 (calling for a detailed analysis of both parties' data to determine the admissibility of the proffered polygraph testimony).

310. See Brown v. Darcy, 783 F.2d 1389, 1397 (9th Cir. 1986) (criticizing the fact that
quiries may consume precious judicial resources and dissipate valuable court time. 311. Aware of this fact, the drafters of Military Rule of Evidence 707 included this wasted time argument as a basis for banning all forms of polygraph testimony in military trials in 1991. 312. Despite Daubert's call for specific inquiries, the time and resources squandered are too great for a procedure of questionable accuracy, 313 conducted by insufficiently trained and incompetent examiners, 314 and with a great potential for prejudicing juries. 315 For these reasons, Rule 403 should exclude such testimony.

V. CONCLUSION

The conclusions that are generated when applying the Daubert criteria to the question of polygraph admissibility clearly point to the exclusion of the proffered polygraph testimony. The accuracy and validity of the polygraph is low and uncertain. As a result, countless numbers of innocent subjects could be branded as liars or vice versa. The test is susceptible to easily comprehended countermeasures. The numerous poorly trained and incompetent examiners who conduct the tests throughout the nation further amplify the rates of error. In addition, polygraph testing lacks the general acceptance of the relevant scientific community. Even if the Daubert standard were to be somehow satisfied, Rule 403 would exclude the proffered testimony because of its highly prejudicial

311. See United States v. Pettigrew, 77 F.3d 1500, 1515 (5th Cir. 1996) (holding that a district court may exclude polygraph evidence when it appears that vital judicial resources would be wasted); see also Galbreth, 908 F. Supp. at 878 (taking two courtroom days to conduct a proper Daubert inquiry); Mccormick, supra note 2, § 206, at 375 (“[J]udicial and related resources would be squandered in producing and coping with the expert [polygraph] testimony . . . .”).

312. See Mil. R. Evid. 707; see also McCall, supra note 1, at 391. Then President George Bush was the individual responsible for promulgating this rule in 1991. See id. It banned the use of all polygraph results from military trials, even if stipulated to in advance. See id. This decision came close on the heels of the congressional decision to prohibit the use of polygraph tests by private employers engaged in interstate commerce, also known as the Employee Polygraph Protection Act. See H.R. 1212, 100th Cong. (1987) (enacted). The rationale for this legislation includes a general lack of faith in the polygraph theory as a whole, its lack of acceptance by both the American Psychological and American Medical Associations, the subjectivity of the final polygraph results, and its potential for adversely affecting minorities with different physiological stress patterns. See H.R. Rep. No. 100-208, at 1-7 (1987).

313. See supra Part IV.A (describing the poor rates of error associated with the modern polygraph).

314. See supra Part IV.B (explaining the poor state of polygraph examiners in the United States).

315. See supra Part IV.D (discussing the prejudicial impact of expert polygraph testimony).
nature, its penchant for misleading and confusing juries, and its tendency to dissipate precious court time and resources. Until these numerous problems can be eradicated, the polygraph should remain inadmissible in the American courtroom. To hold otherwise is to believe falsehoods about a machine that claims to uncover the truth.

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