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POLYGRAPHY: SHORT CIRCUIT TO TRUTH?

"If ever there is devised a psychological test for the evaluation of witnesses, the court will run to meet it."

—Wigmore (1923)

INTRODUCTION

Polygraphy, or lie-detection, is a technique purporting to detect whether a subject is engaging in deception during a stylized interview in a clinical setting.¹ The term "polygraph" refers to the apparatus used to measure and record fluctuations in selected physiological indicia. Through a procedure that has been practiced for some 40 years,² peculiar fluctuations are isolated and identified, then correlated with specific interview questions to indicate whether the questions were answered truthfully. Despite the obvious appeal of such a technique, polygraphy has met with only sporadic scientific and judicial acceptance, and the admission of polygraphic evidence in court continues to be a rarity.³

Polygraphy has precipitated diverse reactions. Proponents⁴ insist it is an indispensable "scientific informer" in the war against criminality and chaos,⁵ contending that "[p]olygraphy seeks only the truth at all levels, fairly, impartially and objectively, without concern about race . . . or political affiliations."⁶ Through the truth, the innocent will be released and the guilty convicted. Therefore, courts should accept polygraphic evidence with little hesitation. Detractors⁷ of the technique assert that its effectiveness in detect-

1. Polygraphy attempts to diagnose the consciousness of deception in a subject through the skillful analysis of physiological change. Change is measured by a polygraph, a multi-penned instrument that, in modern form, measures (1) blood pressure at the brachial artery with a sphygmomanometer, (2) respiration with a length-sensitive cuff reporting circumference of the abdomen above the diaphragm, (3) skin resistance to electric current with an ammeter and a constant voltage source attached to the fingertips, and (4) gross muscular movement with a roller-bearing stand under the subject's seat. If appropriate questions are asked, characteristic responses will be detected and interpreted by the examiner as evidence of deception. The most comprehensive description of polygraphy written for the practitioner is J. REID & F. INBAU, *TRUTH AND DECEPTION* (1966). See generally R. LEE, *THE INSTRUMENTAL DETECTION OF DECEPTION* (1953); J. LARSON, *LYING AND ITS DETECTION* (1932).

2. The current form of the polygraph evolved in the middle 1930's with the research of Larson. See J. LARSON, *supra* note 1. For a brief history of the polygraph, see J. REID, *supra* note 1, at 10-22.

3. The tradition of inadmissibility began with *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), and has remained virtually unbroken. See cases cited note 18 *infra*.

4. See, e.g., R. FERGUSON, *THE SCIENTIFIC INFORMER* (1971); Kaplan, *The Lie Detector and Its Place in the Law of Evidence*, 10 WAYNE L. REV. 381 (1964); Lykken, *Psychology & the Lie Detector Industry*, 29 AM. PSYCHOLOGIST 725-39 (1974); Wicker, *The Polygraphic Truth Test and the Law of Evidence*, 22 TENN. L. REV. 711 (1953).

5. See, e.g., R. FERGUSON, *supra* note 4.

6. *Id.* at 32.

7. See, Silving, *Testing of the Unconscious in Criminal Cases*, 69 HARV. L. REV. 683 (1956); Skolnick, *Scientific Theory and Scientific Evidence: An Analysis of Lie-Detection*,

ing deception has never been verified, either theoretically⁸ or empirically.⁹ Even if it could be shown to be reliable, they assert, it is undignified and offensive, unduly prejudicial when used in court, and would replace the jury system with trial by machine.¹⁰

Polygraphy is a combination of scientific measurement and human evaluation. It is scientific in that it purports to use objective criteria — the readings of a diagnostic instrument — to detect deception. However, polygraphy has not achieved complete scientific objectivity. Human judgment in the role of the examiner is intrinsic to the method,¹¹ and therefore, perhaps, human error is equally intrinsic.

How then should a court evaluate such a combination of scientific measurement and human evaluation? If the technique of polygraphy involved a machine only, blinking green or red as it diagnosed truth or deception, a court might apply the same standards for admitting it into evidence as has been applied to other purely scientific techniques. In fact, polygraphic evidence is usually evaluated by this standard, known as the "general scientific acceptance" standard, which coincidentally originated in a polygraph case.¹² But if polygraphy involved expert judgment only, without instrumental aid, it would seem anomalous to treat it as another scientific test; rather, it should be treated as expert testimony and evaluated for admission as is all other such testimony.¹³ Polygraphy is, however, neither exclusively scientific nor exclusively human, and much confusion surrounding its use in court has originated from its hybrid character. This note seeks to explore the nature of polygraphy and the appropriateness of the standards used to evaluate its evidentiary use in courts.

THE GENERAL ACCEPTANCE STANDARD

The first recorded attempt to introduce a deception test into evidence occurred in *Frye v. United States*.¹⁴ Accused of murder, the defendant proffered the favorable results of a "systolic blood pressure deception test," a precursor of the polygraph test.¹⁵ Although agreeing that "when a scientific

70 YALE L.J. 694 (1961); Note, *The Emergence of the Polygraph at Trial*, 73 COLUM. L. REV. 1120 (1973).

8. See text accompanying notes 31-39 *infra*.

9. See text accompanying notes 25-30 *infra*.

10. See text accompanying notes 70-72 *infra*.

11. See text accompanying notes 73-96 *infra*.

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

13. See FED. R. EVID. 702 and note 102 *infra*.

14. 293 F. 1013 (D.C. Cir. 1923).

15. The test sought to be introduced was an early technique developed in 1917 by W.M. Marston, consisting of intermittent systolic blood pressure measurements during a stylized interview. A characteristic rise in blood pressure was seen to coincide with a deceptive response. Much sensitivity was added to the technique by J.A. Larson, who replaced intermittent measurements with continuous monitoring of blood pressure. He developed the first real polygraph, or "psycho-pneumocardiograph," when he added a capacity for monitoring respiration. Larson, who was a medical doctor and a police scientist, also initiated the first systematic study of polygraph responses to deception and demonstrated the usefulness of the instrument to the satisfaction of the police. See

principle . . . crosses the line between the experimental and the demonstrable . . . the evidential force . . . must be recognized,"¹⁶ the court held that recognition would be proper only if the principle was shown to be "sufficiently established to have gained general acceptance in the particular field in which it belongs."¹⁷

The *Frye* general acceptance test has been widely approved where polygraphic or other scientific evidence is presented. In application, however, the use of the general acceptance standard has resulted, almost without exception, in exclusion of the evidence.¹⁸ When a scientific technique is newly discovered, courts may feel unable to independently evaluate its effectiveness or worth. The general acceptance test is a method of indirect evaluation that does not require volumes of technical, often conflicting expert testimony, but instead requires evidence that the technique in question has gained general acceptance in the scientific community—a factual determination that courts can more easily and comfortably make. However, in adopting this method of indirect evaluation, courts should understand which types of techniques will likely gain general acceptance in the scientific community and which will not.

The Community

Whether a technique enjoys general acceptance depends in large degree upon what is chosen as the "particular field in which [the technique]

generally J. LARSON, *supra* note 1. Further instrumental refinements were made by Keeler (detection of skin conductivity) and Reid (detection of gross muscular movements). See generally, J. REID, *supra* note 1, at 205-18.

16. 293 F. at 1014.

17. *Id.*

18. Some of the more frequently cited decisions refusing polygraphic evidence because of its lack of scientific acceptance: *United States v. Gloria*, 494 F.2d 477 (5th Cir.), *cert. denied*, 419 U.S. 995 (1974) (traditional view); *United States v. Frogge*, 476 F.2d 969 (5th Cir.), *cert. denied*, 414 U.S. 895 (1973) (same); *Sheppard v. Maxwell*, 231 F. Supp. 37 (S.D. Ohio 1964), *aff'd*, 384 U.S. 333 (1966) (established rule); *United States ex. rel. Sadowy v. Fay*, 89 F. Supp. 150 (S.D.N.Y.), *aff'd*, 284 F.2d 426 (2d Cir.), *cert. denied*, 365 U.S. 850 (1960) (New York rule); *United States ex. rel. Szocki v. Cavell*, 156 F. Supp. 79 (W.D. Pa. 1957); *State v. Valdez*, 91 Ariz. 274, 371 P.2d 894 (1962) (*dicta*); *Codie v. State*, 313 So. 2d 754 (Fla. 1975) (*dicta*); *Kaminski v. State*, 63 So. 2d 339 (Fla. 1953), *cert. denied*, 348 U.S. 832 (1954); *State v. Curtis*, 281 So. 2d 514 (3d D.C.A. Fla. 1973); *Stack v. State*, 234 Ga. 19, 214 S.E.2d 514 (1975); *People v. Zazzetta*, 27 Ill. 2d 302, 189 N.E.2d 260 (1963); *Dugan v. Commonwealth*, 333 S.W. 755 (Ky. 1960); *People v. Davis*, 343 Mich. 348, 72 N.W.2d 269 (1955); *State v. Kolander*, 236 Minn. 209, 52 N.W.2d 458 (1952); *Pereira v. Pereira*, 35 N.Y.2d 301, 361 N.Y.S.2d 148, 319 N.E.2d 413 (1974); *People v. Guerin*, 366 N.Y.S.2d 61 (App. Div. 1975); *People v. Dobler*, 29 Misc. 2d 481, 215 N.Y.S.2d 313 (Suffolk County Ct. 1961); *State v. Foye*, 254 N.C. 704, 120 S.E.2d 169 (1961); *State v. Jackson*, 24 N.C. App. 394, 210 S.E.2d 876 (Ct. App.), *rev'd*, 215 S.E.2d 123 (1975); *State v. Smith*, 113 Ohio App. 461, 178 N.E.2d 605 (Ct. App. 1960); *Henderson v. State*, 94 Okla. Crim. 45, 230 P.2d 495 (Crim. App. 1951); *Reed v. State*, 522 S.W.2d 466 (Tex. Crim. App. 1975); *Romero v. State*, 493 S.W.2d 206, 210 (Tex. Crim. App. 1973). *But see United States v. DeBetham*, 348 F.Supp. 1377 (S.D. Cal.), *aff'd per curiam*, 470 F.2d 1367 (9th Cir. 1972) *cert. denied*, 412 U.S. 907 (1973); *United States v. Zieger*, 350 F. Supp. 685 (D.D.C.), *rev'd per curiam*, 475 F.2d 1280 (D.C. Cir. 1972).

belongs."¹⁹ Newly discovered techniques may not be readily attributed to a particular field. Controversial methods may gain acceptance among limited groups, and assessment of general acceptance may reflect inclusion or exclusion of these groups. Few guidelines exist to help a court decide which groups should be polled for acceptance; in fact, determination of acceptance may be merely a battle between experts representing different camps.

The *Frye* court believed that the "physiological and psychological authorities" must be consulted to evaluate polygraphy.²⁰ In deciding what constituted the relevant scientific community, the court must have used its own understanding of the nature of polygraphy. There is no indication that any evidence was presented to aid the court in this choice. However, the relationship between the technique and the relevant scientific community is a technical question that the court should not attempt to answer without the benefit of expert testimony.

The history of science reflects a trend toward increased specialization.²¹ Progress in science has not waited for approval from the older disciplines, and there are new areas of understanding with unique theoretical bases that cannot expect verification from the traditional scientific fields. Practitioners of polygraphy have developed, in one sense, a science of their own. Accordingly, some courts have accepted polygraphy as a field in itself, viewing trained polygraph examiners as scientific authorities in their own right, regardless of their academic credentials in psychology or physiology.²²

Although restricting the community to a narrow discipline consisting of polygraphy experts makes the choice of the relevant scientific community easier²³ and the finding of general acceptance among that group more likely, it also removes some of the scientific objectivity necessary to screen out the transient and faddish from the substantial and sound. Clearly, the smaller and more homogenous the group used to evaluate acceptance, the greater the danger that techniques enjoying only parochial acceptance will be unwisely admitted.

General Acceptance

When courts require that a scientific test gain general acceptance within a relevant scientific community, they substitute the judgment of a group of experts for their own. Therefore, it is necessary to understand the requirements of general acceptance, which will vary depending on the group of experts used. No group, however, will accept a technique unless (1) it has usefulness, (2) it has a degree of accuracy, and, (3) depending on the group, the technique can be explained according to some theoretical basis.

19. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

20. *Id.*

21. See H. HIMSWORTH, *THE DEVELOPMENT AND DESIGN OF SCIENTIFIC KNOWLEDGE* (1970).

22. See, e.g., *United States v. Wainwright*, 413 F.2d 796 (10th Cir.), cert. denied, 396 U.S. 1009 (1969); *United States v. Wilson*, 361 F. Supp. 510 (D. Md. 1973); *United States v. DeBetham*, 348 F. Supp. 1377, 1379 (S.D. Cal. 1972).

23. See text accompanying notes 40-42, *infra*,

(1) *Usefulness.* Usefulness is an obvious prerequisite to acceptance, but it is often overlooked. Natural science seldom concerns itself with the determination of truthfulness of testimony; unless the polygraph is a specific subject of study, a scientist may never have occasion to evaluate it. What is studied often depends upon the availability of funds, so timeliness and fashionability may, more than validity, lead to acceptance. Thus, functional eccentricity, not inaccuracy, may have relegated the polygraph to a mere oddity among scientists.²⁴ If this be the case, courts should begin to evaluate polygraphy on their own.

(2) *Accuracy.* Accuracy indicates how successfully a test measures what it seeks to measure. How accurate a test must be to be worthwhile in any given application depends upon a number of factors, including the expense and risks involved in the test, the availability of alternate tests, and the importance of the results. The use of polygraphic evidence at trial presents substantial risk if the test is inaccurate. In contrast, in scientific or experimental contexts substantially less accuracy may be required. However, a test that does not offer an improvement over diagnosis by chance is useless in any context.²⁵

Accuracy is often expressed quantitatively as the number of successful diagnoses divided by the total attempts of diagnosis. The use of expert testimony exposes courts to estimates of accuracy, and although these estimates seldom reveal their exact sources,²⁶ they most frequently indicate a range of accuracy of 75-99%, a range of error of 1-25%, and a range of uncertainty or indeterminacy of 5-20%.²⁷ This would seem to indicate an accuracy clearly superior to chance. However, these figures are oversimplistic and can be inaccurate. Consider the following test situations:

24. Functional eccentricity appears to play a large role in selecting topics that are acceptable for scientific research. Certain topics may be in vogue, while others taboo, for reasons relating to the scientific community as a sociological group. See J. TAYLOR, *THE SCIENTIFIC COMMUNITY* (1973); W. HAGSTROM, *THE SCIENTIFIC COMMUNITY* (1965). This phenomenon appears to play a major role in the rejection of the polygraph by scientists.

25. For example, a coin flip would yield a correct result 50% of the time. If a test cannot offer more than 50% accuracy it offers no improvement over chance.

26. Most testimony about the accuracy of the procedure is the estimate of a veteran operator. As familiar with the procedure as these men may be (Reid estimates he has given 35,000 polygraph tests), the estimates are not made under conditions of adequate control, and the possibility of bias cannot be overlooked. J. REID, *supra* note 1, at 234. So serious is the dearth of sound evidence about reliability that the court in *Pulakis v. State*, 476 P.2d 474, 479 (Alas. 1972) remarked: "The central problem regarding admissibility is not that polygraph evidence has been proved unreliable, but that polygraph proponents have not yet developed persuasive data demonstrating its reliability."

27. The figures quoted are from *State v. Stanislawski*, 62 Wis. 2d 730, 738 n. 12, 216 N.W.2d 8, 12 n. 12 (1974), citing numerous other sources. See also *United States v. DeBetham*, 348 F. Supp. 1377 (S.D. Cal. 1972) (range of accuracy: 80-91%); *United States v. Ridling*, 350 F. Supp. 90, 92 (E.D. Mich. 1972) (1% error; 6% inconclusive); *United States v. Lanza*, 356 F. Supp. 27 (M.D. Fla. 1972) (10% inconclusive; 0.1% demonstrable operator error; testimony of John Reid).

POPULATION A	TEST 1A	TEST 2A	POPULATION B	TEST 2B
Class X (Liars)			10	
correct	45 (90%)	45 (90%)		9 (90%)
incorrect	0			1
uncertain	5			0
Class Y (Non-liars)				
correct	45 (90%)	45 (90%)	90	81 (90%)
incorrect	6	5		9
uncertain	5	0		0
a	90%	90%		90%
a ¹	100%	100%		50%

All of the above tests are 90 percent accurate, but they would not be equally acceptable when applied in different contexts. For example, if these were the results of medical tests given to screen a population for disease (class X = diseased; class Y = healthy), each test might be equally acceptable because each identifies correctly 90 percent of the disease carriers. The costs of incorrectly identifying a healthy individual as diseased would presumably be low, since additional confirmatory tests would be available. However, when applied in a judicial setting for the purpose of truth finding, the costs of labeling a truthful response as deceptive are high. This suggests that the index of importance in the judicial context should not be what percentage of the population is correctly identified, but what percentage of those identified as deceptive have been incorrectly identified. This figure is represented by the conditional accuracy, a¹. In test 1A, 45 deceptive responses are found and all of these are indeed deceptive, so a¹ here is 100 percent. Test 2B, in contrast, identifies 18 individuals as deceptive, but only 9 of these are genuine, the other half having been misdiagnosed as truthful individuals. The conditional accuracy a¹ is here only 50%. This means that of any given person identified as deceptive, the probability that he is really deceptive is only one in two. Despite the fact this test is 90 percent accurate, it probably involves unacceptable risk in a judicial setting.²⁸

Furthermore, the accuracy figures given to courts may be misleading because they may be derived from controlled experiments. According to one court:

[E]xperiments [yielding meaningful data on the accuracy of polygraph examiners' opinions] . . . will be difficult to design in such a way that their results will be generalizable to criminal investigation, and scientific research to obtain meaningful data will be difficult to perform on actual cases of criminal investigation.²⁹

28. In fact, the conditional accuracy can be made as low as desired by reducing the percentage of liars in the population. Only when the percentage of liars and the percentage of non-liars are equal does the conditional accuracy of a correct diagnosis equal the ordinance accuracy. See Skolnick, *supra* note 7, at 717.

29. *Pulakis v. State*, 476 P.2d 474, 479 n.29 (Alas. 1970).

The controlled conditions of an experiment apparently fail to instill sufficient concern over detection by the witness to allow the proper operation of the polygraph.³⁰ In addition, direct evaluation in real situations is at best uncertain, because no independent method usually exists for evaluating what was in fact the truth.

(3) *Theoretical sufficiency.* Among scientists there may be uneasiness about techniques that are not successfully explainable within the theoretical framework of their discipline. This caution may be wise because only those techniques that can be understood through reference to established conceptual schema may be endorsed with confidence. This principal may be illustrated by the common problem of verification of computer programs. When a program is presented as a "black box," without any explanatory material, verification that the program will perform as intended is problematic. If the program structure is unknown, then regardless of how many different input patterns are presented in testing, one cannot be certain of the program's performance on hitherto untested patterns. In fact, one cannot even be confident that the program will perform as it previously has on identical input.³¹ In contrast, when the program is documented, that is, presented with detailed step-by-step explanatory material, a human may verify the program through inspection of its component parts. Once the operation of each part becomes intuitively clear, the characteristics of the entire program are thereby illuminated. Its performance may then be predicted with reasonable certainty for various classes of input.

It is important to note, however, that verification by documentation, which corresponds to verification by theoretical explanation, is never absolutely certain. The human attempting the verification may suffer from error and delusion. Furthermore, the size of the steps that must be explained by documentation may vary depending on the nature of the program and the identity of the human to which the documentation is addressed. In this sense, there is no standard of absolute documentation; rather, the test is whether the explanation is sufficient. Similarly, a procedure such as polygraphy could be more confidently endorsed if each step in its operation were explainable. Again, however, there is no absolute standard to determine when such a theoretical explanation is sufficient. It should be noted that many unverified programs and unexplained procedures are nevertheless useful, because confidence in them has developed through continued use.

Polygraphy is not readily subject to explanation. According to most psychologists, no theory of polygraphy has yet revealed it as a synthesis of theoretically acceptable components.³² The explanations seen in courts typically describe a series of events, but these events are not intuitively correct in themselves. For example, one source explains that "the act of lying causes conscious conflict in the mind of the examinee, which produces an emotion

30. See note 60 *infra*.

31. This is because one cannot be certain that the program does not change with time, so long as its structure remains invisible. See J. TAN, 1 SOFTWARE ENGINEERING 76-92 (1972).

32. See Skolnick, *supra* note 7.

of fear or anxiety, manifested by fluctuations in pulse rate, blood pressure, breathing, and respiration."³³ Here the connection between conflict and changes in blood pressure is left unexplained; reference to an intermediate state of "emotion" does not clarify the relationship.³⁴ Thus, one commentator has remarked, "academic psychology and psychophysiology challenge both substantive assumptions underlying lie-detection theory: the assumption of a regular relationship between lying and emotional states, and the assumption of a regular and measurable relationship between emotional change and autonomic activity."³⁵

The connections are not explained on the theory that all mental events must have physical correlates.³⁶ As acceptable as this may seem, it fails to explain why a predictable connection should exist between deception and response regardless of the subject matter in which the deception is embedded. One's reaction to his deceptive statement that he was not at the scene of the robbery might well bear no discernible similarity to the reaction to his deceptive statement that he did not kill his wife. The different physical reaction theoretically engendered by the mental action of thinking about the scene of the robbery may be entirely dissimilar to that engendered by thinking about killing one's wife, and the fact that both are deceptive does not mean that the deception will be generalized and thus detectable. A polygraph examiner may claim that it is detectable, but no theory has yet accounted for this.

It is not surprising that a technique involving human consciousness should be less than theoretically sufficient. The court in *United States v. Wilson*³⁷ echoed this sentiment:

The Court may take judicial notice that the physical sciences exceed the social sciences . . . in terms of experimental qualification and verifiability. Indeed, the uniqueness of the human psyche still provokes debate as to whether the study of human behavior can approach scientific standards as understood in the physical disciplines.³⁸

Indeed, it is arguable that lack of theoretical sufficiency should not close the door on a technique that may have some judicial usefulness. Although courts should not admit techniques that the community might view as unfair or illegitimate, legitimacy in this context does not require the theoretical precision of the physical sciences. Notably, the function of juries in evaluat-

33. *Pulakis v. State*, 476 P.2d 474, 478 (Alas. 1970).

34. None of the standard explanations offers an improvement. Compare this account by a Federal district court: "A lie is an emergency to the psychological well-being of a person and causes stress. Attempts to receive cause the sympathetic branch of the autonomic nervous system to react and cause bodily changes of such a magnitude that they can be measured and interpreted." *United States v. Ridling*, 350 F. Supp. 90, 92 (E.D. Mich. 1972).

35. Skolnick, *supra* note 7, at 703.

36. For a complete treatment of this notion in modern philosophical thought, see W. WINDELBAND, *A HISTORY OF PHILOSOPHY: RENAISSANCE, ENLIGHTENMENT, MODERN*. §§31, 44 (1958); G. LANGFORD, *HUMAN ACTION* 26-29 (1971).

37. 361 F. Supp. 510 (D. Md. 1973).

38. *Id.* at 513-14.

ing testimony falls short of this ideal. If polygraphy cannot approach complete theoretical sufficiency — and in the 50 years since *Frye* there is little indication that it can — then perhaps courts should be satisfied with the less rigorous explanations offered by the social sciences or by polygraphy practitioners and treat polygraphy as an unverified but nevertheless useful procedure for detecting deception.³⁹

The Courts' Dilemma

No uniform standard of how scientific acceptance is to be measured has emerged. One court indicated that "surveys of the opinions of experts familiar with polygraphs as to their usefulness in detection of deception"⁴⁰ would be persuasive. Few such surveys are available, and none are conclusive.⁴¹ Otherwise, the court must consult one expert to determine what others in his field believe. Of course, the contents of the testimony will depend upon who is consulted, so a "battle of the experts" may result.⁴²

Regardless of its decision over membership of the scientific community and the technique for measuring acceptance, use of the general acceptance standard may place courts in an uncomfortable position. Especially when a technique is old enough to have been thoroughly examined by both the scientific community and the courts, deferral to the former seems to serve little purpose other than preventing a sound judicial consideration of the admissibility of polygraphic evidence.

McCormick has argued⁴³ that general acceptance should be required only when judicial notice is required. The theory is that general acceptance is too restrictive a standard and that the added certainty it contributes is necessary only when courts wish to recognize the essential validity of the technique in *any* circumstance. Unless judicial notice is taken, individual trials are forced to relitigate the substantial issues behind the basic or overall validity of polygraphy. As one district court noted recently, "the administration of justice simply cannot tolerate the burden of litigation inherently involved in such a process."⁴⁴

39. A practitioner may explain polygraphy in terms that do not have precise meanings. Nevertheless, the object of his explanation is not proof (he is satisfied the technique works) but communication. One school of scientific thought postulates that all theoretical explanations are mere attempts at communication, and that no standards for proof can be set beyond what the party to whom the communication is directed will accept. This means that the adequacy is an advocate's proof of polygraphy, i.e., his assertion of its theoretical sufficiency depends upon whom he is trying to convince. Thus, if the public must be convinced of the value of polygraphy, a mere communicative explanation from a practitioner might suffice. See generally, HOBSON, *THE DOMAIN OF NATURAL SCIENCE* 24-54 (1926).

40. *Pulakis v. State*, 472 P.2d 474, 479 (Alas. 1970).

41. The only reported survey of the scientific community on the subject of polygraphy is Cureton, *A Consensus as to the Validity of Polygraph Procedures*, 22 *TENN. L. REV.* 728 (1953). No consensus was discovered.

42. See *United States v. Urquidez*, 356 F. Supp. 1363, 1367 (C.D. Cal. 1973).

43. C. McCORMICK, *HANDBOOK OF THE LAW OF EVIDENCE* §203, at 489 (2d ed. 1973).

44. *United States v. Urquidez*, 356 F. Supp. 1363, 1367 (C.D. Cal. 1973).

If the general acceptance standard is eliminated, the court must face the considerable task of evaluating the admissibility of polygraphic evidence on its own.

THE RELEVANCY STANDARD

The Federal Rules of Evidence make no specific provision for polygraphic evidence; nor do they prescribe a "general acceptance" test for scientific or experimental evidence. Rather, they provide an evidentiary standard of wide applicability, derived from the nucleic concept of relevancy:

"Relevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.⁴⁵

All relevant evidence is admissible, except as otherwise provided by the Constitution . . . by act of Congress [or] by these rules Evidence which is not relevant is not admissible.⁴⁶

Professor McCormick agrees that the standard for acceptance of polygraphic evidence should not differ from that of other evidence.⁴⁷ Although the relevancy standard has expressly permitted acceptance of polygraphic evidence in only one state decision,⁴⁸ on occasion courts have indicated implicit agreement with the test prescribed.⁴⁹

The threshold test of relevancy is whether the evidence offered alters the probability of a material fact. There is no definite amount by which the probability must be altered; evidence is relevant if it displays "any tendency" to render a fact "more probable or less probable."⁵⁰ Arguably then, any procedure offering an improvement over mere chance or randomness would meet this requirement. According to even the most conservative estimates⁵¹ of accuracy, polygraphy appears to offer such an improvement

45. FED. R. EVID. 401. Relevancy in the Federal Rules is thus akin to "logical relevance." Some sources use relevancy to mean logical relevance discounted by the probability of prejudice or other factors ("legal relevance"). In this usage, relevant evidence is at once admissible, the inquiry into prejudice having already been completed. When used in this note, relevance means simply "logical relevance" as described in the Rules.

46. FED. R. EVID. 402.

47. C. MCCORMICK, *supra* note 43. The standard advocated by McCormick is relevancy discounted by the probability of prejudice, confusion, and waste of judicial time. *Id.* See also Strong, *Questions Affecting the Admissibility of Scientific Evidence*, 1970 ILL. L.J. 1 (1970); Boyd, *Judicial Recognition of Scientific Evidence in Criminal Cases*, 8 UTAH L. REV. 313 (1962).

48. *State v. Dorsey*, 87 N.M. 323, 532 P.2d 912 (Ct. App.), *aff'd*, 88 N.M. 184, 539 P.2d 204 (1975).

49. "[No] prejudice to the government can flow from allowing the defendant the opportunity to at least attempt to lay a foundation for the admissibility of polygraphic evidence at trial." *United States v. Oliver*, 492 F.2d 943, 944 n.1 (8th Cir. 1974); *United States v. Wainwright*, 413 F.2d 796 (10th Cir. 1969) (defendant unsuccessful).

50. FED. R. EVID. 402.

51. See text accompanying notes 26-27 *supra*.

over chance,⁵² and this may be a compelling argument for its admission.⁵³ The relevancy standard will present courts with complexities which transcend the question of an overall estimate of accuracy.

Reliability: Accuracy in a Particular Case

Courts do not decide hypothetical cases; they are faced with a particular defendant and a particular polygraph test. General estimates of accuracy may not be persuasive unless reliability — the survival of accuracy in a particular case — can be established. In polygraphy, physical and psychological conditions in the subject and inexpertise in the examiner may reduce the procedure's accuracy far below the normally quoted figures. For example, the following factors may degrade accuracy if present in a particular exam: (1) improper test conditions:⁵⁴ uncomfortable room temperature or instrument discomfort; (2) medical problems:⁵⁵ abnormal blood pressure, obesity or heart or respiratory irregularities; (3) mental abnormality: incompetence,⁵⁶ psychopathy,⁵⁷ or schizophrenia; (4) temporary physical difficulties: fatigue⁵⁸ or intoxication;⁵⁹ (5) unusual mental states: lack of concern over detection,⁶⁰

52. *But see* text accompanying note 28 *supra*.

53. *See* State v. Dorsey, 88 N.M. 184, 539 P.2d 204 (1975).

54. Improper test conditions may cause unpredictable results. In particular, if the subject is experiencing discomfort either because of abnormally low room temperature or binding of the cardiograph or pneumograph units at their attachments, readings may display rises in blood pressure characteristic of deception. Sensitivity of the operator to the test conditions is required. *See* J. REID, *supra*, note 1, at 176.

55. Extremes in blood pressure, obesity, and malformation of the limbs may preclude a test by making attachment of the instruments ineffective or uncomfortable. Heart or respiratory irregularities should be distinguishable from deception responses by a skilled examiner. With the exception of the Larson school, however, examiners undergo little or no medical training. *Id.* at 184.

56. Because they are unable to comprehend the questions, mental incompetents and infants are unsuitable subjects. *Id.* at 196.

57. The "criminal psychopath," able to lie with utter impunity, may indeed fool a jury or a polygraph. But Reid reports that the incidence of such is far less than popular fancy would believe. *Id.* at 199.

58. Fatigue, or "adrenal shock" as may be brought on by extended questioning is widely cited as causing poor results. *See, e.g.*, United States v. Urquidez, 356 F. Supp. 1363 (C.D. Cal. 1973); State v. Valdez, 91 Ariz. 274, 279, 371 P.2d 894, 899 (1962). This condition should only produce a "false negative" reading that is, a diagnosis of truth when in fact there is deception. In addition, an operator should detect extreme fatigue through visual examination. J. REID, *supra* note 1, at 202.

59. Both alcohol and drugs may inhibit response, causing false negative errors. The problem is less serious for subjects in custody, as access to intoxicants will be reduced. *Id.* 60. "A subject's concern over the possibility of detection appears to be the principal factor accounting for the physiological changes that are recorded and interpreted as symptoms of detection." *Id.* at 168. To be concerned over detection, a subject must believe that the polygraph will successfully reveal his deception, and he must have a stake in concealing his deception. To cultivate the former, examiners will refer continually to the infallibility of the machine, and will attempt to demonstrate its infallibility through a "card test" prior to the interview. In the test, the subject selects a card at random and supposedly without the knowledge of the examiner. The examiner purports to determine which card the subject selected through polygraphic analysis of the subject's

rationalization or self-deceit,⁶¹ yoga-like abstraction⁶² conjuring false images, or extreme nervousness;⁶³ (6) intentional efforts to avoid detection:⁶⁴ controlled breathing, hidden muscular contractions, or self-inflicted pain.

The examiner's failure to detect any such abnormality materially increases the chance of error. Thus no court should accept proffered polygraphic evidence without detailed information on the conditions surrounding the particular subject, examiner, and test setting.⁶⁵

Accuracy: Polygraph vs. Jury

Since the Federal Rules of Evidence define relevant evidence as that tending to make a material fact "more probable . . . than it would be without the evidence,"⁶⁶ it is necessary to consider the situation "without the evidence." Without polygraphic evidence, the trier of fact will evaluate, unassisted, the credibility of the witnesses. The judge or the jury has long been entrusted with this type of determination of fact or credibility.⁶⁷ This does not mean that the jury system is the most desirable or accurate system possible; the system arose when no polygraphs were available.⁶⁸ Unfortunately, it has been very difficult to determine how accurate the jury system is, either

responses. The test, however, is bogus: the examiner knows of the card and the responses may not have identified the card at all. J. REID, *supra* note 1 at 27 n.36. The subject's concern over detection arguably might not be sustained if he knows that the results of the test cannot be used as evidence. See *United States v. Urquidez*, 356 F. Supp. 1363 (C.D. Cal. 1973).

61. "Rationalization or self-deceit might produce an indefinite result but not an erroneous one." J. REID, *supra* note 1, at 179. The ability to rationalize or self-deceive and thus avoid detection is widely believed to be ingrained in man, and an expression of his apparent freedom. See generally W. WINDELBAND, *supra* note 36, §§40, 44; J. SARTRE, *BEING AND NOTHINGNESS* (1964). This may be the origin of the popular notion that one can always "beat the machine."

62. See *United States v. Wilson*, 361 F. Supp. 510, 513 (D. Md. 1973).

63. Whereas concern over detection is good, extreme nervousness can overwhelm the characteristic deceptive responses and give indefinite results. Whether it can result in a false positive error is not agreed upon. Nervousness can result from pre-existing psychoneuroses, from guilt in previous crimes, or from the questioning process itself. A subject who is interrogated as though he is already responsible for the offense in question is no longer a suitable subject for a polygraph test by that examiner. J. REID, *supra* note 1 at 12.

64. Intentional efforts to avoid detection can effectively mask responses. However, the efforts themselves may be viewed as indicative of deception. *Id.* at 153-68. See also text accompanying notes 109-13, *infra*.

65. See, e.g., *State v. Curtis*, 281 So. 2d 514, 515 (3d D.C.A. Fla. 1973) ("reliability . . . is still dependent upon too large a number of variable factors impossible of resolution.").

66. FED. R. EVID. 401.

67. See, e.g., *Boykin v. People*, 22 Colo. 496, 45 P. 419 (1896). (Evaluating truth is a process "of enormous complexity, and involves an almost infinite number of variable factors. It is the basic premise of the jury system that twelve men and women can harmonize those variables and decide, with the aid of examination and cross-examination, the truthfulness of a witness."); *United States v. Stromberg*, 179 F. Supp. 278, 280 (S.D. N.Y. 1959).

68. Trial by ordeal may be considered an early form of instrumental detection of deception. See generally W. BIRSON, *ANCIENT MODES OF TRIAL* 266-74 (1947); H. GOETIN, *PRIMITIVE ORDEAL AND MODERN LAW* 56-57 (1923).

in making factual determinations or in evaluating credibility. Thus, it remains a matter of conjecture whether the polygraph can offer an improvement.⁶⁹

The jury, however, performs a normalizing function beyond its role as factfinder. The judgment of one's peers is an element of our judicial system that should not lightly be discarded. To this degree, speculation on improvements in accuracy resulting from replacement of the jury by a polygraph is unproductive. Even the most vocal advocates of polygraphy do not propose complete abrogation of the jury in favor of the machine, but see the machine as assisting the trier of fact. The principal objection to such use of the polygraph is not that it is insufficiently accurate, and thus not relevant, but that it is overly prejudicial and disruptive of the jury system.⁷⁰

PREJUDICIAL EFFECT OF POLYGRAPHIC EVIDENCE

Even if scientifically accepted or demonstrably accurate, evidence that is prejudicial to the trier of fact must be excluded. The Federal Rules of Evidence provide, "[a]lthough relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice"⁷¹

69. Investigation is needed into whether the efficacy of juries in detecting deception is related to any sense of guilt or moral shame, heightened by the oath, felt by the witness upon lying. Certainly, physiological reactions to deception are not innate to the species, but are the products of cultural conditioning. If conditioning in modern culture has de-emphasized the role of ethical guilt, perhaps people now are better liars. Whether the polygraph is equally hampered by this "new morality" is a topic of some conjecture.

70. FED. R. EVID. 403.

71. Generally, scientific evidence may determine an ultimate conclusion. FED. R. EVID. 704 provides: "Testimony . . . otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact."

A basic problem involves the defendant accused of murder who, taking a polygraph test, registers a deceptive response to the question of whether he committed the murder. If the court were to admit the polygraphic evidence, would it be proper for the jury to consider the evidence as determinative of his guilt, or merely as demonstrating, in an impeaching context, that he had previously lied (in both cases, subject to the belief in the testimony)? Note that, as the polygraph measures consciousness of deception, the defendant would have registered a deceptive response if he mistakenly believed he had committed the murder. This is not to say that the inference the jury might draw that his belief in his guilt is incriminating in itself is incorrect. If the defendant had confessed in open court on the strength of his mistaken belief, the jury could hardly be expected not to treat this as determinative of guilt. There is a difference, however, between an open confession and the pronouncement of a polygraph operator that the defendant is guilty. The jury may weigh the probability that the confession is mistaken against other evidence that may be available; however, with polygraph results, the jury may feel that the machine is somehow definitive on the issue of guilt and not realize the effect of a potential mistake. See *State v. Valdez*, 91 Ariz. 274, 283, 371 P.2d 894, 900-01 (1962) ("[T]he trial judge should instruct the jury that the examiner's testimony does not tend to prove or disprove any element of the crime with which a defendant is charged but at most tends only to indicate that at the time of the examination defendant was not telling the truth.").

Occasionally, conflicting testimony is the only evidence available, and in these situations, polygraphic evidence, if admissible, could properly determine ultimate guilt, although

Undue Weight and Scope

There are several prejudicial factors inherent in polygraphic evidence. First, a jury may treat the evidence as determinative of the ultimate issue at trial. This difficulty may be surmountable by instruction. Second, a jury may be inclined to assign greater than proper weight to polygraphic evidence. In rejecting proffered polygraphic evidence the Massachusetts supreme court viewed with alarm "[a]n almost impenetrable aura of scientific infallibility [surrounding] the polygraph machine . . . in the minds of the jurors."⁷² It is inevitable, and not necessarily prejudicial, that jurors will accept the products of modern industrial technology without understanding the details of each item's operation. However, it would be prejudicial for jurors to accept polygraphy as such a product if the polygrapher's conclusion is more a result of his expertise at evaluation than of scientific advances built into his instrument. If the examiner's participation is substantial—especially in discretionary and not merely ministerial functions—then the jury is entitled to give some weight to his conclusions; but if the jury believes the conclusion was reached through advanced and inscrutable technology, then the weight they assign is apt to be undue, and therefore prejudicial. For this reason it is important to consider the role of the polygraph examiner.

Role of the Examiner

(1) *Reading of the instrument.* Even in the most concrete area of polygraphy—interpretation of the pen movements of the instrument—the judgment of the examiner is critical. For example, the discrimination of the examiner is tested in the following problems:

- (1) Threshold: how much pen movement indicates deception?⁷³
- (2) Timing: to what question should a significant pen movement be related?⁷⁴

the conclusion of guilt must be drawn by the jury and not by the examiner. Thus in *United States v. Ridling*, 350 F. Supp. 90 (E.D. Mich. 1972), polygraphic evidence was accepted as determinative of defendant's ultimate guilt of perjury. *See also* *Walther v. O'Connell*, 72 Misc. 2d 316, 339 N.Y.S.2d 386 (Queens Cty. Ct. 1972) (polygraphic evidence to resolve diametrically opposed testimony on a loan).

72. *Commonwealth v. A Juvenile*, Mass. , 313 N.E.2d 120, 135 (1974).

73. For instance, the respiratory responses characteristic of deception are (1) respiratory suppression, (2) baseline rise, and (3) cycle change. But all are continuous measurements, and no cutoff figure is specified in polygraph manuals. The examiner must decide how much change indicates deception. *See generally* R. LEE, *THE INSTRUMENTAL DETECTION OF DECEPTION* (1953).

74. Relating a response to a specific interview question is a complex task. Physiological responses may precede a question, because often the same question is repeated on successive tests. Or, responses may follow a question for some time, if the subject continues to think about his answer. Anticipatory responses, especially those which precede a question an interval greater than one respiratory cycle are not indicative of deception, whereas lingering responses are diagnostic of deception from the source question. In a short interview, laced with threatening questions, singling out anticipatory and lingering responses may be unmanageable. *See* J. REM, *supra* note 1, at 40-53.

- (3) Correlation: what if pens tracing different physiological measurements give contrary implications?⁷⁵
- (4) Idiosyncrasy: how do differences in subjects affect results?⁷⁶

The interpretation problems are compounded when a subject attempts to trick the machine.⁷⁷ Anomalous results may follow unless an examiner is able to detect the evasive behavior at an early stage.

Also, the unconscious bias introduced into all instrument readings, known as the "halo effect,"⁷⁸ is well known. When an examiner has a particular result in mind, he is apt to err towards the side of the desired result even in the simplest and most mechanical of tasks. "Double-blind" experiments, where the examiner is ignorant of the consequences of an instrumental reading, are employed to minimize halo effect. But in polygraphy, the examiner must interpret the response as deceptive or otherwise and so cannot be blind to the consequences. Thus, the possibility of a halo effect is ever-present.

(2) *Delivery of Questions.* In the formation and delivery of questions to the subject, the skill of the examiner directly determines the success of the test. Control questions, delivered at the outset of the interview to establish baseline responses, must be continually modified in light of the earlier responses.⁷⁹ Failure to establish a reliable baseline immediately invalidates the test. Interview questions, delivered at a proper pace to maintain peak reactivity,⁸⁰ must relate to the fact situation under investigation,

75. The Reid polygraph displays four physiological parameters, and all others currently in use display at least three. If all parameters correlated perfectly, measurement of more than one would be superfluous. Skolnick, *Scientific Theory and Scientific Evidence: An Analysis of Lie Detection*, 70 YALE L.J. 694, 703 (1961). Examiners may not agree on which variables are the most significant. Larson regarded systolic blood pressure as the best single indicator. J. LARSON, *supra* note 1. Reid believed respiratory "experimenters generally regard galvanic skin response as the best indicator of deception, but field examiners generally do not; possible galvanic skin response is the only indicator sensitive enough for laboratory experiments on subjects who do not care much whether they succeed in deceiving the experimenter, but is too sensitive for the intensely emotional circumstances of real life interrogations." Pulakis v. State, 476 P.2d 474, 478 n.19 (Alas. 1970), citing Thackray & Orne, *A Comparison of Physiological Indices In Detection of Deception*, 4 PSYCHOPHYSIOLOGY 329 (1968).

76. Individuals display unique responses to deception with respect to magnitude, pattern, timing, and correlation. The control questions theoretically serve to calibrate the instrument, but are often inadequate for the task, as they may fail to bring about the full emotional content of the later questioning. See *United States v. Urquidez*, 356 F. Supp. 1363, 1365 (C.D. Cal. 1973).

77. See text accompanying notes 88-90, *infra*.

78. See Skolnick, *supra* note 75, at 712.

79. For example, the examiner must induce the subject to lie about something, so that the pattern for lying in this particular subject can be ascertained. He must ask a question to which he knows the answer but feels the subject will answer deceptively. And it would do no good to ask the subject to give a purposely deceptive response, because then the subject would be unconcerned over the possibility of detection. A common question asks whether the subject has ever stolen anything. Most subjects have and will not admit it. But a particular subject may have not, and another control question must be asked if no response occurs. J. REID, *supra* note 1, at 52, 125-26.

80. The separate questions must be short and direct; long-winded questions tend to dissipate the emotional tension. *Id.* at 180.

and must avoid ambiguity or the need for the subject's interpretation.⁸¹ If the examiner fails to maintain an inflection that is suitably formal but not overly accusatorial, the value of the subject's responses will be diminished.⁸²

(3) *Use of outwardly incriminating signs.* Far from being trained to ignore the subject's demeanor, or "outward signs of deception," the polygraph examiner is encouraged to use them for "ultimate diagnostic purposes."⁸³ Mr. Reid suggests that "a lying subject usually will not display . . . frankness or interest; he is rather prone to speak evasively in generalities about the matter in question."⁸⁴ When questioned about the perpetrators of a crime, "a truthful subject who harbors any suspicions will name the persons or person he suspects; the untruthful subject will seldom identify another person as a suspect."⁸⁵ Remarkably, even the subject's respiratory condition may be incriminating, according to Reid; the examiner is exhorted to "[pay] particular attention . . . to the matter of whether or not [the subject] is coughing or sniffing . . ."⁸⁶ Not only the examiner but also his employees may evaluate these outward symptoms. Reid states that "the recorded ob-

81. The problem of appropriate questions is compounded by the fact that most examiners have little opportunity to become intimately familiar with the factual situation surrounding an event in question. The interview questions must be of a factual nature exclusively; interpretation, analysis or conclusion of the subject will degrade response. In *United States v. Lanza*, 356 F. Supp. 27 (M.D. Fla. 1972), though the examiner, Reid, was a highly experienced operator, the court would not admit evidence of a polygraph test principally because the test questions were ambiguous and unrevealing. Reid had asked, "Did you give money to . . . for the operation of illegal gambling activities?" 356 F. Supp. at 31. The question and the response were worthless as indicators of deception because the question required the subject to define "illegal gambling activities." Since the issue related to the validity of the evidence, not just its weight, the court and not the jury examined the questions for sufficiency. Likewise, in *Butler v. State*, 228 So. 2d 421 (4th D.C.A. Fla. 1969) the court, not the jury, examined the test questions and found them adequately revealing.

82. The examiner must adjust the psychological atmosphere of the interrogation room for optimum response. Although he should foster concern over detection, see note 60, *supra*, he should avoid extreme nervousness, see note 63, *supra*. The questions asked during a polygraph test become part of the record that a court may evaluate in considering the sufficiency of the test. But the psychological atmosphere cannot be recorded; bias introduced by inflection or gesture is thus generally undetectable.

83. "The justification for ultimate diagnostic purposes of taking into account . . . outward symptoms of truth or deception is closely related to the procedure used by a physician in his attempted diagnosis of illness or health. He, too, takes into account the observable symptoms disclosed by the patient's outward appearance and verbalizations." J. REID, *supra* note 1, at 16.

84. *Id.* at 13. "Many times he will, in contrast to the truth-telling subject, squirm around in the chair, look away from the examiner, cross his legs, use his hands as though trying to dust something off his clothes, or engage in some other similar physical activity." *Id.*

85. *Id.* Furthermore, "[a] truth-telling subject will usually make a strong denial that he was anywhere around at the time of the crime, barring, of course, a situation where his presence there was innocently explainable. A lying subject, on the other hand, will usually stall with his answer, indulge in bodily movements such as squirming around and then finally deny being present at the scene." *Id.* at 14.

86. *Id.* at 15. Note that then expressions are usually unrecorded.

servations of a secretary or receptionist as to the subject's general conduct or behavior while in the waiting room will be very helpful to the examiner."⁸⁷

(4) *Response to uncooperative subject.* Especially because these outward signs of deception may be highly subjective in nature, the possibility of any aberration from unconscious bias to intentional misconduct cannot be overlooked.⁸⁸ Particularly revealing is the diagnosis of an uncooperative subject. According to Reid, subjects who intentionally attempt to deceive the machine "fail to realize . . . that their evasive conduct itself is *just as significant of their deception* as the responses that are revealed in the tracings of lying subjects who do not seek to evade detection by that process."⁸⁹ Thus, an examiner's testimony that a response is deceptive might merely reflect a belief that the subject was uncooperative. However, a subject may legitimately refuse to cooperate. He may feel that the test will not adequately reveal his innocence. If he feels the test will reveal his guilt, he may invoke his fifth amendment right against self-incrimination.⁹⁰ Neither case should be treated as "just as significant" of deception as classic instrumental deception patterns. An examiner's diagnosis of an uncooperative subject may sometimes be nothing more than a thoroughly prejudicial interpretation of his conduct.

Because of the unusual responsibility of the examiner in polygraphy,

87. *Id.* at 10.

88. See *United States v. Urquidez*, 356 F. Supp. 1363 (C.D. Cal. 1973) (concern over the integrity of the operator); *United States v. Wilson*, 361 F. Supp. 510, 512 (D. Md. 1973) ("The preparation of the test and discussion with the examinee of the polygraph procedure furnish additional opportunity for improper subjective evaluation The acquainting of the examiner with the subject matter is often a source of improper suggestion, conscious or subconscious.").

89. J. REID, *supra* note 1, at 153 (emphasis added).

90. Polygraphic evidence is testimonial and not merely physical, so unlike the bodily extractions in *Schmerber v. California*, 384 U.S. 757 (1966), under the fifth amendment, it cannot be secured from an unwilling subject. See *United States v. DeBetham*, 348 F. Supp. 1377, 1389 (S.D. Cal. 1972) and authorities cited therein.

The usual reasons for holding the evidence testimonial, even though it consists principally of a physical measurement, *but see* text accompanying notes 83-88 *supra*, is that a verbal response engenders and makes meaningful the physical reaction. Some sub-tests do not employ answers at all. In the "peak of tension" test, an examiner displays to a subject a number of articles, some of which may have incriminating value, and records the subject's reactions to merely viewing the articles. See J. REID, *supra* note 1, at 127-30. Perhaps in all tests the subject responds to an incriminating question, regardless of whether his answer is verbal. If this is the case, polygraphy may be viewed as a bodily extraction and not a form of testimony.

Under the theory that it is testimonial, polygraphic evidence can be secured constitutionally only from a subject who has waived his fifth amendment privilege. Usually, consent to take the test amounts to a waiver. 348 F. Supp. at 1389. This comports with the generally accepted notion that polygraph tests on unwilling subjects are impossible. See J. REID, *supra* note 1, at 5. However, if a subject does consent to take a test and during the test becomes uncooperative, it is uncertain whether he has thereby revoked his consent. See *Miranda v. Arizona*, 384 U.S. 436 (1966). Although it may appear that he has, an examiner may treat lack of cooperation as deception and so testify. See, e.g., *Walther v. O'Connel*, 72 Misc. 2d 316, 317, 339 N.Y.S.2d 386, 387 (Queens Cty. Ct. 1972) ("purposefully uncooperative subject").

several states now require licensing of "detectors of deception" in order to provide standards of training and character.⁹¹ The standards are rather lenient, however, and lack national uniformity, despite attempts by national polygraphers' associations to promote standardization of the profession.⁹² Notwithstanding such licensing, Professor Inbau has testified that only 20% of all polygraph examiners are truly qualified.⁹³

Recognizing the importance of the examiner's role, courts invariably hold that if circumstances otherwise permit introduction of polygraphic evidence, the examiner who performed the test must testify in person at trial.⁹⁴ The theory is that vigorous cross-examination may expose the biases or at least the vagueries implicit in the test, and will demonstrate the extreme dependence of the test on a competent and fair examiner. Unsatisfied with this, other courts have insisted that any polygraph test, to be admissible, must be performed by court appointed experts.⁹⁵ Still other courts view the examiner responsibility problem as insurmountable and the primary obstacle to the judicial use of polygraphic evidence.⁹⁶

91. See, e.g., FLA. STAT. §493 (1975); ILL. ANN. STAT. ch. 38, §§202-1 to 202-30 (1973); TEX. REV. CIV. STAT. ANN. art. 4413 (29cc) §7 (Supp. 1974); VA. CODE ANN. §§54-729.01-.018 (Supp. 1973). For a more complete list, see *Commonwealth v. A Juvenile*, Mass. , 313 N.E.2d 120, 135 (1974).

92. FLA. STAT. §493.43 (1975) requires the following qualifications for a detection of deception examiner: (1) minimum age of 21; (2) United States citizen; (3) established integrity; (4) no felony conviction; (5) bachelor's degree or five years experience; (6) six weeks training at recognized school; (7) one year as intern.

93. *Use of Polygraphs as Lie Detectors by the Federal Government, Hearings Before a Subcommittee of the House Committee on Government Operations*, 88th Cong. 2d Sess. Pts. 1-5 (1968) (testimony of F. Inbau). Inbau has also stated, "it is argued that the margin of error . . . is small. That might be true where tests were made by recognized experts, but it is not safe to say that such would be the case if every police department in the country should send one or two officers to a training institute for 30 days and then proclaim them to be experts." *State v. Hill*, 40 Ohio App. 2d 16, 317 N.E.2d 235, 237 (Ct. App. 1963).

94. See, e.g., *United States v. Zeiger*, 350 F. Supp. 685 (D.D.C. 1972) (jury will be able to make adequate evaluation with the help of cross-examination); *United States v. DeBetham*, 348 F. Supp. 1377 (S.D. Cal. 1972); *State v. Valdez*, 91 Ariz. 274, 281-83, 371 P.2d 894, 899-901 (1962) (standards for the admission of polygraphic evidence upon stipulation require the presence of the examiner at trial); *Carpenter v. State*, 241 N.E.2d 347 (Ind. 1968) (trial court's consideration of polygraph test results in letter without testimony of examiner was prejudicial error).

95. *United States v. Ridling*, 350 F. Supp. 90 (E.D. Mich. 1972). *Ridling* approved the use of polygraphic evidence without stipulation provided the examiners be appointed by the court. See Fed. R. Evid. 706, stating that a court may on its own motion appoint expert witnesses.

96. See, e.g., *United States v. Urquidez*, 356 F. Supp. 1363 (C.D. Cal. 1973); *United States v. Wilson*, 361 F. Supp. 510 (C.D. Md. 1973) ("polygraph, albeit based on a scientific theory, remains an art with unusual responsibility placed on the examiner" *Id.* at 512. The court commented on the lack of consensus among experts.); *State v. Hill*, 40 Ohio App. 2d 16, 19-20, 317 N.E.2d 233, 236 (Ct. App. 1963) ("polygraphy is only as reliable and valuable as the examiner. It must be remembered that there are few truly competent examiners . . .").

Role of the Jury

Measures should be taken to minimize prejudice if polygraphic evidence is to be admitted. The jury should be informed that polygraphy is not an exact science and, regardless of what accuracy figures may be introduced, is never infallible. Jury instructions should specify that any polygraphic evidence admitted is mere expert opinion to be weighed along with all the other evidence presented.⁹⁷ The court should warn polygraph examiners that they are not to opine on the issue of ultimate guilt. Further, it may adopt the position that polygraphic evidence, as relevant only to past deception or truthfulness of the witness, may be used only for impeachment purposes.⁹⁸

Abrogation of the Jury

A good deal of concern has been expressed about the prejudice that might result from the jury, awed by a scientific mystique, giving undue weight to polygraphic evidence. If the evidence is presented as expert opinion, much of this prejudicial effect may be removed. However, if the polygraph test is understood as merely an expert evaluation, without any instrumental aid, it might still be inadmissible. In *Salem v. United States Lines Co.*,⁹⁹ the Supreme Court excluded expert testimony about whether a particular fixture on a ship was dangerous on the theory that the determination of what was dangerous was an area wholly within the jury's understanding and discretion:

The general rule is . . . expert testimony not only is unnecessary but indeed may properly be excluded . . . if all the primary facts can be accurately and intelligently described to the jury, and if they, as men of common understanding, are as capable of comprehending the primary facts and of drawing correct conclusions from them as are [expert] witnesses. . . .¹⁰⁰

Thus, a polygraph examiner, if he employs only the same primary facts (here, the outward signs of deception) that are accessible to the jury, cannot properly offer his expert opinion. One reason for excluding the expert testimony here is that it is apt to offer no improvement in accuracy. Also, regardless of the accuracy of the expert, it is improper to replace the jury in making the types of evaluation with which it had previously been en-

97. Scientific evidence is not usually restricted to the form of expert opinion. FED. R. EVID. 702 provides: "[A] witness qualified as an expert . . . may testify . . . in the form of an opinion or otherwise." According to the Advisory Committee, "it seems wise . . . to encourage the use of expert testimony in nonopinion form when counsel believes the trier can itself draw the requisite inference." FED. R. EVID. 702 (Notes of Advisory Committee on Proposed Rules). The court, however, would be unable to interpret raw polygraph data because this can be done only by a skilled examiner. Thus the use of his expert testimony should be in opinion form only.

98. For a discussion of the propriety of allowing polygraphic evidence to be determinative of guilt, see note 71 *supra*.

99. 370 U.S. 31 (1962).

100. *Id.* at 35.

trusted. Thus, in *United States v. Amaral*,¹⁰¹ the court of appeals excluded the expert opinion of a psychologist estimating the reliability of certain eyewitness identification. The court emphasized that the expert should not be permitted to substitute his judgment for that of the jury.¹⁰² Although both the *Amaral* court and a similar Florida decision¹⁰³ failed to carefully separate the issue of relevance from that of prejudice, these decisions indicate that testimony from a "lie expert" who has interviewed subjects and used the same outward signs of deception that the jury presumably uses, is likely to be excluded, regardless of whether the expert was arguably more accurate than the average jury.

Polygraphy purports to measure, through instrumental means, signs of deception that are inaccessible to the jury. The machine and the method employed distinguish the polygraph examiner from the "lie expert" above. However, in view of the extensive role of the examiner in interacting with the machine, and the fact that the outward signs of deception visible to the jury may also be included in the examiner's diagnosis, this distinction may be insignificant. Furthermore, just what constitute the "outward signs of deception" that presumably are visible to a jury are not specifically known. The nature and magnitude of possible physiological changes have not been catalogued. It is thus premature to conclude, absent a showing that polygraphy is demonstrably superior to a jury in detecting deception,¹⁰⁴ that a polygraph does anything more than measure numerically what humans have been measuring, consciously or unconsciously, all along.¹⁰⁵

101. 488 F.2d 1148 (9th Cir. 1973).

102. *Accord*, *Campbell v. Clark*, 283 F.2d 766, 768 (10th Cir. 1958) ("Expert testimony . . . is inadmissible in instances where the normal experience and qualifications of laymen jurors enable them to draw proper conclusions."); *Grayson v. Williams*, 256 F.2d 61 (10th Cir. 1958); *Farris v. Interstate Circuit*, 116 F.2d 409, 412 (5th Cir. 1941); *but cf.* *Jones v. Goodlove*, 334 F.2d 90, 94 (8th Cir. 1964), where the court, upon admitting expert testimony relating skid marks at an accident scene to negligent vehicle speed, maintained that "expert testimony is not vulnerable to an objection that it invades the province of the jury." 334 F.2d at 94. The exact relationship between skid marks and speed might well be outside the normal experience of the jury, however, so the quoted passage seems merely dictum.

FED. R. EVID. 702 provides that expert testimony is admissible "if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue . . ." Unfortunately, the rule does not distinguish between the irrelevant and the prejudicial, but rather appears to offer a third standard for scientific evidence embodying both relevancy and prejudice.

103. *Seaboard Coast Line R.R. Co. v. Hill*, 250 So. 2d 311 (4th D.C.A. 1971), *cert. denied*, 270 So. 2d 359 (Fla. 1972).

104. See text accompanying notes 66-70 *supra*.

105. "As a scientific instrument, however, all that can be legitimately claimed for the polygraph is that through physiological responses it may provide clues to veracity that are more detailed than those afforded by visual observation of the subject in an interview. Nevertheless there is strong reason to doubt that these autonomic response data are any more precise in terms of permitting a systematic and reliable inference of lying." Skolnick, *supra* note 75, at 714.

QUALIFIED ADMISSION OF POLYGRAPHIC EVIDENCE

Though the courts' overwhelming posture is one of inadmissibility, under compelling circumstances some courts have felt obliged to admit polygraphic evidence in some form. Qualified admissions have occurred in the contexts of (1) due process compulsions to admit exonerating evidence; (2) stipulation agreements between adversaries; and (3) incriminating responses or confessions to polygraph operators.

Due Process Compulsion to Admit

When a polygraph test indicates that a prosecutorial witness is untruthful, a defendant would naturally wish to present evidence of the test to the jury for purposes of impeachment. The court in *United States v. Hart*¹⁰⁶ allowed such evidence, viewing admissibility as "not a pure question of the reliability of polygraph tests,"¹⁰⁷ but as a question of prosecutorial duty under the dictates of due process.

Hart was based on *Brady v. Maryland*,¹⁰⁸ in which the Supreme Court approved a mistrial when the prosecution failed to disclose a confession made by defendant's companion. The *Brady* court held, "the suppression by the prosecution of evidence favorable to an accused upon request violates due process when the evidence is material . . . to guilt. . . ."¹⁰⁹ Thus, *Brady* imposes an affirmative duty on the prosecutor to disclose exculpatory evidence, including that tending to prove perjury on the part of a prosecution witness.¹¹⁰

Hart extended *Brady* significantly. While the confession suppressed in *Brady* was otherwise judicially acceptable,¹¹¹ the court in *Hart* was "bound by the authorities . . . that polygraphic evidence is not admissible."¹¹² To surmount this posture of inadmissibility caused by distrust of the polygraph's reliability, the court relied on an estoppel-like notion, "the results of the tests which the government had the witness take are admissible on behalf of the defendant because the government initially thought they were reliable enough to assist it in evaluating its witnesses."¹¹³ While *Brady* required disclosure to the defendant under penalty of mistrial, *Hart* required no less than disclosure to the jury: "Under the *Brady* principle, the burden should

106. 344 F. Supp. 522 (E.D.N.Y. 1971).

107. *Id.* at 523.

108. 373 U.S. 83 (1963).

109. *Id.* at 87.

110. Due process is violated when a state "has contrived a conviction through the pretense of a trial which in truth is but used as a means of depriving a defendant of liberty through a deliberate deception of court and jury by the presentation of testimony known to be perjured." *Mooney v. Holohan*, 294 U.S. 103, 112 (1935); *see also* *Barbee v. Warden*, 331 F.2d 842 (4th Cir. 1964).

111. 373 U.S. at 88, 94 n.4. However, the question of whether the confession was admissible as relevant to guilt or merely as relevant to punishment was unresolved. 373 U.S. at 92-94 (Harlan & Black, JJ., dissenting).

112. 344 F. Supp. at 524.

113. *Id.*

be on the government to convince a jury that this test was of no significance."¹¹⁴ So broad is the *Hart* rationale that it would seem to apply to the results of an exonerating polygraph test taken by the defendant himself, provided it is taken at the request of the prosecution so that the prosecution would be estopped from objecting to reliability. A defendant under the *Hart* rule would have nothing to lose and everything to gain from accepting the prosecution's offer. Of course, a prosecutor would refrain from such offers unless, under pressure of a large caseload, he wanted to eliminate unlikely convictions.

The impact of *Hart*, however, has been less than overwhelming. In *State v. Dorsey*,¹¹⁵ the court, without citing *Hart*, relied upon a due process requirement first articulated in *Chambers v. Mississippi*.¹¹⁶ "[W]here constitutional rights directly affecting the ascertainment of guilt are implicated, the hearsay rule may not be applied mechanistically to defeat the ends of justice."¹¹⁷ *Chambers*, like *Brady*, involved a due process compulsion to admit a confederate's extrajudicial confession. But unlike that in *Brady*, the *Chambers* confession was inadmissible under a state holding that refused to recognize declarations against penal interest as exceptions to the hearsay rule.¹¹⁸ Persuaded that the confession was otherwise reliable and that the evidentiary rule was perhaps outdated, the Court in *Chambers* concluded that "the exclusion of this critical evidence . . . denied [the defendant] a trial in accord with traditional and fundamental standards of due process."¹¹⁹

There is a large step between overturning a highly technical and obsolete evidentiary rule, as in *Chambers*, and removing all evidentiary bars, as *Dorsey* seemed to require. Recently, a Florida court refused to take even a smaller step to relax the hearsay rule and admit testimony of third-party statements made to a police officer during an investigation.¹²⁰ *Chambers* was readily distinguished as applying only when the evidence sought to be admitted is of independently ascertainable reliability and the rule preventing its admission has but a marginal relation to reliability.¹²¹

In *Dorsey*, where the rule barring polygraphic evidence related directly to the validity of the evidence, and no independent showing of reliability was made, the relevance of *Chambers* is questionable.¹²² The case illustrates

114. *Id.* at 523.

115. 87 N.M. 323, 532 P.2d 912 (Ct. App.), *aff'd*, 88 N.M. 184, 539 P.2d 204 (1975).

116. 410 U.S. 284 (1973).

117. *Id.* at 302.

118. Declarations against interest are frequently admitted as exceptions to the hearsay rule because of their inherent trustworthiness. W. RICHARDSON, RICHARDSON ON EVIDENCE §255, at 224 (5th ed. 1973). Originally only declarations against pecuniary or proprietary interest were recognized, but most states and the Federal Rules have now recognized declarations against penal interests as well. *Id.* §260. The Federal Rules require that such declarations be accompanied by "corroborating circumstances clearly indicat[ing] the trustworthiness of the statement." FED. R. EVID. 804(b)(3).

119. 410 U.S. at 302.

120. *Dykman v. State*, 300 So. 2d 695 (3d D.C.A. Fla. 1974).

121. *Id.* at 699.

122. In a short affirmance, the New Mexico supreme court did not mention *Chambers* but merely held that the evidentiary bar against polygraphic evidence is "inconsistent with due process." *State v. Dorsey*, 88 N.M. 184, 185, 539 P.2d 204, 205 (1975).

the tension courts may feel between their desire to maintain high evidentiary standards on one hand and their due process obligations to permit a defendant access to important exculpatory evidence, even if it is polygraphic, on the other.

Stipulation Agreements

Sometimes the parties to an action may agree that polygraphic evidence should be introduced. On the force of this agreement, some courts will allow evidence which would otherwise be inadmissible. An agreement could be implied from a party's failure to object when such evidence is offered by his adversary, although such occurrences are rare.¹²³ More commonly, a previous agreement could be evidenced by a stipulation signed by both parties prior to the polygraph test and providing for admission of the evidence regardless of outcome.¹²⁴

Although earlier decisions dealt with the issue,¹²⁵ *State v. Valdez*¹²⁶ re-

123. A defendant, even if ignorant of the test results, would reasonably assume that the state would not offer exonerating evidence, and so would object immediately. Likewise, the state would assume that no defendant would introduce incriminating evidence and would similarly object. So lack of objection at trial, absent inadvertence or surprise, would be a rare occurrence. Nonetheless, lack of objection at trial was held to be a requirement for admission of polygraphic evidence in *State v. Lucero*, 86 N.M. 686, 526 P.2d 1091, 1093 (1974). *Contra*, *State v. Dorsey*, 87 N.M. 323, 532 P.2d 912, 915 (Ct. App. 1975) ("It seems incongruous that an expert's testimony under an acceptable scientific test shall be excluded because opposing counsel object."). See *Codie v. State*, 313 So. 2d 754 (Fla. 1975), where the court's language ("[I]t is true that results of lie detector tests are inadmissible over objections . . ." *Id.* at 756) was inconsistent with its holding (affirmance of the District Court of Appeal, which admitted polygraphic evidence pursuant to an oral stipulation over the petitioner's objections. *Id.*).

124. "It has long been established that counsel may stipulate to evidence which may be received even though it might otherwise be inadmissible." *People v. Zavaleta*, 6 Cal. Rptr. 166, 171, 182 Cal. App. 2d 422, 430 (Dist. Ct. App. 1960); *accord*, *Herman v. Eagle Star Ins. Co.*, 283 F. Supp. 33 (C.D. Cal. 1966), *aff'd*, 396 F.2d 427 (9th Cir. 1967).

125. In *LeFevre v. State*, 242 Wis. 416, 8 N.W.2d 288 (1943), the first reported decision on the matter, the court excluded polygraphic evidence favorable to the defendant even though a written stipulation had been signed, on the prosecutor's objection that the evidence was traditionally inadmissible. But in *People v. Houser*, 85 Cal. App. 2d 686, 193 P.2d 937 (Dist. Ct. App. 1948), the court admitted polygraphic evidence unfavorable to a defendant who had knowingly signed a stipulation agreement: "[i]t would be difficult to hold that [he] should now be permitted on his appeal to take advantage of any claim that [the] operator was not an expert and that as to the results of the test such evidence was inadmissible, merely because it happened to indicate that he was not telling the truth." 193 P.2d at 942. *Accord*, *State v. McNamara*, 252 Iowa 19, 104 N.W.2d 568 (1960) (defendant's objection to unfavorable polygraphic evidence was precluded by earlier stipulation); *State v. Lowry*, 163 Kan. 622, 185 P.2d 147 (1947) (dicta favoring acceptance of stipulated evidence); *State v. Arnwine*, 67 N.J. Super. 483, 171 A.2d 124 (1961) (possibility of acceptance of a stipulation agreement implied); *but cf.* *Colbert v. Commonwealth*, 306 S.W.2d 825 (Ct. App. Ky. 1957) (oral agreement lacked sufficient formality to be a binding stipulation); *Stone v. Earp*, 331 Mich. 606, 50 N.W.2d 172 (1951) (civil case disallowing stipulation agreement because it was signed at the urging of the court); *State v. Trimble*, 68 N.M. 406, 408, 362 P.2d 788, 789 (1961) ("The signing of a waiver did not alter the rule with regard to the admissibility of [polygraphic] evidence.").

126. 91 Ariz. 274, 371 P.2d 894 (1962).

considered the admissibility of polygraphic evidence upon stipulation. The defendant Valdez claimed that despite a stipulation agreement he signed before his polygraph test, the unfavorable results of that test should have been excluded by the trial court as unreliable and lacking scientific acceptance.¹²⁷ The Arizona supreme court agreed that the reliability and scientific acceptance of the evidence did not merit admission, but was nonetheless impressed that the polygraph procedure had been "considerably improved since *Frye v. United States*."¹²⁸ Believing that "[m]odern court procedure must embrace recognized modern conditions of . . . psychology . . . or other sciences,"¹²⁹ the court compromised between complete acceptance and complete rejection and allowed the admission of polygraphic evidence upon the written stipulation of both parties, provided that: (1) the evidence is merely corroborative in nature, or impeaching, but only if the defendant takes the stand; (2) jury instructions stressing this corroborative role are administered; (3) the polygraph expert is available for cross-examination by the opposing party; and (4) the admission is at the discretion of the trial court.¹³⁰

The *Valdez* standards have enjoyed substantial acceptance¹³¹ and appear to offer some tenable compromises. First, insistence on a written stipulation may be effective in discouraging endless haggling over misunderstood agreements, but the necessity for a precise writing could be employed improperly by a party seeking to avoid an agreement that has become detrimental.¹³² Second, restriction of the evidence to a corroborating role is consistent with its marginal reliability; but this may severely curtail its admission because parties do not usually stipulate to admit polygraphic evidence when substantial corroborative evidence exists. Furthermore, insistence on the opportunity for cross-examination ensures that the examining party has an opportunity to inform the jury of inaccuracies in the technique or biases in

127. *Id.* at 126, 371 P.2d at 895.

128. *Id.* at 282-83, 371 P.2d at 900. See *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

129. *Id.* at 282-83, 371 P.2d at 900-01.

130. *Id.*

131. Recently a number of courts with long tradition of inadmissibility have accepted stipulated evidence following *Valdez*. See, e.g., *Herman v. Eagle Star Ins. Co.*, 283 F. Supp. 33 (C.D. Cal. 1966) (the only federal decision on stipulation); *Codie v. State*, 313 So. 2d 754 (Fla. 1975) (stipulation may be oral); *The Florida Bar v. Rayman*, 238 So. 2d 594 (Fla. 1970) (dicta); *Johnson v. State*, 166 So. 2d 797 (2d D.C.A. Fla. 1964); *People v. Oswalt*, 26 Ill. App. 3d 224, 324 N.E.2d 666 (Ct. App. Ill. 1975) (dicta); *McDonald v. State*, 328 N.E.2d 436 (Ct. App. Ind. 1975) (dicta); *State v. Ross*, 7 Wash. App. 62, 497 P.2d 1343 (Ct. App. 1972); *State v. Stanislawski*, 62 Wis. 2d 730, 216 N.W.2d 8, 11-15 (1974).

132. In *Codie v. State*, 313 So. 2d 754 (Fla. 1975), the Florida supreme court expressly rejected defendant's contention that polygraphic evidence unfavorable to him should have been excluded because the stipulation agreed to was merely oral. The court found that "while it is true that Rule 1.030(d), Rules of Civil Procedure, provides that in order to have any binding effect a stipulation must be in writing or must have been made in open court and incorporated into the record, we find that this procedure is incorporated in the Rules of Criminal Procedure only in connection with the procedures for stipulating a waiver of the speedy trial rule. This negates the conclusion that the rule generally applies to criminal cases." *Id.* at 756-57. See also, *State v. Davis*, 188 So. 2d 24 (2d D.C.A. Fla. 1966).

the examiner;¹³³ arguably, however, if the parties have agreed to a test procedure and to an examiner before the test, they should be estopped from attempting to discredit either.¹³⁴ Finally, permitting the trial judge discretion to exercise his unique perspective prohibits incompetent or prejudicial evidence; but if the judge must be convinced of the validity of the evidence at each trial, the burden of re-litigating the issue may be intolerable.¹³⁵ Thus, some courts have accepted polygraphic evidence upon stipulation, but have been unwilling to be bound by the particular standards of *Valdez*.¹³⁶

The most difficult compromise in *Valdez* concerns the effect of the stipulation agreement. Although in an adversary context parties may sometimes contract to be bound by whatever evidence they desire,¹³⁷ the court has an obvious public policy interest in excluding incompetent or prejudicial evidence. A stipulation agreement does not increase the scientific acceptance or the accuracy, nor does it decrease the prejudice of polygraphic evidence. Soon after *Valdez* the Illinois supreme court complained:

[I]t is inconsistent for a court to affirm the unreliability of lie-detector tests and at the same time admit into evidence the results of a stipulated test. If such tests are as unpredictable and misleading as the courts are so certain they are, then their reliability and usefulness to the court and jury upon the ultimate question of guilt or innocence remains the same, regardless if they are admitted by stipulation or not.¹³⁸

Thus, some courts remain unpersuaded that stipulation resolves the problems of polygraphic evidence and have been forced to reconsider the issue of general admissibility as it may depend upon reliability, scientific acceptance, and other factors. Such courts normally exclude polygraphic evidence and also reject any attempt to admit it through stipulation.¹³⁹ On the other

133. *People v. Zazetta*, 27 Ill. 2d 302, 189 N.E.2d 260 (1963) (failure of polygraph operator to testify was an important reason to exclude stipulated evidence). See generally F. WELLMAN, *THE ART OF CROSS-EXAMINATION* (Collier ed. 1962).

134. This estoppel argument should find favor with courts who do not wish to bind themselves by passing on the validity of polygraphy in general, but are compelled to accept a stipulation agreement. See *People v. Houser*, 85 Cal. App. 2d 686, 193 P.2d 937 (Dist. Ct. App. 1948); *contra*, *Commonwealth v. A Juvenile*, Mass. , 313 N.E.2d 120, 127 (1974).

135. *United States v. Urquidez*, 356 F. Supp. 1363 (C.D. Cal. 1973).

136. See, e.g., *People v. Oswalt*, 26 Ill. App. 3d 224, 324 N.E. 2d 666 (Ct. App. Ill. 1975); *McDonald v. State*, 328 N.E.2d 436 (Ct. App. Ind. 1975); *State v. Freeland*, 255 Iowa 1334, 125 N.W.2d 825 (1964); *State v. Fields*, 434 S.W.2d 507 (Mo. 1968).

137. See Note, *Contracts to Alter the Rules of Evidence*, 46 HARV. L. REV. 138 (1932) (stipulations admitting specific types of expert or hearsay evidence generally approved; agreements totally abrogating hearsay rule, or agreements seeking to exclude otherwise admissible evidence, are usually objectionable).

138. *People v. Zazetta*, 27 Ill. 2d 302, 308, 189 N.E.2d 260, 269 (1963).

139. "A stipulation for admission does not increase the reliability of polygraph results and therefore should not lead to any deviation from the exclusionary policy. *Pulakis v. State*, 476 P.2d 474, 479 (Alas. 1970); accord, *People v. Guerin*, 47 App. Div. 2d 788, 366 N.Y.S.2d 61 (1975); *People v. Hargrove*, 80 Misc. 2d 317, 321-22, 363 N.Y.S.2d, 241, 245 (Sup. Ct. 1975) (dicta); *State v. Hill*, 40 Ohio App. 2d 16, 317 N.E.2d 233 (Ct. App. 1963) (decision appeared in reporters eleven years late and so had no effect on developing

hand, those that feel the evidence has gained sufficiently in stature to be admitted, see no reason to restrict admission to circumstances of stipulation.¹⁴⁰

Stipulations regarding polygraph results may go beyond agreements for admissibility of evidence and provide for the release of the defendant if the polygraphic results are favorable to him, insisting on his guilty plea if they are unfavorable. Two Florida cases upheld such stipulations, arguing that agreements made by the sovereign should be enforced for public policy reasons, regardless of the status of the polygraph test.¹⁴¹ Enforcement of the agreement against the defendant seems less likely, however, in view of the attempted dispensation with trial and the questionable status of the guilty plea. First, because no trial is contemplated, neither the polygraph expert nor the test results can be examined critically.¹⁴² The possibilities of collusion between the prosecutor and the polygraph operator are obvious. Even if the test and the results are fair and unbiased, the effect has been trial by machine rather than trial by a court of law.

Further, there is serious doubt as to whether a contingent guilty plea is ever valid. Such a plea may violate the standard set forth by the Supreme Court in *Brady v. United States*¹⁴³ that a guilty plea, as a waiver of the constitutional right of trial, "not only must be voluntary but must be knowing, intelligent, [and] done with sufficient awareness of the relevant

case law). *Hargrove* and *Guerin* were extensions of language in *Pereira v. Pereira*, 32 N.Y.2d 301, 361 N.Y.S.2d 413, 319 N.E.2d 413 (1974) mentioning that stipulations were inadequate reasons to admit otherwise inadmissible evidence. The holding in *Pereira* was reconcilable with *Valdez*, though, as admission of stipulated evidence was denied because the stipulation agreement failed to provide for admissibility. Some courts have refused to allow stipulated polygraphic evidence for miscellaneous reasons. See, e.g., *Stack v. State*, 234 Ga. 19, 214 S.E.2d 514 (1975) (by implication); *State v. Jackson*, 24 N.C. App. 394, 402, 210 S.E.2d 876, 881 (Ct. App. 1975) (polygraph has no place in the courts); *Reed v. State*, 522 S.W.2d 466 (Ct. Crim. App. Tex. 1975) (dicta); *State v. Woo*, 84 Wash. 2d 472, 527 P.2d 271 (1974) (discussion without decision).

140. Convinced of the reliability of polygraphic evidence, the court in *State v. Dorsey*, 87 N.M. 323, 532 P.2d 912 (Ct. App. 1975), felt obliged to admit the evidence without stipulation. Compare the opinion of a concurring justice that ". . . the reliability of polygraph examinations is so doubtful . . . it seems incongruous that polygraph examinations should be admitted under any circumstances . . ." *Id.* at 326, 532 P.2d at 915 (Sutin, J., concurring).

141. *Butler v. State*, 228 So. 2d 421 (4th D.C.A. Fla. 1969); *State v. Davis*, 188 So. 2d 24 (2d D.C.A. Fla. 1966).

142. In *State v. Davis*, 188 So. 2d 24 (2d D.C.A. Fla. 1966), the problem of an inconclusive result arose. The first polygraph test given to the defendant cleared him, but a subsequent examiner requested by this state viewed the first results as inconclusive, and prosecution ensued. The court held that the state was estopped to object about the diagnosis of the first agreed-upon examiner. In *Butler v. State*, 228 So. 2d 421 (4th D.C.A. Fla. 1969), the state objected that the questions asked by the examiner were inadequate to make the polygraph diagnosis definitive. Rather than relying on the estoppel theory of *Davis*, the court examined the questions itself and pronounced them adequate. The willingness of the court to appoint itself an expert in a technical field is unusual.

143. 397 U.S. 742 (1970). *Brady* faced the question of whether a guilty plea entered in response to a threat of capital punishment attending a jury trial was invalid.

circumstances and likely consequences."¹⁴⁴ If a defendant believes in his innocence sufficiently to submit to a polygraph test it is incongruous to contend that he voluntarily and in the absence of coercion entered a guilty plea. Moreover, he can hardly have sufficient awareness of the relevant circumstances and likely consequences when the outcome of the test is still unknown.

Such considerations suggest that plea stipulations should be controlled by the courts, regardless of how significantly they would reduce caseloads. Binding stipulations are unnecessary to reduce caseloads, because prosecutors may exercise their discretion in refusing to prosecute those defendants who have taken polygraph tests successfully, even though the defendants have not promised to plead guilty if the test had incriminated them.¹⁴⁵

Confessions to the Polygraph Examiner

A subject may make incriminating responses or a total confession to the examiner. So common are confessions under the pressure of the test that one writer has remarked that the "chief function" of the polygraph "appears to be to induce confessions by deception"¹⁴⁶ and has estimated that a confession is secured in 50-70 percent of all polygraph tests.¹⁴⁷ Although barred from testifying to the *results* of the test, a polygraph operator is free to testify about a confession or incriminating statement made to him during its course.

Before *Miranda v. Arizona*¹⁴⁸ the standard applied to the admissibility of confessions or incriminating statements was that of voluntariness.¹⁴⁹ Courts inspected all the relevant circumstances surrounding the confession to determine whether the defendant had exercised his free choice.¹⁵⁰ Coerced confessions were not voluntary and therefore were untrustworthy; furthermore, they offended the "community's sense of fair play and decency."¹⁵¹ *Miranda* added to voluntariness the requirement that a defendant questioned in custody must have knowingly waived his right to remain silent before his confession will be admissible.¹⁵² As a polygraph test involves interrogation and the possibility of self-incrimination,¹⁵³ it should be preceded by a *Miranda*

144. *Id.*

145. The result reached in *United States v. Hart*, 344 F. Supp. 522 (E.D.N.Y. 1971) is consistent with this policy. On the use of prosecutorial discretion, see *Inmates of Attica Correctional Facility v. Rockefeller*, 477 F.2d 375 (2d Cir. 1973).

146. J. REID & F. INBAU, *TRUTH AND DECEPTION* 168 (1966).

147. *Id.*

148. 384 U.S. 436 (1966).

149. See, e.g., *Brown v. Mississippi*, 297 U.S. 278 (1936). The principal concern of the Court was the untrustworthiness a coerced confession would exhibit. See also *Malloy v. Hogan*, 378 U.S. 1 (1964) (applying federal standards to the states).

150. See *Haynes v. Washington*, 373 U.S. 503 (1963) (difficult to draw line between coercion and permissive interrogation); *Ashcraft v. Tennessee*, 322 U.S. 143 (1944) (coercion from extended questioning).

151. *Rochin v. California*, 342 U.S. 165 (1952). The concern over police methods as opposed to mere trustworthiness has increased in recent years. *Miranda v. Arizona*, 384 U.S. 436, 455, 457 (1966); *Lisenba v. California*, 314 U.S. 219 (1941). See note 162 *infra*,

152. 384 U.S. at 436.

153. See note 90 *supra*.

warning to the subject in custody. If the subject thereafter consents to the test, subsequent admissions or confessions will be evaluated according to the traditional voluntariness criteria.¹⁵⁴

Courts have consistently held that use of a polygraph is not per se coercive: "the use of a lie detector in the process of interrogation does not render a subsequent confession involuntary or inadmissible."¹⁵⁵ Apparently, the examiner may falsely advise the subject that the polygraph is infallible.¹⁵⁶ He may also remark during a test that the subject is eliciting "gross deceptive patterns" and is obviously lying, whether or not such patterns are actually evident.¹⁵⁷

According to Professor Inbau, "psychological tactics and techniques as trickery and deceit [are] not only helpful but frequently necessary in order to secure incriminating information from the guilty."¹⁵⁸ Such tactics, if likely to make the innocent confess, are unacceptable.¹⁵⁹ Having obtained a waiver, however, the police are free to use a broad range of psychological manipulation. In *Frazier v. Cupp*¹⁶⁰ the Supreme Court held that even when police knowingly and falsely informed the defendant that co-conspirators had confessed, the coercion was not such as to preclude a voluntary confession.¹⁶¹ Under such circumstances, a defendant who is unaware that polygraphic evidence may be inadmissible at trial may have free choice in name but not in fact.¹⁶²

Polygraph tests are often given by private examiners rather than by the police. If the subject is in police custody when examined, private polygraphers are treated as police agents, to whom the requirements of *Miranda*

154. See *Keiper v. Cupp*, 509 F.2d 238 (5th Cir. 1975); *State v. Melvin*, 65 N.J. 1, 14, 319 A.2d 450, 459 (1974) (confession to polygraph operator subsequent to *Miranda* warning admissible); *Jones v. Commonwealth*, 204 S.E.2d 247, 249 (Va. 1974) (admission to polygraph operator before test but after *Miranda* warnings was not influenced in such a way as to create doubt of its truth).

155. *United States v. McDevitt*, 328 F.2d 282, 284 (6th Cir. 1964); accord, *Johnson v. State*, 166 So. 2d 798 (2d D.C.A. Fla. 1964). See *State v. Traub*, 150 Conn. 169, 187 A.2d 230 (1962); *Commonwealth v. Hipple*, 333 Pa. 33, 3 A.2d 353 (1939); *State v. DeHart*, 242 Wis. 562, 8 N.W.2d 360 (1943).

156. *Commonwealth v. Hipple*, 333 Pa. 33, 3 A.2d 353 (1939) (subject warned, "you can't lie to the machine.").

157. *State v. Boren*, 224 N.W.2d 14 (Iowa 1974), cert. denied, 422 U.S. 1008 (1975) (confession voluntary).

158. Inbau, *Police Interrogation—A Practical Necessity*, 52 CRIM. L.C. & P.S. 16 (1961).

159. *Id.* at 18.

160. 394 U.S. 731 (1969).

161. *Id.* at 739. The police behavior was relevant but insufficient to render an otherwise voluntary confession involuntary.

162. The deceitful use of the polygraph to secure a confession illustrates what may be the most cogent objection to polygraph use. According to one commentator "[i]n the administration of justice, truth is but a means, whereas dignity is an end. Criminal justice would be devoid of meaning were it incidentally to deny the very human dignity which is its ultimate purpose to protect." Silving, *Testing of the Unconscious in Criminal Cases*, 69 HARV. L. REV. 683, 690 (1956).

apply.¹⁶³ If the subject seeks the examiner on his own or his employer's initiative,¹⁶⁴ action by the examiner is not attributable to the state and no *Miranda* warnings need be given. As a subject theoretically is less likely to be coerced by his own examiner, the presumption of voluntariness in incriminating admissions is strong. Similarly, a subject cannot object that his belief in the confidentiality of the interview was mistaken.¹⁶⁵

It is generally held that evidence of the defendant's having taken a polygraph test,¹⁶⁶ or even of his willingness¹⁶⁷ or unwillingness¹⁶⁸ to do so, is inadmissible. Such evidence is thought to be unavoidably prejudicial. If a prosecutor asserts that a defendant has taken a polygraph test, but is compelled to refrain from disclosing the outcome, the jury will probably conclude that the test was unfavorable to the defendant. Likewise, if the prosecutor asserts that the defendant was unwilling to submit to a test, the jury may mistakenly infer consciousness of guilt.¹⁶⁹ Furthermore, in neither situation will the defendant have the opportunity to attack the accuracy of the technique or the competence of the operator.

163. On the application of *Miranda* standards to private individuals acting in concert with the police, see *Cash v. Williams*, 455 F.2d 1227 (6th Cir. 1972); *State v. Kelley*, 113 N.J. Super. 169, 273 A.2d 371 (1971), modified, 61 N.J. 283, 294 A.2d 41 (1972) (private investigator); *State v. Bolan*, 27 Ohio St. 2d 15, 271 N.E.2d 839 (1971) (private investigator). See generally *United States v. West*, 453 F.2d 1351 (3d Cir. 1972); *Stapleton v. Superior Ct.*, 70 Cal. 2d 87, 447 P.2d 967, 73 Cal. Rptr. 575 (1968) (inherently governmental task may imply police agency).

164. In *United States v. McDevitt*, 328 F.2d 282 (6th Cir. 1964), the examiner was a private consultant called in by defendant's employer. The confession was ruled voluntary.

165. Communications with private individuals are undertaken at the risk of the communicator. In *Hoffa v. United States*, 385 U.S. 293 (1966), the fact that the defendant's confidence in a secret informer for the police was misplaced did not affect the otherwise voluntary nature of the conversations. Nor should the fact that the polygraph test may be recorded affect the voluntary nature of the disclosures. On *Lee v. United States*, 343 U.S. 747 (1952) (concealed recording device on secret informer; remarks held voluntary); *Lopez v. United States*, 373 U.S. 427 (1963).

166. *Johnson v. State*, 166 So. 2d 798, 802 (2d D.C.A. Fla. 1964); *Stack v. State*, 234 Ga. 19, 214 S.E.2d 514 (1975). But the error may sometimes be cured through jury instruction. *Reed v. State*, 522 S.W.2d 466 (Crim. App. Tex. 1975).

167. *People v. Thornton*, 114 Cal. Rptr. 467, 523 P.2d 267 (1974); *People v. Carter*, 48 Cal. 2d 737, 312 P.2d 665 (1957) (innocent suspect may fear false response, but guilty subject, knowing of inadmissibility, has nothing to lose).

168. When mention is made that the defendant was unwilling to submit to a polygraph test, "[t]he inference would be quickly and erroneously drawn from refusal to consciousness of guilt to guilt." *State v. Mottram*, 184 A.2d 225, 229 (Me. 1962). But *Mottram* suggested that if evidence was offered showing that the defendant actually believed in the validity of the test, refusal might legitimately show consciousness of guilt. In this connection, see *State v. Wisdom*, 119 Mo. 539, 24 S.W. 1047 (1894) (refusal to submit to a superstitious test showing consciousness of guilt). The state cannot extract a penalty from a defendant who exercises his fifth amendment right in declining a polygraph test. See *Griffin v. California*, 380 U.S. 609 (1965) (comment on defendant's failure to take the stand is impermissible. Cf. *Doyle v. Ohio*, 96 S. Ct. 2240 (1976) (fundamentally unfair to allow an arrestee's silence to be used to impeach an explanation subsequently given at trial).

169. The defendant may have been unwilling to submit to the test because he doubted its validity. See text accompanying note 90 *supra*.

This general rule of inadmissibility seems to conflict with the courts' compulsion to examine all the relevant circumstances surrounding a confession.¹⁷⁰ If a confession is secured during a polygraph test, the test is highly relevant to the voluntariness of the confession. In *Tyler v. United States*¹⁷¹ the defendant confessed after being informed during a polygraph test that the machine indicated he was lying. As there had been suggestions of physical abuse, the defendant challenged the confession, but it was admitted subject to a final determination of voluntariness by the jury.¹⁷² At the trial, the prosecution presented not only the fact that the defendant had taken a polygraph test, but also that the examiner had informed the defendant of the latter's deception. Holding such evidence admissible as relevant to the circumstances leading to the confession, the court of appeals noted, "[t]he statement of the witness that he told the defendant that the machine indicated he was lying is not admitted as evidence of any alleged lying of the defendant, but merely as evidence bearing upon the question whether the confession was voluntary."¹⁷³ Courts are in general agreement with *Tyler* that mention of a polygraph test is permitted when it affects the "vital question as to whether [a confession] was voluntary."¹⁷⁴

The related issue of who may mention the test is unresolved. In *State v. Green*,¹⁷⁵ the Supreme Court of Oregon held that a prosecutor cannot be the first party to introduce evidence of a defendant's polygraph test. The prosecutor, in an attempt to present the "totality of the circumstances" indicating the voluntariness of the defendant's confession, introduced the details of two previous tests, complete with specific responses and the examiner's opinion regarding the subject's truthfulness.¹⁷⁶ Viewing the "danger of prejudice [as] so great as to . . . outweigh the probative value,"¹⁷⁷ the supreme court reversed and held that the evidence should have been excluded. The prosecutor is not barred from introducing such evidence entirely, however:

If . . . when the confession is offered in evidence, the defendant then objects to the confession upon the ground that the confession was not voluntary because of a preceding polygraph examination, the state may then offer in evidence not only the fact that the confession was given following a polygraph examination, but also such details of the

170. The court in *Johnson v. State*, 166 So. 2d 798, 803 (2d D.C.A. Fla. 1964), noted that: "Necessarily, when a confession procured during or as a result of a lie detector examination is challenged, the facts surrounding the confession will be disclosed." The court cited *People v. Lettrich*, 413 Ill. 172, 108 N.E.2d 488 (1952), for the additional proposition that it is error "to limit defense efforts to explore the details of a lie detector examination eventuating in a confession." *Id.* at 803.

171. 193 F.2d 24 (D.C. Cir. 1951), *cert. denied*, 343 U.S. 908 (1952).

172. *Id.* at 26.

173. *Id.* at 27.

174. *Id.* at 29. *Accord*, *United States v. McDevitt*, 328 F.2d 282 (6th Cir. 1964); *Roberts v. State*, 195 So. 2d 257 (2d D.C.A. Fla. 1967); *Johnson v. State*, 166 So. 2d 798 (2d D.C.A. Fla. 1964).

175. 271 Ore. 153, 531 P.2d 245 (Ore. 1975).

176. *Id.* at 249.

177. *Id.* at 253.

polygraph examination, including evidence which may reveal the results of the examination, as may be relevant upon the question whether the confession was given voluntarily.¹⁷⁸

Following *Green*, then, the defendant has the choice "as to whether or not he wants to inject the polygraph issue into the case for the purpose of attempting to show that it or the technique was a coercive factor which compelled the defendant to confess."¹⁷⁹ This policy seems well-reasoned and deserves substantial following.

SUMMARY

In the years since its introduction to polygraphy, the judiciary has resolutely insisted upon, and the scientific community continuously failed to provide, some measure of general scientific acceptance. Lately, in a belief that the scientific community has had ample time to evaluate the accuracy and theoretical sufficiency of polygraphy, some courts have argued that it is time for the judiciary to evaluate polygraphy on its own. Because the judiciary's requirements for theoretical sufficiency differ from those of the scientific community, the courts arguably should not look for scientific acceptance in this area. But sufficient accuracy is a necessity for usefulness in both science and law, and courts must be satisfied that polygraphy enjoys sufficient accuracy in the particular case in which it is being used to meet the test of relevancy. Although experiments are difficult to generalize, the available evidence suggests that polygraphy can be accurate enough for judicial use.

The admissibility of polygraphic evidence depends upon its relevancy, discounted by its prejudicial effect. With its scientific trapping, polygraph's ability to influence the jury is considerable. This influence may be unwarranted, because a fallible human, not an impeccable instrument, actually makes the diagnosis of truth and deception. Thus a court must consider whether twelve jurors should be replaced not by a polygraph machine but by a polygraph operator.

Like most judicial considerations, the merits of admissibility may be affected by the factual setting. When polygraphic evidence has important exculpatory value to a defendant, the case for admission is strong. If the parties agree to introduce this evidence, the court may content itself with a cursory examination of its reliability. Likewise, the facts of a polygraph examination may have an important bearing on the voluntariness of a defendant's confession, and an artificial evidentiary bar should not preclude him from presenting all the relevant circumstances.

178. *Id.* at 254.

179. *Id.* at 253. See *Johnson v. State*, 166 So. 2d 798, 802 (2d D.C.A. Fla. 1964) ("[W]hile neither party should be permitted to allude to a witness or a defendant having taken a lie detector test, a defendant who initiates the inquiry, without objection from the state, and attempts to prove consciousness of innocence, cannot then complain when the state [unsuccessfully] attempts to pursue the subject."). *Accord*, *Pulakis v. State*, 476 P.2d 474 (Alas. 1972).

Polygraphy is a technique that can make an enormous impact on the trial system. In the words of one commentator, "[t]he issue before us is whether we are to abandon our traditional system of adversary litigation with emphasis upon dignity for 'scientific' trial with emphasis on truth."¹⁸⁰ The conflict is perhaps inevitable, and the courts' failure to face up to the central issues in the use of scientific detection only suggests that the eventual impact will be all the more drastic. The judiciary should now take cautious steps toward integrating the science of polygraphy with the law so that its limitations and strengths may be exposed, clarified, and made an object of judicial and public understanding.

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180. Silving, *supra* note 162, at 691.