In recent years, an ever-increasing number of commentators in professional journals and popular magazines have attempted to create the impression that the lie detector is a panacea for the ills that perennially beset the administration of justice. Thus, the lie detector is heralded as a scientific instrument immune from a "lawyer's oratory," and endowed with the ability to protect the innocent, expose the guilty, expedite justice, reduce court costs and discourage false claims. The machine's professional apologists claim that it can detect deception better than any other method, and at least one judge is convinced that the lie detector is more trustworthy than his or the jury's "intuition." The conceded coercive power of the lie detector lends credence to such
an enumeration of merit. Confessions often are obtained from a mere suggestion that the suspect submit to a test, and skilled examiners frequently are able to elicit "voluntary" confessions, often to crimes other than those being investigated, by tricking a suspect into believing the machine has exposed his guilt.

It should not be surprising, then, that laymen tend to believe the lie detector is in fact capable of all that its champions claim. Stores, banks, insurance companies and industry widely utilize the device. Moreover, all branches of the armed forces have administered the lie detector in criminal work at some time, and several federal agencies have used the machine to test the loyalty and integrity of both career personnel and applicants for employment. The Atomic Energy Commission, for example, refused to consider applicants for a selected group of "sensitive positions" at Oak Ridge until they had submitted to a lie detector test.

However, the lie detector has achieved only limited respectability in the

4 See Pinter v. State, 203 Miss. 344, 34 So. 2d 723 (1948).
5 See Tyler v. United States, 193 F.2d 24 (D.C. Cir. 1951); Commonwealth v. Hipple, 333 Pa. 33, 3 A.2d 353 (1939); INBAU & REID 76-77. John Reid once questioned 32 murder suspects and secured confessions to 18 rapes and 264 armed robberies and burglaries, none of which had been attributed to these suspects. Detzer, supra note 1, at 62. Reid, co-author of INBAU & REID and the head of an outstanding lie detector agency in Chicago, had personally obtained over 5,000 felony confessions by 1953. Id. In light of these statistics, it is not surprising that the bulk of lie detector work today is done with the hope of securing confessions. See 6 STAN. L. REV. 172-74 (1953). For a discussion of the admissibility of such confessions, see note 25 infra.
8 Some insurance companies offer fidelity bonds at substantially lower rates to firms that utilize lie detectors to eliminate potential troublemakers. See Note, 29 CORNELL L.Q. 535, 540 (1944).
9 See Wicker, supra note 7, at 713-14; N.Y. Times, Dec. 20, 1951, p. 1, col. 2.
10 The lie detector also has been employed in recent Congressional committee investigations. See N.Y. Times, March 9, 1957, p. 12, col. 2.
12 For the resulting unsettling psychological effects of this practice on these persons, see MacDonald I; MacDonald, The Lie Detector Era, Part II, The Reporter, June 22, 1954, p. 22 (hereinafter cited as MacDonald II). For a discussion of the general impact of loyalty and security employment tests, see BROWN, LOYALTY AND SECURITY 183-200 (1958).
13 N.Y. Times, Dec. 20, 1951, p. 1, col. 2. For criticism of the AEC's failure to extend this practice to plants and installations other than Oak Ridge, see Gillespie, Security Maintenance in Industrial Enterprise, ATOMIC ENERGY INDUSTRIAL AND LEGAL PROBLEMS (1952), who suggests that the use of the device at Los Alamos might have trapped the Rosenberg spy ring before atomic bomb secrets were given to Russia. The AEC, however, defended its policy decision on the ground, inter alia, that the lie detector was not accepted as a proven instrument by doctors, psychologists, courts, or the FBI. See N.Y. Times, supra.
legal profession. Some attorneys and trial judges make use of the device, and lie detector evidence has been admitted by stipulation in at least one criminal case and in a number of civil cases. But in the absence of such a stipulation only a few appellate courts have sustained the admissibility, in criminal or civil trials, of expert testimony based on the re-

24 For the areas where it has found acceptance, see Harman and Arther, The Utilization of The Reid Polygraph by Attorneys and the Courts, 2 Crim. L. Rev. 12 (1955); Arther and Reid, Utilizing the Lie Detector Technique to Determine the Truth in Disputed Paternity Cases, 45 J. Crim. L. & Criminology 213 (1954).

25 In recent years over 275 Midwestern attorneys have retained John Reid & Associates for the examination of prospective clients and witnesses. Harman and Arther, supra note 14, at 12.

16 See MacDonald-I, at 14; note 3 supra. See also notes 19 and 20 infra. Judges who make use of the lie detector generally do so in the hope of "encouraging" a settlement.

17 For a model stipulation agreement, see INBAu & REID 127, 132-35; Dession, Freedman, Donnelly and Redlich, Drug-Induced Revelation and Criminal Investigation, 62 Yale L.J. 315, 327-28 (1953); Gregory, Let's Understand the Lie Detector Test, Michigan B.J. Feb. 1951, p. 6; Note, 26 J. Crim. L. & Criminology 262 (1935). In Stone v. Earp, 331 Mich. 606, 50 N.W.2d 172 (1951), at the instigation of the trial court, both parties agreed to submit to lie detector tests in order to determine the title to a dump truck and trailer. On plaintiff's appeal the admission of this evidence was held not prejudicial error. The court relied principally on the fact that the trial judge had "about concluded" that the preponderance of the evidence lay with the defendant before the test results were available.

20 The general exclusionary rule has been applied under a variety of circumstances in recent criminal cases. For example, appellate courts have refrained from characterizing as reversible error trial courts' refusal to give tests to defendants, on the ground that the results would have been inadmissible. See Commonwealth ex rel. Riccio v. Dilworth, 179 Pa. Super. 64, 115 A.2d 855 (1955); State v. Perlin, 268 Wis. 529, 68 N.W.2d 32 (1955); People v. Porter, 136 Cal. App.2d 461, 288 P.2d 561 (1955); People v. Porter, 99 Cal. App.2d 506, 222 P.2d 151 (1950). Appellate courts have also refused to permit the introduction of test results in the guise of an accusatory statement. See People v. Aragon, 154 Cal. App.2d 646, 316 P.2d 370 (1957); People v. Wochnick, 98 Cal. App.2d 124, 219 P.2d 70 (1950), cert. denied, 342 U.S. 888 (1951); People v. Welke, 342 Mich. 164, 68 N.W.2d 759 (1955). For an interesting variation see Kaminski v. State, 63 So.2d 339 (Fla. 1952); 6 Stan. L. Rev. 172 (1953). There the prosecution unsuccessfully attempted to rehabilitate an impeached witness with testimony that he had truthfully answered the same questions during a lie detector test prior to the trial. But see Tyler v. United States, 193 F.2d 24 (D.C. Cir. 1951), where the prosecution obtained admission of testimony that the examiner told defendant the test results were unfavorable by limiting the evidence to the issue of whether a subsequent confession was voluntary. For other criminal cases excluding testimony based on lie detector results, see McMorrow, Evidence §174 (1954); INBAu & REID 127, 135-39; 3 Wigmore, Evidence §999 (3d ed. 1940); 23 A.L.R.2d 1306 (1952); notes 21 and 23 infra. See also People v. Newson, 37 Cal.2d 34, 230 P.2d 618 (1951), reversing on other grounds a conviction based in part on lie detector evidence. The only reported unreversed criminal decision admitting lie detector test results over objection is People v. Kenny, 167 Misc. 51, 3 N.Y.S.2d 348 (1938). That case, however, was not appealed. And see the later case of People v. Forte, 270 N.Y. 204, 18 N.E.2d 31 (1938), where the New York Court of Appeals held such evidence inadmissible without mentioning People v. Kenny, supra.

20a There is no conclusive trend discernible in non-stipulation civil cases. See Gideon v. Gideon, 153 Cal. App.2d 541, 314 P.2d 1011 (1957) (appellant in divorce action was not per-
sults of lie detector tests. Even favorable test results offered by criminal defendants are customarily held inadmissible, and in a recent California decision, People v. Carter, it was held reversible error to permit a witness in a criminal trial to testify that, as a suspect in the case, he had been willing to take a lie detector test. The Supreme Court stated that this evidence, by implying the defendant had refused to do so, inevitably created an unwarranted inference of guilt.

Although a number of rationales have been advanced by courts in support of such rigorous applications of the exclusionary rule, the basic
justification is that lie detector tests have not yet obtained sufficient scientific acceptance as a significantly reliable\(^{26}\) means of ascertaining truth and deception.\(^{27}\)

**The Theory of the Lie Detector**

The effectiveness of the lie detector necessarily is dependent upon the validity of the underlying hypothesis that the psychological stress which

\(^{26}\) As used in this context, reliability is usually defined as the extent to which a test measures what it purports to measure. See Lanier, *Prediction of the Reliability of Mental Tests and Tests of Special Abilities*, 10 *J. or Expraensa PSYcH.* 69, 110 (1927). See also 10 ENCYC. Soc. Sci. 327.


The leading case is Frye v. United States, 293 Fed. 1013 (D.C. Cir. 1923), where the court excluded testimony to the effect that a lie detector test indicated Frye was innocent. Although convicted of murder and sentenced to life imprisonment, Frye was subsequently exonerated when another person confessed to the crime. See FOurTENTH Annual REPORT OF THE JUDICIAL CouNcil of THE STATE of NEW YoARk 265 (1948). The expert involved in the Frye case was Professor Marston, a pioneer lie detector experimenter at Harvard. See Larson & Adler, *A Study of Deception in the Pententiary* 553, 554 (1925). For other cases, see note 20 supra, and references cited therein.

For other authority to the same effect, see Inbau & Reid 130: "It must be reported that at the present time the technique is not an 'accepted' one among the scientists whose approval is a pre-requisite to judicial recognition." But see Mccormick, *Evidence* § 174 (1954) for a contention that the lie detector has achieved scientific acceptance sufficient to qualify it under "normal" standards of admissibility. See also Cureton, *A Consensus as to the Validity of Polygraph Procedures*, 22 Tenn. L. Rev. 728 (1953).

Advocates of admissibility sometimes seek to link lie detectors with the better established scientific fact-finding tools, such as ballistics and fingerprints, which are regularly held admissible, and those granted more limited admissibility, such as the X-ray and blood types. For a point-by-point exposition of their distinguishing features vis-a-vis the lie detector, see Forkosh
results from telling a lie concomitantly causes physiological reactions which can be mechanically recorded. A concise summary of this hypothesis was set forth in *Frye v. United States*: 28

It is asserted that blood pressure is influenced by change in the emotions of the witness, and that the systolic blood pressure rises are brought about by nervous impulses sent to the sympathetic branch of the autonomic nervous system. Scientific experiments, it is claimed, have demonstrated that fear, rage, and pain always produce a rise of systolic blood pressure, and that conscious deception or falsehood, concealment of facts, or guilt of crime, accompanied by fear of detection when the person is under examination, raises the systolic blood pressure in a curve, which corresponds exactly to the struggle going on in the subject's mind, between fear and attempted control of that fear, as the examination touches the vital points in respect of which he is attempting to deceive the examiner.

In other words, the theory seems to be that truth is spontaneous, and comes without conscious effort, while the utterance of a falsehood requires a conscious effort, which is reflected in the blood pressure. The rise thus produced is easily detected and distinguished from the rise produced by mere fear of the examination itself. In the former instance, the pressure rises higher than in the latter, and is more pronounced as the examination proceeds, while in the latter case, if the subject is telling the truth, the pressure registers highest at the beginning of the examination, and gradually diminishes as the examination proceeds. 28a

A natural corollary of this hypothesis is that the examiner can detect and disregard any recordations not caused by deception responses.

**History and Description of the Lie Detector**

The fact that useful inferences might be drawn from certain physiological phenomena was well known to the ancient world. 28 The early Chinese, for example, forced suspects to chew rice powder. If it remained dry, they were deemed guilty. 30


28 393 Fed. 1013 (D.C. Cir. 1923).

28a Id. at 1014. For reproductions of lie detector recordations, see Inbau & Reid, *passim*; Larson, *Cardio-Pneumo-Psychogram in Deception*, 6 J. of Experimental Psych. 420 (1923). The most reliable criteria apparently are obtainable from a continuing and simultaneous recording of relative changes in blood pressure, pulse and respiration.

29 The Greek physician Erasistratus utilized such phenomena as early as 250 B.C. See Mulbar, *Interrogation* 13 (1951) (hereinafter cited as Mulbar).

But the systematic use of physiological reactions in “scientific” lie detection has a relatively brief history. The first person to use an instrument for this purpose was Cesare Lombroso, an Italian physiologist. In 1895 he claimed success in establishing the guilt or innocence of suspects by taking their blood pressures while being questioned. Under Lombroso’s method, the suspect was ordered to grasp a rod with his fist, which was then sealed in a water-filled tank by a rubber membrane. The variations of the suspect’s heart pulsations, as they appeared in his fist, rhythmically raised and lowered the water level in a glass bulb above the tank. A tube leading off from this glass bulb transposed the water level variations into air column pressure which operated the recording mechanism.

In 1914, V. Benussi reported on the results of his study of respiration and its relationship to deception. By strapping an elastic rubber tube around the chest of a suspect, with one end sealed and the other leading into a hose connected to a recording mechanism, Benussi was able to reflect the suspect’s every “inspiration and expiration” in graphic form.

The most significant event in the historical development of the lie detector was the invention of the ink “polygraph” by Dr. James MacKenzie, a famous heart specialist. Although originally intended solely for medical purposes, it was basically the same instrument as the blood pressure, pulse and respiration recorders used today for lie detection purposes.

The MacKenzie polygraph was first used in practical lie detection in 1921, when a young medical student successfully discovered a dormitory thief at the University of California. During the next twenty years, MacKenzie’s bulky separate testing units gradually were superseded by portable units, now exemplified by the compact Keeler polygraph.

The most prevalent type of detector in use today, the Keeler polygraph resembles a complicated radio transmitter sprouting cables and electronic gadgets. These gadgets are electrically connected to several stylus pens which record (on rolls of white paper tape) the fluctuations of the physio-

---

81 See Mulbar 61, 96; MacDonald I, at 10.
82 Benussi, die Atmungsymptome der Lüge, 31 Archive für der Gesamte Psychologie 244 (1914).
83 An article by Dr. Mackenzie in the British Medical Journal in 1908, describing the device, is reprinted in ABA & Reid 233–35. See also 3 Wigmore, Evidence § 999 (3d ed. 1940).
84 The first courtroom use of lie detector evidence took place in Los Angeles in 1913. Ibid.
85 See Mulbar 98–99. See also Süderman & O’Connell, Modern Criminal Investigation 32 (1952).
86 For a more detailed history of this period, see Levitt, Scientific Evaluation of the “Lie Detector,” 40 Iowa L. Rev. 440 (1955).
87 Leonard Keeler was without doubt one of the foremost authorities on the lie detector. Keeler’s early work with the machine was at Stanford University. See Snyder, Homicide Investigation 85 (1950). He also used the famous Northwestern University Crime Laboratory before it was purchased by the City of Chicago in 1938. See Mulbar 133. A number of Keeler’s legendary exploits with the lie detector are reported in MacDonald I.
logical functions being measured, and may include: A wire connected with a board platform for the feet, and another connected with an armrest, to disclose involuntary tightening of arm or leg muscles; an inflatable rubber cuff like the familiar device used by physicians to measure blood pressure, which is wrapped around the upper arm to measure the alternating distention and contraction of the tissue of the arm due to changes of blood pressure and volume; a corrugated rubber tube that expands and contracts as one breathes, which is fastened around the chest to record pressure changes caused by irregularities in breathing.

An attachment less frequently used is an instrument for measuring the resistance of the skin to electrical current. Electrodes, approximately one by two inches and usually of silver, are strapped in the palm or on the back of the hand by rubber bands. The subject’s emotional responses induce corresponding variations in the skin surface electrical phenomena, which are transferred through the electrodes to a magnetic recording needle. For a variety of reasons, this device is regarded as less satisfactory than the conventional blood pressure, respiration, and muscular attachments.
Examination Techniques

The standard lie detector examination takes from 45 minutes to an hour and consists of oral responses to oral questions. The questions, of course, must be unambiguous, unequivocal, and completely understandable by the subject. All questions and answers (always "yes" or "no"), as well as the lapses of time between them, are recorded by the examiner. For best results, the test should be given in a room free from noise, interruptions, and other annoying outside influences. This requirement effectively eliminates courtroom examinations.

The examiner usually conducts a "trial run" or pre-test to establish a responsive norm for the subject. Questions designed to evoke "normal" responses are asked in order to develop "normal" base lines on the graphs, which the examiner later uses to interpret the polygraphic recordation of the subject's reactions to more pertinent questions. In addition, the pre-test procedure serves to acquaint the subject with the polygraph examination technique, and is intended to both decrease the likelihood that an innocent subject will be unduly nervous during the regular examination and instill in a guilty subject a fear of the polygraph so that any subsequent falsehoods will result in a more pronounced complex of emotional responses.

A variety of questioning techniques have been developed for use during the regular examination. In the "peak-of-tension" test, the suspect is shown a list of several questions, only one of which deals with the crime. The suspect is then ordered to answer "no" to all the questions on the theory that a "peak" will show on the graph tracings if "no" is an incorrect answer to the key question. Under another method, inconsequential or irrelevant explanations are subsumed. For detailed explanations of these problems, see Hayakawa, Language in Action (1939); Chase, The Tyranny of Words (1938); Koreybskt, Science and Sanity (1933).

If the subject attempts to offer any explanations he is instructed to wait until the conclusion of the test.

Courts probably would not permit such an innovation even if it were technically feasible. See State v. Cole, 354 Mo. 181, 188 S.W.2d 43 (1945), where the defendant made a motion at the beginning of trial that all witnesses be required to give testimony while strapped to a lie detector. The motion was denied, inter alia, because "the day has not come when all the witnesses in a case can be subjected to such inquisitorial and deceptive tests . . ." (Id. at 193, 188 S.W.2d at 51.)

For an interesting discussion on the selection of norm questions, see Mubarak 113. See also Forkosch 213-14. Apparently an examiner can never be sure when a seemingly innocent question, such as "Do you drive a car?", will uncover a subject's irrelevant suppressed fear (here perhaps of the discovery of a hit-and-run accident not at issue in the examination) which will result in a false emotional norm.

For examples of peak-of-tension recordings, see Inbau & Reid 53-63, 38-42. For a discussion of how to eliminate accidental responses in such tests, see Snyder, Homicide Investigation 50 (1955). Variations of the peak-of-tension test include having the subject mentally select a number from one to ten or one of several cards with numbers on them.

These two variations are used primarily in the trial run to impress a subject with the "fact"
questions are interspersed with those related to the suspected crime.

Perhaps the most popular questioning device is the "control question" test. Regular relevant-irrelevant questioning is utilized, with the addition of a "control" question in the general area of the particular crime. A suspected thief, for example, might be asked, "Did you ever steal anything in your life?" It is assumed that a guilty subject will answer such a question with a lie.

Almost any variation from the established linear norm which occurs while a subject is answering a relevant or control question is interpreted as a deception response. There are also several significant correlations of responses to control and relevant questions. If there is no appreciable difference in responses, or if the control question response is greater than the response to relevant questions, the subject is deemed to be telling the truth; if there is a specific response to the relevant questions, but none to the control question, deception by the subject is assumed. And assuming a deviation from the subject's norm, the response which is considered the most dependable indication of deception is a simultaneous occurrence of a suppression in respiration and an increase in blood pressure. But the practice of automatically classifying rises in blood pressure as deception responses has been vigorously denounced by some professional examiners as a "gross error."

After the regular examination is completed several reruns are customarily required, since an examiner seldom can detect deception in only one or two "runs." While the same questions are asked during a second ex-

---

40 For examples of other "control" questions, see Harman and Reid, The Selection and Phrasing of Lie-Detector Test Control Questions, 46 J. CRIM. L. & CRIMINOLOGY 578 (1955).

47 It is alleged that innocent subjects consistently answer "yes" to such questions. See Arther, A Further Interpretation of Innocent Blood-Pressure Rises in Polygraph Testing, 47 J. CRIM. L. & CRIMINOLOGY 260 (1956); Arther, Blood Pressure Rises on Relevant Questions in Lie Detection—Sometimes An Indication of Innocence Not Guilt, 46 J. CRIM. L. & CRIMINOLOGY 112 (1955). For the related responses of "guilty" subjects to the so-called "guilt complex" and "fictitious crime" questions, see Inbau & Reid 14, 44-47.


50 Four or more runs are usually required. Mulbar 128. Just as in the case of pre-testing, reruns should heighten a guilty subject's apprehension and fear of exposure. See Arther, supra note 48, at 264. Repeated testings, however, may have an unfortunate tendency to reduce the responses of a guilty subject as he becomes aware that he is beating the machine. See Inbau & Reid 48.
amination, in any subsequent tests their context may be adjusted to fit the circumstances and the previous responses of the subject. Reruns are conducted by the examiner until the subject's responses consistently indicate either truth or deception.

**Apparent Defects in the Theory**

**The Crucial Role of the Examiner**

The polygraph, despite its impressive scientific appearance, is not an infallible "lie detector." In fact, that name is a complete misnomer. The person who operates the machine is the lie detector by reason of his interpretations. J. Edgar Hoover has estimated that 90% of the polygraph's usefulness depends on careful evaluation of the results by experienced examiners. 51

This situation arises from the fact that the polygraph records only the fluctuations of selected physiological functions. For a diagnosis of truth or deception, the examiner must weigh these recordations with a plethora of other factors, 52 all of varying relative importance with each subject. Therefore, while it may be theoretically possible for an examiner to detect and disregard any "results" not caused by deception responses, the reliability and accuracy of the polygraph examination process is dependent upon the basic qualifications and general diagnostic competence of the examiner.

To be forced to rely on an individual examiner's level of proficiency to validate the "lie detector" hypothesis is basically undesirable because of the disadvantages inherent in the use of the human element, which include fatigue, illness and nervousness, and the ubiquitous factors of conscious and unconscious bias. 53 But such dependence is particularly unfortunate at the present time because there are very few examiners who are both experienced and responsible. Although there are 300-400 persons who regularly give polygraph tests and examinations, leading professionals have admitted that not more than 10% are truly competent. 54 These professionals

51 See MacDonald II at 22. See also Keeler, Debunking The "Lie Detector," 25 J. CRIM. L. & CRIMINOLOGY 153 (1934). The FBI, which has never regarded the lie detector as anything but an unproved experimental device, uses it only if desired by a suspect. Even then a request is not always granted. See N.Y. Times, Dec. 20, 1951, p. 1, col.2. See also FRANK & FRANK, Not Guilty 161 (1957).

52 The polygraph test results must be considered in relation to the quantity of the subject's blood, the quickness of his heart, the rate of his breathing, the reactions of his sweat-glands, his fear or other mental condition at the time of the test, his education, the presence of other people, etc. See Forkosch 210-11; Koessler, Fallibility of Testimony and Judicial Accidental Risk, 4 CRIM. L. REV. 56, 64-65 (1957).

53 See West, A Psychological Theory of Law, in INTERPRETATIONS OF MODERN LEGAL PHILOSOPHIES 767, 782 (Sayre ed. 1947); Koessler, supra note 52. See also INbau & Reid 110; Lee, The Instrumental Detection of Deception (1953); N.Y. Times, supra note 51.

54 See MacDonald I, at 14. See also Gardner, Book Review, 10 STAN. L. REV. 189, 195 (1957).
also acknowledge that it is relatively simple for incompetent or dishonest “experts” to render inaccurate or perjured testimony for the party by whom they are employed. Nevertheless, this shortage of qualified examiners should not cause an automatic rejection of the polygraph. An adequate number undoubtedly could be recruited and trained if that were the only significant obstacle blocking judicial approval.

The Deceptive Certainty of Polygraph Recordations

A number of apparent defects in the theory of the polygraph can be advanced to justify the courts’ refusal to admit into evidence even an “expert’s” interpretation of the results of a polygraph examination.

First, certain physiological phenomena affect the validity of the initial premise that the polygraph will reliably reflect a subject’s attempts to deceive by recording the attendant physiological reactions:

Emotional unresponsiveness. An examiner cannot detect deception if the subject is unresponsive in character or nature, or if the subject has no fear of detection because of a fatalistic attitude, rationalization of his behavior, “circumscribed amnesia,” or a condition of shock or exhaustion. In addition, the polygraph cannot be used successfully on pathologi-
cal liars, 63 children, 63 the mentally dull, 64 or other subjects who are unable to distinguish between truth and falsehood.

**Ability to “beat” the machine.** Misleading graph tracings also may be created by controlled breathing, 65 muscle pressure, 66 and self-inflicted pain. But because of the fact that one out of five guilty subjects apparently attempts to distort polygraph recordations by these or similar stratagems, 67 experienced examiners have concluded that the more a subject tries to “beat the machine,” the easier it is to detect his guilt.

Some subjects, however, have the ability to unobtrusively eliminate the crux of the lie detector theory by being able to control their emotional responses with certain mental attitudes or “sets.” Jerry Thompson, perpetra-
tor of the infamous Mildred Hallmark rape-murder, was an example of a subject able to beat the machine in this manner. When interviewed in his death cell (the polygraph examiner had obtained his confession despite the indefinite test results), Thompson stated that whenever he was asked whether he had killed “Mildred,” he would concentrate upon and mentally reenact various abnormal sexual experiences with another girl of the same

62 Pathological liars present a particularly difficult problem for examiners. Even psychiatrists and psychologists often are unable to discover this condition without prolonged inter-
views, because afflicted persons are remarkably consistent in their lies. See Marston, *Reaction Time Symptoms of Deception*, 3 J. OF EXPERIMENTAL PSYCH. 72 (1920).

63 The cut-off age is usually 13, although this seems somewhat arbitrary. See INbau & Reid 77.

64 Imbeciles and idiots can be discovered through mental tests. See Sherbull & Williams, *Mental Deficiency Practice* 84–127 (1932). Morons, while more difficult to detect because of their verbal fluency, can be ascertained either by testing or through their general unrespon-
siveness to questions. See Pinter, *Intelligence Testing* 322 (1931).

65 See MacDonald I at 12; MacDonald II at 28. Even a momentary holding of the breath has sensational results on the graph. Examiners claim they can detect this stratagem either by visual observation of the subject or by the resulting abnormal graph tracing. See Inbau & Reid 83–85.

66 Muscular pressures exerted either in the arms or legs can produce all the typical blood pressure responses of deception, including the two blood pressure tracings which have always been confusing even to skilled examiners—a tracing climbing steadily to the top of the chart, and a tracing declining steadily to the bottom. See Inbau & Reid 92–93. In an effort to solve this problem, Inbau & Reid have developed a device specifically designed to detect these mus-
cular pressures. *Id.*, at 94–97. Now a standard attachment on all Keeler-Reid polygraphs, this invention is described in the text, p. 54, supra.

67 See Inbau & Reid 108-09. This statistic was one result of a five-year study. For further discussion of this study, see note 78 infra. Innocent subjects, of course, presumably have nothing to gain by such avoidance techniques.
name. By doing this he was able to temporarily dismiss from his mind the rape and murder of Mildred Hallmark. 68

Secondly, even if a subject is emotionally responsive and otherwise unable to beat the machine, the following factors significantly reduce the reliability of the inference that particular linear fluctuations represent deception responses: 69

Physiological abnormalities. In order to obtain meaningful results, the subject must be in reasonably good physical condition at the time of the test. Any person with heart disease, excessively high or low blood pressure, or a respiratory disorder will react in an abnormal manner. Temporary conditions such as drunkenness, colds, coughing spells, hiccups and allergies also tend to make a subject unfit for testing.

Mental abnormalities. Any emotional instability caused by a neurotic, psychotic or psychopathic condition 70 makes it practically impossible for the examiner to arrive at a reliable diagnosis. 71

Nervousness or extreme emotional tension. Surveys of polygraph recordings indicate that truthful subjects may react in an abnormal manner because of anger, apprehension, confusion, fear, misunderstanding, nervous tension or general emotional stress. Anger often arises in persons unjustly accused or suspected, and other emotional stress, such as apprehension or fear, may be caused by a belief that the test will be painful or inaccurate. Ironically, nervous tension can be caused by an anxiety to cooperate to obtain “good” test results. A patient’s blood pressure, when

---

68 See Inbau & Reid 79-80. See also MacDonald II at 28. Inbau & Reid emphasize that the Thompson case occurred before the full development of “control” questioning. But even they cite an instance where a suspect successfully used a similar method to “beat” a polygraph test based on control questions. An embezzler thought about previous sex affairs when asked a control question, and about the embezzlement when asked an irrelevant question. Inbau & Reid 9.

69 The subject’s consciousness of lying and fear of detection are commonly thought to be the factors principally responsible for the physiological changes measured by the polygraph. See note 28 supra and accompanying text. However, a recent poll of a large number of psychologists revealed that only 36% believed that these factors were the main cause of reactions on the polygraph. See MacDonald I at 13.

70 For more technical delineations of these categories, see Henderson & Gillespie, A Text Book of Psychiatry (6th ed. 1947). For a description of the more common psychological deviations which might interfere with an examination, see Floch, supra note 60.

71 The great majority of such illnesses show little or no detectable outward change in demeanor or social attitude. Henderson & Gillespie, op. cit. supra note 70, at 101. See also Inbau & Reid 78-79. The psychopathic William Heirens, for example, was able to beat the lie detector when questioned about the Suzanne Degnan killing and dismemberment. Id., at 48. He eventually confessed under narcoanalysis, however. For later developments in the Heirens case, see People v. Heirens, 4 Ill.2d 131, 122 N.E.2d 231 (1954).

tested by his personal physician, may be abnormally high for the same reason.\(^7^3\)

Proponents of the device, however, claim that these factors average out or are reduced as the test progresses,\(^7^4\) and can be compensated for or even eliminated by an understanding examiner.\(^7^5\) But the reactions of a subject who is worried about personal problems or unrelated offenses,\(^7^6\) or who has undergone the "third degree" or other intensive interrogation likely to create psychological nervous blocks, are completely unreliable.\(^7^7\)

The Misleading Nature of Available Statistics

Despite the apparent defects in the polygraph hypothesis, virtually all professional examiners assume that the polygraph reliably reflects the physiological by-products of a subject's significant emotional responses while being questioned. These examiners also believe that such recordations, when combined with other criteria (including simple observation), afford a valid basis for determining whether or not a subject answers truthfully. They assert that the "results" obtained by this diagnostic process are up to 95% accurate.\(^7^8\)

However, these percentages invariably are predicated upon tests conducted by experienced examiners under the most favorable conditions. Un-

\(^{73}\) For an enumeration and discussion of other causes of nervous tension in innocent subjects, see INBAu & Reid 66.

\(^{74}\) See Arther, Further Interpretations of Innocent Blood Pressure Rises in Polygraph Testing, 47 J. Crim. L. & Criminology 260, 264 (1956). The review practice is usually cited in support of this rationale. See text supra p. 56. But repeated testings may have an unfortunate tendency to increase an innocent subject's natural fear and nervousness because of mounting apprehension of being falsely accused. See INBAu & Reid 48.

\(^{75}\) See Arther, supra note 74; Arther, Blood Pressure Rises on Relevant Questions in Lie Detection—Sometimes an Indication of Innocence Not Guilt, 46 J. Crim. L. & Criminology 112 (1955); INBAu & Reid 66, 68–69. But other writers claim there is no way to distinguish these emotions from the so-called deception responses. See Levitt, Scientific Evaluation of the "Lie Detector," 40 Iowa L. Rev. 440 (1955); Burack, A Critical Analysis of the Theory, Method, and Limitations of the "Lie Detector," 46 J. Crim. L. & Criminology 414, 415 (1955). See also Lindsley, Emotions, Handbook of Experimental Psychology (1951).

\(^{76}\) In one instance, an innocent suspect produced deception responses on the polygraph because he feared his common-law marriage would be discovered. MULBAR 111–12. See also note 44 supra. The technique of "control questioning" is designed to eliminate these factors. See note 46 supra and accompanying text. See also note 74 supra.

\(^{77}\) Additional aspects of polygraph examinations which detract from a test's reliability include errors of definition, ambiguously expressed instructions, and the whole area of semantics. See HAMILTON, The Art of Interrogation 78 (1929); note 41 supra.

\(^{78}\) This was the reputed "result" of a five year study involving 4,280 criminal suspects. The examiners were unable to arrive at a definite opinion in 4% of the cases, and there were admitted mistakes in 1% of the cases. INBAu & Reid 111–12. See also SNYDER, Homicide Investigation 93–94 (1950). A subsequent study of 8,450 subjects resulted in a similar percentage breakdown. See Harman and Arther, The Utilization of the Reid Polygraph by Attorneys and the Courts, 2 Crim. L. Rev. 12, 26 (1955).
der more normal conditions, or when the examiner is lacking in adequate training, general competence or complete honesty, far less accuracy should prevail. Perhaps with these factors in mind, a number of authorities have estimated that the percentage of error in polygraph test “results” may be as high as 25%. This conflict and disagreement among the examiners and authorities, which has resulted in part from a dearth of sufficient clinical data, seems to preclude any final statistical evaluation of the reliability and accuracy of examination “results” at this time, and represents still another reason for the exclusion of polygraph evidence.

Conclusion

Although the “lie detector” admittedly is of great value to law enforcement agencies as an adjunctive investigatory technique, it has demonstrated an unfortunate capacity to record the physiological reactions of truthful subjects as deception responses, and an anomalous inability to mirror the falsehoods of unresponsive subjects or those knowledgeable of the various ways to beat the machine.

These defects are compelling grounds for the rejection of polygraph evidence in criminal trials, whether admission is sought by stipulation or over objection. Furthermore, courts should continue to exclude evidence concerning a criminal suspect’s willingness to submit to a polygraph examination, since a suspect may refuse to take the test, not because he fears that it will reveal consciousness of guilt, but because it may record as a lie what is in fact the truth. A guilty suspect, on the other hand, may be willing to hazard the test in the hope that it will erroneously record innocence.

Whether or not polygraph evidence is admitted in civil trials may be of less social import because of the significantly dissimilar sanctions that are

---

79 For more detailed criticism of these statistics, see Levitt, supra note 75 at 450; Burack, supra note 75 at 421–22.
81 For an indication that this confused state of affairs probably will continue, see Westaway, Scientific Method 289 (1937): “Any person who uses a scientific instrument of great precision and registers successive observations in an unbiased manner, will invariably find that the results differ. Only the careless investigator will think that his observations agree. The more accurate our modes of observation are rendered, the more numerous are the sources of minute error which will become apparent. We may, in fact, look upon the existence of error in all measurements as the normal state of things. Experimental results which agree too closely should raise our suspicions.”
imposed. Nevertheless, the basic unreliability of polygraph evidence remains unchanged, and therefore it should not be admitted over objection. And the deficiencies in the "lie detector" hypothesis should be considered carefully by those who otherwise might be tempted to enter into stipulation agreements concerning the admissibility of polygraph evidence.

A further objection to the admission of such evidence, in either criminal or civil trials, is that its "deceptive certainty" would tend to confuse and mislead most jurors (and some judges). The "fact" that a witness or party litigant was truthful or deceitful in answering certain key questions is clearly relevant evidence which should be considered. But the use of "lie detector" evidence invites confusion between (1) the reliability of the objective physiological facts which are recorded by the polygraph, and (2) the reliability of the subjective inferences of truth or deception which are drawn from those facts by the examiner. And since the average juror would probably fail to distinguish the physiological facts from the examiner's inferences, polygraph evidence might become virtually decisive of ultimate fact issues.

It has been suggested that polygraph evidence should be admitted for limited purposes, such as the proof of subsidiary fact issues and the impeachment of witnesses. It has also been suggested that polygraph evi-

82 Even leading polygraph examiners believe that evidence based on "lie detector" examinations should not be admitted at this time. INBAU & REID 128. See also Harman and Arther, supra note 78, at 27: "[The polygraph] has not yet reached the stage in its development where the results should be admitted into evidence over the objection of one of the parties." These frank admissions result from the examiners' recognition of the fact that: "A premature acceptance of the test results as legal evidence would undoubtedly occasion such a series of abuses and miscarriages of justice as to stigmatize forever the technique in the field of law as well as science." INBAU & REID 132. There are some commentators who believe that polygraph evidence should never be admissible. See Gardner, Book Review, 10 STAN. L. REV. 189, 194 (1957).
83 See notes 3, 16 and 20 supra.
85 See Koffler, The Lie Detector—A Critical Appraisal of the Technique as a Potential Undermining Factor in the Judicial Process, 3 N.Y. LAW FORUM 123, 146-54 (1957). See also 39 CALIF. L. REV. 439, 442 (1951); 3 WIGMORE, EVIDENCE § 999 (3d ed. 1940). The misleading nature of polygraph evidence has been convincingly demonstrated on at least two occasions. In People v. Kenny, 167 Misc. 51, 3 N.Y.S.2d 348 (1938), incriminating evidence based on a polygraph examination was admitted over the defendant's objection. After defendant's conviction, a polling of the jury revealed that the verdict would have been for acquittal but for the fact that "the lie detector said he lied." See Forkosch 228-31. Compare Inbau, Detection of Deception Technique Admitted as Evidence, 26 J. CRIM. L. & CRIMINOLOGY 262, 268 (1935). Similarly, in a recent experiment at a New York law school, third year law students displayed the same myopic attitude by voting to convict a defendant on only fragmentary evidence when it included testimony that a polygraph examination had indicated deception. See Koffler, supra at 138-43, 145-46.
86 E.g., whether or not a confession was voluntary.
dence could be utilized to reconcile contradictory testimony by opposing witnesses. It is likely, however, that this last endeavor would merely result in the judge or jury being forced to evaluate not only the witnesses’ testimony, but the conflicting opinions of polygraph examiners as well. For example, it would not be surprising for examination “results” in such instances to show only that each witness was telling the “truth” in his own subjective way;\(^8\) the polygraph, of course, could never detect such “unconscious” lying.\(^8\) Moreover, in view of the well known fact that limiting instructions have, at most, a negligible effect,\(^8\) it seems unsound to allow the admission of polygraph evidence for any purpose in jury trials.\(^9\)

The legal profession should be eager to applaud the efforts of those who strive to improve the traditional means of determining truth and deception.\(^8\) But to look to the polygraph examination process for such an improvement ascribes to it a degree of reliability and accuracy which it does not deserve at this time.

---

87 "Truth . . . would then be like flotsam caught in a whirling eddy.” Gideon v. Gideon, 153 Cal. App. 2d 541, 547, 314 P.2d 1011, 1014 (1957). See also People v. Davis, 343 Mich. 348, 371-72, 72 N.W.2d 269, 282 (1955). The “objective” facts often differ radically from those indicated by a witness’ testimony, which is subject to errors of observation, memory, recollection and narration, as well as unconscious bias or prejudice. See Frank & Frank, Not Guilty 63-64, 199-214, 219-21 (1957); Frank, Courts on Trial 14-21 (1950); Süderman & O’Connell, Modern Criminal Investigation 35-45 (1952). See also note 41 supra. For a summary of the possible means of correcting these and other deficiencies and inherent fallibilities of witnesses, see Frank, supra at 422-23.

88 For a model jury instruction intended to cope with this problem, see Streeter and Belli, The “Fourth Degree”: The Lie Detector, 5 Vand. L. Rev. 549, 557 (1952). But see notes 89 and 90 infra and accompanying text.

89 See, e.g., 24 U. Chi. L. Rev. 710 (1957); 8 Stan. L. Rev. 451, 455-57 (1956); note 85 supra. See also Frankfurter, Law and Politics 167 (1939).


91 See note 2 supra. But see Silving, Testing of the Unconscious in Criminal Cases, 69 Harv. L. Rev. 683, 702 (1956), for an espousal of the thesis that it would derogate the present concept of due process “to abandon our traditional system of adversary litigation with emphasis on dignity for ‘scientific’ trial with emphasis upon truth.” See also People v. Aragon, 154 Cal. App. 2d 646, 658, 316 P.2d 370, 378 (1957); Kaminski v. State, 63 So. 2d 339, 341 (Fla. 1952).

While judicial acceptance of “scientific” devices should be extended cautiously, the traditionalistic tendency should be tempered with an awareness of the consequences alluded to by this timely admonition in William Shakespeare’s Measure for Measure, Act I, Sc. 5:

“Our doubts are traitors
And make us lose the good we oft might win
By fearing to attempt.”