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Scientific Evidence in Criminal Cases--Methods of Detecting Deception, II

Fred E. Inbau

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SCIENTIFIC EVIDENCE IN CRIMINAL CASES

II. Methods of Detecting Deception*

Fred E. Inbau†

A. The "Lie-detector":

Long before psychologists ever attempted to develop a scientific technique for detecting deception, persons of average intelligence

*An extended discussion concerning the "word-association" test is purposely omitted in this paper for the reason (1) that its status has not been judicially determined, and also (2) because of the fact that it does not seem to possess the encouraging possibilities of a "lie-detector" or a "truth-serum," since the "word-association" test only indicates *a consciousness of guilt,* whereas the other two methods *may reveal the lie itself.* (The purpose of discussing hypnotism is due mainly to the fact that the question has been passed upon by the courts, rather than because of any special merits of hypnotism itself, as will be discussed later.)

The technique in conducting the "word-association" test consists of giving the subject certain stimulus words, one at a time, to which he must respond by speaking the first word that comes to his mind. Among the words given there are a few crucial (pertaining to the crime) and many more non-crucial (irrelevant). The nature of the response word and also the time reaction (there being some method used for accurately timing the interval between stimulus and response) are both significant in determining whether or not there is a consciousness of guilt. For detailed information see Muensterberg, On the Witness Stand (1909, 1923); Marston, "Reaction-Time Symptoms of Deception," 3 Jour. of Experimental Psychology 72 (1918); *ibid.*, "Negative Type Reaction-Time Symptoms of Deception," 32 Psychological Rev. 241 (1925); Langfeld, "Psychophysical Symptoms of Deception," 15 Jour. of Abnormal Psychology 319 (1920); Goldstein, "Reaction Times and the Consciousness of Deception," 34 Am. Jour. of Psychology 562 (1923); Crossland, "The Psychological Methods of Word-Association and Reaction-Time as Tests of Deception." 1 Psychology Series, University of Oregon Publications No. 1 (1929); Spencer, "Methods of Detecting Guilt: Word Association, Reaction-Time Method," 8 Ore. L. Rev. 158 (1929); Wigmore, Principles of Judicial Proof 621 *et seq.* (1931). For an interesting discussion of Professor Muensterberg's criticism of the legal profession's refusal to utilize this test, see Wigmore, "Professor Muensterberg and the Psychology of Testimony," 3 Ill. L. Rev. 399 (1909).

†Research Assistant in Legal Psychology, Scientific Crime Detection Lab-

must have observed the fact that conscious lying ordinarily produces certain emotional disturbances—such as blushing, squinting of eyes, squirming, peculiar monotone of the voice, throat pulsation, cold sweat, and a host of other manifestations.

These phenomena were not merely observed and then set apart for psychological theorizing. They actually played, and still play, an important role in practical affairs—especially so in our judicial system. Every judge and every jury—perhaps unknowingly—gives considerable weight to the physical reactions when an accused person or a witness is giving testimony in the trial of a case. And this has received judicial sanction. A court may even go so far as to instruct the jury that in determining the credibility which should be accorded to the testimony of a defendant in a criminal case they may take into consideration his demeanor and conduct both upon the witness stand and during the trial.[1] Moreover, it is very generally held that the conduct, demeanor, and words of one charged with crime, about the time of its commission or of its discovery, or upon his arrest for or upon his accusation of it, are admissible as evidence against him.[2] It is apparent, therefore, that the notion of detecting deception by utilizing certain psycho-physiological principles is not entirely new.[3]

In their efforts to develop an accurate and reliable "lie-detector,"

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oratory, Northwestern University School of Law. Raymond Fellow in Criminal Law, Northwestern University School of Law (1932-1933).

[1]"We know it to be a fact, grounded in human nature, that the conduct of a defendant or a party to a suit during the trial is more or less potential, and has necessarily more or less weight with the court and jury upon the question of his credibility. . . . If this be so, we fail to perceive the vice in an instruction telling the jury that they may do the very thing which common experience and common observation teach that the human mind inevitably will do." *Boykin* v. *People,* 22 Colo. 496, 45 Pac. 419 (1896). See 1 Wigmore, Evidence (2d ed. 1923) §274. *Contra: Purdy* v. *People,* 140 Ill. 50, 29 N. E. 700 (1892).

[2]"Any indications of a consciousness of guilt by a person suspected of or charged with crime, or who may after such indications be suspected or charged, are admissible evidence against him. The number of such indications it is impossible to limit, nor can their nature or character be defined." *McAdory* v. *State,* 62 Ala. 154, 159 (1878). "From our knowledge of the human mind and its workings, we expect, with almost positive certainty, that when it is the sole repository of so dreadful a secret it will affect the conduct and sayings of the person; hence the mind naturally looks to these with the most anxious scrutiny, and would require for its satisfaction, if such a thing were possible, a complete transcript of the person's conduct and sayings . . . ." See 1 Wigmore, Evidence (2d ed. 1923) §273.

[3]There is an age-old practice in the Orient of requesting an accused person to chew rice and then spit it out for examination—and if the rice is dry the suspect is considered guilty, because his fear of guilt is supposed to inhibit the secretion of saliva. In India the movement of the suspect's big toe is supposed to be an indication of deception. See Larson, "The Berkeley Lie Detector and Other Deception Tests," 49 Am. B. Ass'n Rep. 619 (1922), 40 Medico-Legal Jour. 14 (1923).

scientific investigators have obtained the most encouraging and satisfactory results from experimentation regarding the symptomatic changes in respiration and blood pressure.

Lombroso is reputed to have been the first to experiment with the heart-beat in an effort to determine the guilt or innocence of a suspect.[4] But perhaps the real step toward the development of a deception test is found in the efforts of Benussi[5] who detected significant changes in the inspiration-expiration ratio of the person under interrogation.[6] Since then the further study of scientific methods for detecting deception, based upon the cardiac changes suggested by Lombroso and the respiratory changes noted by Benussi, has been carried on in this country—principally by W. M. Marston, John A. Larson, and Leonarde Keeler.

Keeler, who perfected the "lie-detector" known as the Keeler Polygraph (the most reliable instrument up to this time),[7] and who is at present Assistant Professor of Law (in Legal Psychology) at the Scientific Crime Detection Laboratory of Northwestern University, has conducted approximately ten thousand deception tests

[4]Larson, Lying and Its Detection (1932) 172. For a brief history of the development of deception tests in general see an excellent article by Professor C. T. McCormick, in which he made a thorough survey of this subject up to 1926: McCormick, "Deception Tests and the Law of Evidence," 15 Cal. L. Rev. 484 (1927), 6 Tenn. L. Rev. 108 (1928), 2 Am. J. Police Sci. 388 (1931).

It is interesting to note that Benvenuto Cellini records in his autobiography the following observation concerning his father: "I was ill about two months, during which time my father had me most kindly treated and cured, always repeating that it seemed to him a thousand years till I got well again, in order that he might hear me play a little. But when he talked to me of music with his fingers on my pulse, seeing he had some acquaintance with medicine and Latin learning, he felt it change so much if he approached that topic, that he was often dismayed and left my side in tears."

[5]See Benussi, V., "die Atmungsymptome der Luge," 31 Archiv für der Gesamte Psychologie 244 (1914).

[6]Professor Burtt of Ohio State University confirmed these findings and also made further studies of deception. He states, however. that the changes in quantitative systolic blood pressure are the most important criteria. See Burtt, Legal Psychology (1931). In this connection see Landis and Gullette, "Studies of Emotional Reactions (III.) Systolic Blood Pressure and Inspiration-Expiration Ratios," 5 Jour. of Comparative Psychology 221 (1925).

[7]See Larson, "The Use of the Polygraph in the Study of Deception" (Department of Public Welfare Publication, Illinois, Series No. 104, at p. 6) (1927). Also see Larson, Lying and Its Detection (1932) xv. Mention should be made of the fact that there are only about ten such instruments now in use. However, practically every university psychology laboratory has what is usually labeled a "lie-detector"—a galvanometer. (See note 9.) Frequently amateurish experimentation with such an instrument accounts for the unfavorable newspaper comments to the effect that there is no means for detecting deception. It is unfortunate, therefore, that the catch-word "lie-detector" was ever used, without any qualification to distinguish one type of instrument from another.

within the past eleven years. (In the last three he has been assisted by Charles M. Wilson.)

The instrument consists of three units: one for recording respiratory changes; another for continuously recording the pulse wave and blood-pressure; and a third for recording a duplicate blood-pressure-pulse curve or for recording muscular reflexes of the arm or leg. (Ordinarily only the first two units are used; the third serving merely as an accessory.)

For obtaining these bodily reactions, a rubber tube (pneumograph) is placed around the chest, and a blood-pressure cuff, of the type ordinarily used by physicians, is fastened about the upper arm and then inflated to a pressure about midway between the systolic and diastolic blood pressures. Rubber tubes of approximately one quarter of an inch in diameter lead from both the pneumograph and the cuff into metal tambours to which are attached two stiluses. At the tip of each stilus is a small cup which is kept filled with ink and which feeds the pens as they fluctuate with each pulse beat or respiratory movement. The recordations are made upon slowly moving graph paper driven by a small synchronous electric motor.[8]

An instrument of this type should be distinguished from the numerous other so-called "lie-detectors" frequently found in the psychology departments of many universities. Usually such experimental devices consist of a galvanometer and Wheatstone bridge—an instrument for observing the psycho-galvanic reflex, that is, the changes in skin resistance to an imperceptible current of electricity flowing through the subject's body during the period of questioning. The galvanometric change in the body serves as an extremely sensitive criterion for emotionality, but cannot by itself be depended upon as a means for the detection of deception. Used, however, in conjunction with the other two reactions (blood-pressure and respiration), it may be of considerable assistance. The new Polygraph will contain this unit in addition to the others previously mentioned.[9]

Physiological irregularities, such as high blood pressure, etc., or emotional instability caused by worry or psychological strain, do not interfere with the deception test, because these factors are ascer-

[8]For more detailed description see Keeler, "A Method for Detecting Deception," 1 Am. J. Police Sci. 38 (1930).

[9]A "lie-detector" must record two or more bodily changes, for no one known change can be depended upon to give true and significant responses to deception. The psycho-galvanic reflex is a valuable indicator in many cases, but results with it alone cannot be relied upon. The blood pressure, pulse, and respiration are indispensable responses if we are to get a reliable cross-section of psycho-physical reactions. A record of the combination of all three bodily variations is most desirable for detecting deception.

tained in the "control" part of the record.[10] In other words, that part of the record made by the subject while being asked the few customary irrelevant questions (e. g., have you had breakfast this morning?)[11] will indicate the physiological and psychological peculiarities of the particular individual. Significance is attached only to the deviations from the "norm" at the points where the subject is being interrogated as to his participation in the crime under investigation.

Within the past three years approximately forty-five Chicago banks have availed themselves of the "lie-detector" as an aid in detecting embezzlement among employees, and also for the purpose of ascertaining whether or not a prospective employee has been guilty of any previous unknown irregularities under former employers. The results so obtained by members of the Scientific Crime Detection Laboratory staff have been extremely interesting and most gratifying —to the investigators and to the banks as well.

In the banks where all employees, from president to janitor, have been examined for the first time, the polygraph records of from ten to twenty-five per cent of the personnel have indicated deception in the answers to questions pertaining to the taking of

[10]There should be a qualification to the foregoing statement which, perhaps, may be adequately explained by the following illustration: In the recent Wynekoop murder case in Chicago, the police had grilled an elderly woman suspect, Dr. Alice Wynekoop, for about seventy hours, at the end of which time a member of the Scientific Crime Detection Laboratory staff was called upon to make a "lie-detector" test upon the suspect. A test was made, but the operator found the subject in a weakened condition and with a blood pressure of about two hundred and twenty. Because of this fact he refused to make public any statement concerning the results so obtained, until he could make another test under more favorable conditions—after the suspect had received some undisturbed rest. The police then placed her in a cell, supposedly for the purpose of rest and sleep, but actually as bait for newspaper reporters and photographers. They then requested another test, which was refused by the operator, because of non-compliance with his request regarding the period of rest and quiet. Hence the unfavorable newspaper reports to the effect that "Dr. Wynekoop thwarts the 'lie-detector'." See newspaper accounts in Chicago papers from November 21, 1933, until December 11, 1933.

It should also be stated that the instrument's reliability is restricted to cases involving conscious deception. In other words, it is of little value in cases involving pathological lying—such as the case of a paretic who speaks of his millions, etc. See Larson, The Cardio-Pneumo-Psychogram in Deception, 6 Jour. of Experimental Psychology 420 (1923).

[11]All questions are so framed that they may be answered by "yes" or "no." The reason for this is obvious, because any speaking by the subject will interfere with the recording of the otherwise normal automatic respiration and heart-beat, and thereby impair the recording of the variations caused by emotional disturbances due to conscious lying. Before each test the subject is cautioned to refrain from conversing, and merely answer by either "yes" or "no"—reserving his explanations until the completion of the test.

money from the institutions or from customers. And practically all such records have been substantiated by admissions of the subjects themselves.

In one instance a bank desired to have polygraph tests made upon its fifty-six employees in an effort to detect the embezzler of a sum of five thousand dollars. Instead of finding one liar in the group, twelve were discovered. Of these twelve, nine confessed to embezzlements heretofore unknown to the bank officials.[12]

Six bank applicants were sent to the Laboratory recently for polygraph tests to determine whether or not they had been guilty of converting to their own use any money or property belonging to previous employers. Only one of the six ran a clear record on the instrument. The other five gave specific responses indicating deception in their answers to such questions, and each of these admitted having diverted various sums of money plus other miscellaneous articles.

Not every bank employee or bank applicant with a guilty record is dismissed from the institution or refused employment. The individual who admits *all his irregular practices* is usually retained, or employed, even in many cases where substantial sums are involved.[13] Past experience lends support to the theory that such an employee is a "good risk," not only because of the beneficial psychological effect accruing from the admissions but also because he is aware of the fact that within another six months or a year he will be subjected to another similar test, the outcome of which must be favorable in order for him to retain his position in the institution.

The Chicago Police Force only occasionally requests the assistance of the "lie-detector," although such Laboratory service was formerly offered free of charge to the law-enforcing agencies of that city.[14] Neighboring communities, however, frequently solicit the aid

[12]Recently in one of Chicago's largest banks, several individuals were examined regarding the disappearance of a small sum of money. One of those whose record indicated deception in his answers to pertinent questions finally confessed to taking four thousand five hundred dollars, two thousand two hundred of which was from a charity fund—"tag day" money cans, which this particular subject had opened for the purpose of counting the money and depositing it to the account of the charitable organization involved.

[13]After any admissions, further polygraph tests are made to determine whether or not the subject continues to withhold information as to his dishonest practices. When complete confessions are made the polygraph records are usually free from specific responses.

[14]Several police captains have developed considerable respect for the instrument because of the results obtained in cases arising in their particular districts. However, the general attitude of the Chicago police department toward the "lie-detector" is quite clearly depicted in the following incident. At the time of the Wickersham investigation a leading police official was

of this instrument. Only recently, at Rock Island, Illinois, a large number of persons were quizzed in an effort to determine the slayer of a young girl. The evidence against any one of the suspects was not more than that against the others. All of them were tested upon the "lie-detector," and the records obtained indicated deception on the part of but one of the suspects. Before arrangements could be made for his arrest, this particular individual became a fugitive from justice by leaving town that very day. Some two weeks later he surrendered, and thereupon confessed his guilt. He was tried, convicted, and sentenced to ninety years in the state penitentiary.[15]

In another rather interesting case,[16] two suspects of a bank robbery were tested at the request of their attorneys. The records secured were clear and not indicative of any deception. At the trial of these two men, permission was obtained from the judge to call a night session with the jury absent, in order to have a demonstration of the test and to receive the testimony of both Keeler and Larson. As was expected, however, the prosecuting attorney objected to the introduction of the testimony, on the ground that such would be a usurpation of the function of the jury. The objection was sustained and the trial proceeded as usual. Three witnesses were placed on the stand who swore that they *saw* the defendants commit the crime. Two days later the real bank robbers were apprehended elsewhere and they confessed to this particular robbery. Naturally, the innocent defendants were released. And from that time on the prosecuting attorney in the case has come to have considerable confidence in the "lie-detector." He, himself, later called upon Keeler for his assistance in a murder case, in which the suspect whose record indicated deception confessed to the crime in question.[17]

asked why he neglected to use the "lie-detector" in his investigations, to which he replied (with a display of his clenched fist): "Here is the best lie-detector." See Report No. 11 of the National Commission on Law Observance and Enforcement: Lawlessness in Law Enforcement (1931) 130. A comment is there made to the following effect: "The presence in Chicago of this Laboratory, with its many scientific facilities, ought in time to stimulate the local prosecuting attorneys and detectives to place an increasing reliance on the investigation of outside evidence of crimes instead of the extortion of confessions by brutal methods."

[15]See newspaper accounts of this case, and of the part played by the "lie-detector," in the "Chicago Herald and Examiner" of February 19, 1933; the "Chicago Herald and Examiner" for May 9, 1933, and the "Chicago Daily Tribune" for May 10, 1933. Also see complete account in the American Weekly section of Hearst's newspapers of June 11, 1933. The defendant was Maurice Meyer and the victim Rose Gendler. The "lie-detector" evidence was not used at the trial, however. See "Davenport Democrat" for April 18, 1933.

[16]See report in Larson, Lying and Its Detection (1932) 349.

[17]Another interesting case in which Keeler participated was the one

Although no claim is made as to the infallibility of the Polygraph deception test technique, statistical data definitely establish the fact that it is an extremely valuable method for establishing guilt or innocence. In experimental cases, the outcome of which is of no importance to the individual being tested, there is an accuracy of approxmately eighty-five per cent. And frequently in those instances where no significant response is given, if a monetary wager is made with the subject that his lie can be detected (i. e., chosen card, chosen number, etc.), the existence of this "stake" will cause a significant response to be recorded on the instrument. In criminal cases, statistical data are difficult to obtain. For instance, in cases where a suspect's Polygraph record contains significant responses indicating his guilt, but no substantiating or discrediting evidence is ever obtained by the police, and no admissions are made by the suspect himself, such a record will remain "an unknown quantity" as far as statistical data are concerned. Nevertheless, in numerous criminal cases, full confessions have been obtained in approximately seventy-five per cent of those in which the record indicated deception regarding the pertinent questions propounded of the suspect.

It must be remembered that the successful use of any such device depends largely upon the skill of the operator in selecting the questions propounded and in correlating the emotional responses. This is something an untrained individual cannot do. And for that reason Professor Keeler has attempted to limit the distribution of the instrument to individuals who have demonstrated their ability as operators and who are either reputable members of the medical profession, or officially connected with educational institutions or recognized law

centered about the trial of Virgil Kirkland at Valparaiso, Indiana, in 1931. Kirkland was accused of a rape and murder. He was tried, convicted, and sentenced to death. Upon appeal the conviction was reversed on the ground of insufficient evidence to support the jury's verdict. Prior to the second trial, defense counsel procured the services of Mr. Keeler. He tested Kirkland on the "lie-detector" and the record indicated Kirkland's innocence of the major charges of the crime. At the trial Keeler was called as a witness and he proceeded to testify before counsel for the prosecution objected. The objection was sustained. Nevertheless, on motion of defense counsel, the jury was removed from the court room and the judge heard testimony regarding the "lie detector." Any further "lie-detector" testimony was withheld from the jury. The verdict upon this second trial amounted merely to a conviction of assault and battery with intent to commit rape, and the defendant was sentenced to the state penitentiary for one to ten years. Observers have stated that the fact that the defense offered to prove, and was deprived of the right to prove, the truthfulness of the defendant's testimony by means of the "lie-detector" had considerable weight in the jury's deliberations. See newspaper accounts of this case in the "Chicago Herald and Examiner" of May 21, 22, 1931.

enforcing agencies. An instrument of this nature in the hands of an unscrupulous individual is an extremely dangerous thing.

Decisions.

In a federal case decided in 1923, *Frye* v. *United States*,[18] the defendant, on trial for murder, offered as evidence the testimony of W. M. Marston concerning the result of a deception test made upon the defendant by use of the "systolic blood pressure" method. The testimony was excluded by the trial court and upon appeal the decision was affirmed. The following extract from the opinion of the appellate court represents a truly intelligent treatment of a problem of this nature:

"Just when a scientific principle of discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

"We think that the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting evidence deduced from the discovery, development, and experiments thus far made."[19]

Three years after this decision, in 1926, Professor C. T. McCormick[20] sent questionnaires to various members of the American Psychological Association in an effort to ascertain their opinions upon the question of whether or not the results of the deception tests based upon the measurement of the word-association reaction time, respiratory changes, and blood pressure were of sufficient accuracy to warrant consideration by judges and jurors in determining the credibility of testimony given in court. Of those who replied, eighteen answered yes, with varying qualifications (e. g., if handled by an

[18] 293 Fed. 1013, 34 A. L. R. 145 (D. C., 1923).

[19] *Ibid.* pp. 1014; 146. "The attitude of the court in this case seems beyond all criticism. It will not do to declare dogmatically that there is no good in a new thing, and it will not do, particularly in a capital case, to let scientific theories as yet unproved to disturb the scales. The court displayed a proper caution, yet left an open door for the 'coming light.'" 28 Law Notes 64 (1924). See notes on this case in 24 Col. L. Rev. 430 (1924); 37 Harv. L. Rev. 1138 (1924); 2 N. Y. L. Rev. 162 (1924); 33 Yale L. J. 771 (1924).

[20] At that time Professor of Law, North Carolina University, and now Professor of Law at Northwestern University.

expert only), thirteen answered no, and seven were of doubtful classification.[21]

Since 1926 considerable progress has been made in the field of detecting deception.[22] But no one is yet prepared to assert that even the most advanced method for detecting deception is infallible. However, perfection is not a prerequisite to judicial recognition. Professor Wigmore, in discussing scientific evidence in general, has stated that

> "All that should be required as a condition is the preliminary testimony of a scientist that the proposed test is an accepted one in his profession and that it has *a reasonable measure of precision in its indications.*"[23]

No one, at least for some time to come, will advocate that "lie-detector" evidence alone sustain a conviction. But, as a test of credibility of either the accused or of a witness, it might well serve as a link in the chain of circumstances indicating guilt or innocence. This suggestion finds ample support in the present practice of admitting evidence that blood hounds have followed a trail from the scene of a crime to the whereabouts of the accused,[24] of evidence of similarity of foot-marks,[25] and of conduct to show insanity[26]—"all striking examples of the fact that the conclusiveness in the inference called for by the evidence is not a requirement for admissibility."[27]

The use of a "lie-detector" in court, or the admission of testimony concerning tests conducted before trial, involves a consideration of certain privileges guaranteed an accused by both federal and state constitutions. This problem was raised in the recent Wisconsin case of *State* v. *Bohner*,[28] which rejected the offer of defense counsel to introduce "lie-detector" testimony as to the truthfulness of the defendant's alibi.

The opinion of the appellate court in the *Bohner* case contains a quotation from defense counsel's brief, to the effect that the defendant offered to prove "by Prof. Leonarde Keeler, of the North-

[21]See McCormick, "Deception Tests and the Law of Evidence," 15 Cal. L. Rev. 484, 495 (1927).

[22]The years from 1930 have witnessed the greatest strides along this line.

[23]2 Wigmore, Evidence (2d ed. 1923), §990. (Italics added.)

[24]*State* v. *Adams*, 85 Kan. 435, 116 Pac. 608, 35 L. R. A. (N. S.) 870 (1911); *State* v. *King*, 144 La. 430, 80 So. 615 (1919). See also 8 R. C. L. §177 (1915).

[25]*People* v. *Breen*, 192 Mich. 39, 158 N. W. 142 (1916); *State* v. *McLeod*, 198 N. C. 649 (1930), and see note on this case in 5 Temple L. Q. 144 (1930).

[26]1 Wigmore, *op. cit. supra* note 23 at §228 *et seq.*

[27]McCormick, *op. cit. supra* note 21 at p. 500.

[28]246 N. W. 314 (Jan. 10, 1933).

western University Crime Detection Laboratory, of Chicago, Illinois, by a test upon the defendant and with his instrument known as the 'lie detector' that the defendant was not in the city of Tomah on the date of the robbery and was not guilty."[29] This language has conveyed the impression that Mr. Keeler actually conducted the tests, and that he participated in the trial of the case. As a matter of fact, however, *he did not test the defendant.* The extent of his participation consists of correspondence with defense counsel, in which Mr. Keeler consented merely to examine the defendant and to render a report to defendant's counsel. Moreover, Mr. Keeler advised and requested that no attempt be made to introduce evidence either as to his willingness to conduct the test or as to any report he might render upon the result of the test—it being thought advisable to await a more favorable opportunity to seek judicial recognition of such evidence, and at a time when more complete data and information could be presented for the court's consideration. Nevertheless, the present decision represents a refusal to admit "lie-detector" evidence in a criminal proceeding.

The constitutional law aspect of "lie-detector" testimony was not mentioned in the *Frye* case, but in the *Bohner* case the Wisconsin court considered this phase of the problem in addition to the other involving the admissibility of scientific evidence "not yet generally accepted in its own particular field."

"While it [the 'lie-detector'] may have some utility at present, and may ultimately be of great value in the administration of justice, it must not be overlooked that a too hasty acceptance of it during this stage of its development may bring complications and abuses that will overbalance whatever utility it may be assumed to have. The present necessity for elaborate exposition of its theory and demonstration of its practical working, in order to convince the jury of its probative tendencies, together with the possibility of attacks upon the soundness of its underlying theory and its practical usefulness, may easily result in a trial of the lie detector rather than the issues in the cause. If the defendant in a criminal case is to be permitted to have tests taken outside of court and then to introduce expert testimony as to the results of the tests when these are favorable to him, without the necessity of taking the stand or submitting to tests by the prosecution, the way would seem to be open to abuses that would not promote the cause of justice. It is our conclusion that the refusal of the trial court to admit this testimony was not error."[30]

The objection raised by the Wisconsin court in the foregoing

[29] 246 N. W. 317.

[30] *Ibid.* p. 317. In support of its position that the evidence was not sufficiently reliable for use in criminal trials the court quoted from Wigmore's "Principles of Judicial Proof" (2d ed. 1931) 634, wherein the author summar-

case as to the undue advantage which would thus be given a defendant under such conditions is easily met by the suggestion that whenever a defendant seeks to introduce testimony of this nature he will be considered as having waived his privilege of refraining from taking the witness stand. Another way to handle the situation, where the accused wants to subject himself to the test, and perhaps one more desirable, is (1) to require defense counsel to make an application to the court for an order that the test be made in the presence of attorneys for both prosecution and defense, and (2) for the court to attach a condition that the report of the expert conducting the test be admitted in its entirety, whether favorable or unfavorable—thus constituting a complete waiver of the defendant's privilege against self-incrimination. This also would meet the objection voiced by the Supreme Court of Wisconsin.

Where the suspected individual refuses to submit to the test, his constitutional guaranty against self-incrimination may seem to afford him protection against a compulsory examination. And yet, upon the analogy of several other types of cases there should be no valid objection on this ground. For instance, an accused person may be compelled to stand up in court for the purpose of identification;[31] to

ized his preceding discussion of all sorts of experimental psychometric methods of ascertaining data for valuing testimonial evidence—such as the "word-association" test, the "truth-serum" tests, etc. The court inferred that Professor Wigmore offered "little comfort to one who contends that this device is past the experimental stage." As a matter of fact, Professor Wigmore devoted considerable space in his book to a discussion of the "lie-detector," and his attitude, both as indicated in his work and as expressed to the writer recently, is far from discouraging. Moreover, Professor Wigmore has been criticized for being "a little uncritical in his acceptance of these recent devices," and for not showing that "finger-prints, bullet marks, scopolamine, and lie detectors are also fallible tests." See book review by Professor Chafee of Wigmore's "Principles of Judicial Proof" in 80 Pa. L. Rev. 319, 322 (1931). Incidentally, Professor Chafee objected to Wigmore's omission of any mention of Whedde & Beffel's "Finger-prints Can Be Forged," but Professor Chafee himself did not mention the fact that both authors of this book are ex-convicts, and that an investigating committee of the International Association of Identification discredited the assertions made by Whedde and Beffel. Professor Chafee also stated in his review that "the Wickersham Commission has reported a Washington case where an injunction was issued against scopolamine injection and the use of the lie detector." But, as indicated by the following quotation, there is nothing in the injunction decree which discredits the "lie-detector": "It is not for this court (Superior Court of Washington) at this time to pass on the abstract question of whether the use of this particular machine under any circumstances would be illegal and would be prohibited by the court. The issue here is whether or not the treatment accorded to the defendant, Meyer, between the 14th of November and the 21st of November at the hands of the officers of the law having him in charge was illegal and improper, and whether it should be permanently restrained." See Report No. 11 of the National Commission on Law Observance and Enforcement: Lawlessness in Law Enforcement (1931) 151, 152.

[31] *People* v. *Gardner* (1894) 144 N. Y. 119, 38 N. E. 1003, 28 L. R. A. 699.

place his feet in a suitable position for view by the jury;[32] to make footmarks for comparison with those found at the scene of the crime;[33] to make finger-prints for the same purpose;[34] to submit to a physical examination for scars or wounds;[35] to exhibit certain tatoo marks to the jury.[36] "Lie-detector" evidence is of a nature similar to that used in the foregoing cases. The instrument merely records the reactions in a subject's blood pressure and respiration when asked questions pertinent to the crime under investigation. (*The record is precisely the same even though the subject remains silent instead of replying by the usual "yes" or "no."*)[37] Therefore, in view of the fact (1) that lay testimony is admissible concerning the physiological and psychological reactions of a person accused of or while being tried for a criminal offense,[38] and (2) that compulsory submission to a "lie-detector" test does not provoke "compulsory testimony" (assuming, of course, the validity of the analogy to the decisions mentioned above), it would seem that an accused individual may be forced to submit to the examination. The evidence thus obtained could be presented to a court by either (or both) of two methods. A qualified expert might testify as to the recorded reactions and his interpretation thereof, or else the polygraph record could be presented to the court with merely an explanation by the expert as to what physiological changes, if any, occurred during the interrogation.[39]

At the present time no one is compelled to submit to the Polygraph test. Consequently, if the art of detecting deception by this method is recognized, evidence obtained as the result of a voluntary submission would not in any way violate the defendant's constitutional privilege, and therefore would be admissible in court.

[32]*State* v. *Prudhomme* (1873) 25 La. Ann. 522.
[33]*Biggs* v. *State* (1929) 201 Ind. 200, 167 N. E. 129, 64 A. L. R. 1085.
[34]*People* v. *Sallow* (1917) 100 Misc. 447, 165 N. Y. Supp. 915.
[35]*O'Brien* v. *State* (1890) 125 Ind. 38, 25 N. E. 137, 9 L. R. A. 323.
[36]*State* v. *Ah Chuey* (1879) 14 Nev. 79, 33 Am. Rep. 530.
[37]In a recent murder case, the accused refused to reply to stimulus questions when tested on the "lie-detector." Despite this, however, his specific reactions indicated his guilt. This was corroborated by other evidence, including the confessions of two accessories who also had been subjected to the tests and later confessed their guilt as participants. The principal was sentenced to life imprisonment. See *State* v. *Miller* court records in New Philadelphia, Ohio.
[38]*Supra* notes 1 and 2.
[39]For practical and administrative reasons it seems more desirable to utilize the methods outlined above, rather than attempt to conduct the test in open court. The nature of the test is such that laboraory conditions are required for the best results. The confusion attendant to a court trial, the undue consumption of the tribunal's time, the undesirability of thus compelling an expert to make a hasty conclusion, constitutes some of the major reasons why the better practice would be to have the test administered before trial, and the results used only in the form of the opinion testimony of an expert reporting and interpreting them. See McCormick, *op. cit. supra* note 21 at p. 501.

The foregoing discussion concerning the constitutionality of "lie-detector" evidence assumes, for this purpose, judicial recognition of the science as such. That, of course, is the first step. And eventually data and information concerning the high degree of accuracy of the most advanced method for detecting deception will be presented to the courts for their consideration in determining its judicial status as evidence of guilt or innocence. For that reason, consideration was here given to the possible methods by which a court could admit the evidence without violating the constitutional safeguard against self-incrimination, and also without prejudicing the cause of the prosecution.

B. The "Truth-serum":

The possibility of the existence of a "truth-serum" may be appreciated readily by anyone who has observed the frankness usually exhibted by an intoxicated individual.

Various drugs are capable of producing a mental state in which consciousness is more or less profoundly affected, thereby rendering a suspect's reactions somewhat automatic. In this condition a person is supposedly unable to survey critically his responses to questions, and as a consequence truth is forthcoming rather than deception.

Scopolamine and sodium amytal are the two drugs which thus far have been used in an effort to obtain scientifically from the suspected individual his own version of his participation in, or innocence of, the crime under investigation. Scopolamine, administered by subcutaneous injections, has been used frequently in obstetrical cases under the commonly known name of "twilight sleep." In fact, it was in such a case that its "truth-telling" effects were first noticed by Dr. R. E. House as possessing possibilities for use in criminal investigations.[40] Sodium amytal, administered intravenously, is another anaesthetic in general use in medical profession.[41]

[40]While attending to a woman at childbirth, a Dr. R. E. House of Ferris, Texas, requested an attendant (in a private residence) to look for scales with which to weigh the new-born infant. The attendant replied that he did not know where they were. Immediately, the mother, while under the influence of scopolamine, spoke up and gave the desired information—telling just where they could be found. This incident prompted Dr. House to experiment with scopolamine, in order to ascertain whether it possessed any possibilities for application in criminal investigations. House, "The Use of Scopolamine in Criminology," 2 Am. J. Police Sci. 328 (1931), reprinted from the Texas State Journal of Medicine (Sept., 1922).

[41]Experiments have been conducted lately in order to determine the therapeutic value of sodium amytal in serious psychotic cases. The beneficial influences of long periods of sleep as produced by this drug have been considered responsible for some of the good results obtained in a few such

The policeman with his "third degree" and the scientific investigator with his "truth-serum" are both working toward a common objective. Each recognizes the fact that in the mind of the suspect is locked the correct knowledge of the truth in every case. Both attempt to obtain the desired information by direct methods—by temporarily destroying in the brain the power of reason, imagination, and determination. But the officer of the law does it by brute force—with its attendant results of bodily injury, mental suffering, and not infrequently death itself; whereas the scientist uses nothing but a painless anaesthetic which leaves no disagreeable after effects, either mental or physical.

According to Dr. House, the successful use of scopolamine in criminology is based upon the fact that a feeble stimulus is capable of setting in operation nerve impulses which are extremely potent in their effect. A few injections of the drug will depress the cerebrum of the brain to such an extent that the stimulus of a question can go only to the hearing cells, from which an answer is automatically sent back, because the power of reason is inhibited more than the power of hearing.[42]

Up to the time of his death in 1930, Dr. House had conducted several hundred scopolamine experiments—in many of which he procured the release of accused and convicted individuals who were subsequently proved innocent[43]—and his very conservative estimate of success was fifty per cent accuracy. Dr. House's findings were presented before medical societies and criminological bodies, his services always being offered without cost. He worked diligently to interest others in carrying on similar research and to make them realize that scopolamine offered a new and valuable means of crime detection. He realized that his "truth-serum" was not absolutely

cases of psychopathic individuals. See Lindemann, "Psychological Changes in Normal and Abnormal Individuals Under the Influence of Sodium Amytal," 11 Am. Jour. Psychiatry 1083 (1932). Dr. Lindemann noted that in the normal individuals tested they all experienced a "feeling of well-being and serenity, a desire to communicate, to be every person's good friend, a grateful appreciation for the kindness and goodness of the persons of their environment or willingness to speak about very personal problems usually not spoken of to strangers." *Ibid.*, p. 1086.

[42]The same principle accounts for the loss or partial loss of memory in old age. "In old age, the cortical cells of the cerebrum are inhibited in their functions because the dendrites, with their synapses, shrink. The cortical cells do not then readily transmit thought to their neighboring thought cells, to complete what is called memory. That is why old people apparently live in the past and do not remember recent events with ease. A similar condition will be found in the brain of a person under the influence of scopolamine, except that instead of shrinkage of the synapses there is a temporary contraction." House, *op. cit. supra* note 40 at p. 333.

[43]Larson, *op. cit. supra* note 16.

accurate, as could hardly be expected because of the human element involved. And for that reason he suggested that although every suspect believed guilty by a prosecuting attorney should be compelled to submit to the test, only such evidence obtained as could be positively corroborated should be used against him.[44]

At the Scientific Crime Detection Laboratory, scopolamine experiments have been conducted with fairly satisfactory results. One case in particular is worthy of special mention. The circumstances and evidence surrounding the death of a man failed to substantiate his common-law wife's theory of suicide. Suspicion was directed at both the wife and a person identified as her paramour. The latter was so insistent in professing his innocence of the crime that he consented to take a scopolamine test.[45] While under the influence of the drug the suspect insisted that he did not kill the deceased. But when asked what he did with the pistol after the deceased had been shot he declared that he threw it into a river. He also stated that he covered the body with branches. At this point the investigators were in a quandary, because obviously nothing like this could have taken place in the instant case (the body having been found in bed with a pistol at its side). For that reason the questions were repeated. The subject then answered that he hid the gun in a patch of heather in a town in Ontario, Canada. Concerning the present crime, however, he continued to express his innocence. When he regained consciousness the investigators—seeking an explanation for the unrelated details of perhaps another crime—reminded him about the time he covered a body with branches. Upon hearing this the man's face paled. Then someone suggested the murder in Ontario. At this point the suspect became convinced that all his past secrets had been divulged, and he agreed to confess to everything. He told how the husband in the instant case arrived home and found him there as an unwelcome guest; of the struggle between the two; and of *the wife* shooting her husband, without the paramour knowing of her intention to do this. The suspect then continued to confess his guilt regarding the two previous murders about which the investigators knew nothing at all prior to the test. A communication with Ontario authorities disclosed the fact that this particular

[44]House, "Why Truth Serum Should Be Made Legal," 42 Medico-Legal Jour. 138 (1925).

[45]The innocent person will readily submit to either scopolamine or the "lie-detector" tests, and ordinarily the guilty individual dares not refuse what he considers a useless test anyway, for fear of such refusal being interpreted as an admission of guilt.

individual was wanted there for the very murder he so unconsciously described while under the influence of scopolamine.[46]

One investigator has asserted that better results are obtainable with sodium amytal than with scopolamine, because of the constant and prolonged duration of the state of mind induced by sodium amytal.[47] But his research, confined to a limited number of cases of non-criminal nature, has not been verified as yet. While it may be true that another more effective "truth-telling" drug is available, the results thus far obtained in scopolamine cases are indeed very encouraging.[48]

Decisions.

The only appellate court decision upon the subject, *State* v. *Hudson,*[49] involved the admissibility of a physician's testimony concerning evidence alleged to have been obtained from the accused himself while under the influence of a "truth-serum," presumably scopolamine. The evidence was rejected.

A comparison should be made between the attitude of the Missouri court in this case and that found in the opinions of the federal court in the *Frye* case and of the Wisconsin court in the *Bohner* case. But by way of partial justification for the court's attitude in the instant case, as expressed in the following quotation, it should be noted that the Missouri court was not informed as to the nature of the "truth-serum," and the circumstances surrounding the procedure for its introduction were none too favorable for the admission of almost any scientific evidence, regardless of its reliability.

"It was sought to introduce in evidence the deposition of a doctor residing elsewhere, who testified to the effect that he had administered to the defendant what he termed a 'truth-telling serum,' and that while under its influence the defendant had denied his guilt. Testimony of this char-

[46]See Wigmore, Principles of Judicial Proof (1931) 610 for a discussion of scopolamine tests, and in particular for a quoted letter written to Professor Wigmore by a prosecuting attorney in Alabama who describes his use of scopolamine in the solution of a series of serious crimes in Birmingham, Alabama. Also see an article in an English Medical Journal, 215 The Lancet 990 (1928), discussing a case in Hawaii where a confession is supposed to have been obtained from a scopolamine subject, who was subsequently proved innocent by virtue of another person's normal confession.

[47]Lorenz, "Criminal Confessions Under Narcosis," 31 Wis. Med. J. 245 (1932).

[48]The results of experimentation with scopolamine indicate that in experimental cases the drug produces truth-telling effects in practically every instance. In actual cases, however, positive results have been obtained in approximately fifty per cent of the cases. Nevertheless, the fact that any results are obtainable warrants its use under any circumstances.

[49]289 S. W. 920 (Mo. 1926). See note in 12 St. Louis L. Rev. 215 (1927).

acter—barring the sufficient fact that it cannot be otherwise classified than as a self-serving declaration—is, in the present state of human knowledge, unworthy of serious consideration. We are not told from what well this serum is drawn or in what alembic its alleged truth-compelling powers are distilled. Its origin is as nebulous as its effect is uncertain. A belief in its potency, if it has any existence, is confined to the modern Caliostros, who still, as Balsamo did of old, cozen the credulous for a quid pro quo, by inducing them to believe in the magic powers of philters, potions and cures by faith. The trial court therefore, whether it assigned a reason for its action or not, ruled correctly in excluding this clap-trap from the consideration of the jury."[50]

Since the evidence obtainable by the use of a "truth-serum" is of testimonial nature, it would be inadmissible if the test were conducted without the defendant's consent. However, there should be no constitutional objection to its admissibility where the examination is made with full consent, and with knowledge of its nature and purpose. One writer has suggested that if it became generally accepted as a reliable eliminator of deception, the courts could, and would, admit "truth-serum" confessions obtained prior to trial, since after all it is the factor of unreliability that chiefly bars the forced confession under present conditions.[51]

C. *Hypnotism:*

The phenomenon of hypnotism, though frequently associated with occult practices, is recognized by psychologists as being nothing more than a state of heightened suggestiblity.[52]

Because of the fact that an individual in a hypnotic state will act according to instructions given him at the time, it has been thought possible to hypnotize a witness or an accused, instruct him to tell the truth and then question him concerning the crime under investigation. But since the art itself is based upon suggestibility, an interrogator would have to be extremely cautious of the manner in which he presents his questions, to avert the inherent danger of unintentionally falsifying the subject's narration. Moreover, the possibilities of hypnotism are limited to those persons susceptible to hypnotic influence.[53]

Decisions.

Several attempts have been made to introduce evidence obtained through hypnotism, but in each instance the courts have rejected any

[50]289 S. W. 921.
[51]See McCormick, *op. cit. supra* note 21 at p. 502.
[52]Burtt, Legal Psychology (1931) 133.
[53]See Wigmore, *op. cit. supra* note 46 at p. 611.

such testimony. In a California case, *State* v. *Ebanks*,[54] the defendant, on trial for murder, called a witness supposed to be an expert hypnotist, who offered to testify that he had hypnotized the defendant and that under the hypnotic influence the defendant denied his guilt. The trial court refused to admit the testimony on the ground that this would be an "illegal defense," since the "law of the United States does not recognize hypnotism." The appellate court disposed of the case rather quickly by stating that "we shall not stop to argue the point, and only add the court was right."[55]

In a recent Canadian case, *Rex* v. *Booher*,[56] the Crown employed a hypnotist for the purpose of obtaining from the accused a confession concerning the murder for which he had been indicted. After several visits by the hypnotist, the defendant expressed a desire to confess and he did confess some time thereafter. Application was made by the Crown to admit the confession in evidence, but it was rejected on the ground that it may have been induced by the hypnotism, and therefore of an involuntary nature and consequently inadmissible.[57]

[54]117 Cal. 652, 49 Pac. 1049, 40 L. R. A. 269 (1898).

[55]It is interesting in this connection to note the language used in *State* v. *Exum*, 138 N. C. 599, 50 S. E. 283 (1905), where the prosecution had asked the defendant's wife on cross-examination whether or not she had ever been hypnotized by her husband, whereupon the witness replied in the affirmative. Upon appeal this question was held to be a proper one, since it merely went to the purpose of affecting the credibility of the witness. The appellate court, however, made this statement: "While this subject of hypnotism has received to some extent 'judicial recognition,' in the language of one of the briefs, the sources of its power and the extent of its influence, are in the main, unknown, and we must hesitate to enter on such a field in search of error."

[56](1928) 4 D. L. R. 795.

[57]"In the principal case, where there was evidence that the accused might have been in a post-hypnotic state when making the confession, the court was doubtless correct in excluding the admission, as the authorities on hypnotism seem to agree that its use for such purpose is unreliable, as the subject can be made to say anything, and will often lie even under honest questioning." 17 Cal. L. Rev. 311, 312 (1929). See in this connection: Bannuster, "Hypnotic Influence in Criminal Cases," 51 Albany L. J. 87, 88 (1895). See note on this case, and also collection of citations to scientific publications concerning the reliability of hypnotism for this purpose: 42 Harv. L. Rev. 704 (1929).

The question as to the admissibility of confessions while asleep also has been before the courts. In *People* v. *Robinson*, 19 Cal. 41 (1861), the trial court permitted a witness to testify as to what the defendant had said in his sleep concerning the murder. This was held erroneous upon appeal: "If the defendant was asleep, the inference is that he was not conscious of what he was saying, and the words spoken by him in that condition constituted no evidence of guilt." *Ibid.*, p. 42. A witness in *State* v. *Morgan*, 35 W. Va. 260, 13 S. E. 385 (1891), was permitted to testify that while the defendant was in bed (whether asleep or not the witness could not say) she exclaimed "I only consented to his death, and they gave him the poison." The appellate court said that if the defendant were asleep at the time then the exclamation was useless.