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Mechanical Testimony

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THIS ARTICLE DEALS with the familiar conflict of people versus machines, in considering the legal question of whether a machine can testify against an accused. It is a generally accepted principle that a person's physical appearance and characteristics are admissible in court as evidence for the purpose of identification. There is no general rule, however, which specifies what factors constitute a person's physical characteristics, and a problem arises when the courts must determine whether an accused's self-incrimination privilege is being abridged.

Self-Incrimination Privilege[1]

The fourteenth amendment to the federal constitution forbids a state's violation of the privilege against self-incrimination established in the fifth amendment. Thus, a person has the right to remain silent in either a state or federal court unless, in the unfettered exercise of his own will, he chooses to speak. Further, he shall suffer no penalty or prejudice for any silence.[2] This has been interpreted to mean that any witness is vested with the privilege against self-incrimination in a hearing where testimony is taken, although the provision relates to criminal cases only.[3] In a criminal proceeding an accused person may not be compelled to testify as a witness by the state, and although he may testify on his own behalf, his refusal to testify does not create any presumption against him. Introduction of the fact that the accused failed to so testify is error.[4] The privilege protects the privacy of the accused by shielding him from judicial inquisition, removing the pressure to commit perjury, lessening the disadvantages of a timid or nervous person, and necessitating a more thorough investigation.[5] Thus, the innocent and the guilty are equally protected.

The Non-Testimonial Privilege

This privilege against self-incrimination is not applicable in two situations—when the evidence is considered to be non-testimonial and when the suspect or accused voluntarily testifies after he has been ad-

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1 For a history of the privilege against self-incrimination in England and America, *see* Weintraub, Voice Identification, Writing Exemplars and the Privilege Against Self-Incrimination, 10 Vand. L. Rev. 485 (1956-57).

2 Malloy v. Hogan, 378 U.S. 1, 84 S. Ct. 1489 (1964).

3 W. Richardson, Evidence, 542 (9th ed. 1964).

4 People v. Leavitt, 301 N.Y. 113, 92 N.E. 2d 915 (1950).

5 *Supra* note 3, at 192-93.

vised of his right to remain silent.[6] The privilege, therefore, applies only to conduct which the accused can control as a means of conveying ideas or thoughts. It is important to note that it is not merely all conduct that he can control, but rather it is control of words or acts which by their own meaning will tend to implicate or incriminate the accused. Conduct which the accused cannot so control, regardless of when or how compelled, does not violate the privilege.[7] The object of the privilege, in other words, is to prevent the employment of legal process to withdraw from the accused's own lips an admission of his guilt which would then take the place of other evidence.[8] It is, therefore, not *all* compulsion that is protected by the privilege but merely testimonial compulsion. Further, where the evidence was voluntarily given, or given by the stipulation of the parties, it is admissible as evidence providing it is relevant and otherwise competent.

Non-Testimonial Evidence

Certain types of examination or inspection of the accused's body are outside the scope of the privilege where such evidence is a means of identification only and is non-testimonial in nature. As Justice Holmes stated, "the prohibition of compelling a man in a criminal case to be a witness against himself is a prohibition of the use of physical or moral compulsion to extort communication from him, not an exclusion of his body as evidence when it may be material." [9] The privilege has no application to such physical evidential circumstances as may be disclosed by an open exhibition of the accused's body or by the ordinary observation of his person.[10]

Thus, in a police line-up where suspects are usually compelled to talk and give certain information about themselves, though such procedure may be for identifying the voice as well as physical features, it is not a violation of the privilege.[11] Forcibly taking shoes from the accused for comparison purposes does not violate his privilege,[12] nor does com-

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[6] *Id.* at 193. J. Wigmore, on Evidence § 2263 (3rd ed. 1940). Wigmore appears convinced that the privilege was limited to testimonial disclosures.

[7] Weintraub, *op. cit. supra* note 1, at 506-7.

[8] Wigmore, *op. cit. supra* note 6.

[9] Holt v. U.S., 218 U.S. 245, 54 L. Ed. 1021 (1910).

[10] State v. Roy, 220 La. 1017, 58 So.2d 323 (1952); Allen v. State, 183 Md. 603, 39 A.2d 821, 171 A.L.R. 1138 (1944).

[11] J. Richardson, Modern Scientific Evidence 206 (1961); Tucker v. U.S., 214 F.2d 713 (9th Cir. 1954); People v. Lopez, 60 Cal. App. 2d 223, 32 Cal. Rptr. 424, 384 P.2d 16, *cert. denied*, 375 U.S. 994 (1963). *Contra*, when suspect had to repeat certain words which the rapist had spoken, State v. Taylor, 213 S.C. 330, 49 S.E.2d 289 (1948).

[12] Potter v. State, 92 Ala. 37, 9 So. 402 (1891); State v. Papitsas, 80 N.J. Super. 420, 194 A.2d 8 (1963); People v. Van Wormer, 175 N.Y. 188, 67 N.E. 299 (1903); Payne v. State, 239 P.2d 801 (1952). *Contra*, State v. Griffin, 129 S.C. 200, 124 S.E. 81 (1924), where sheriff tried to force accused to put foot in a print, and accused responded by attempting to obliterate the print, such evidence was inadmissible.

pelling the suspect to execute a writing exemplar.[13] On a bill of divorce alleging impotency, the party must submit to inspection to ascertain the existence of impotency.[14] Results of a drunkometer test do not violate the privilege even though the specimen of breath had been forcibly taken over the defendant's objection, since the privilege is directed primarily against testimonial compulsion—that is, an admission of his own guilt from his own lips.[15] Similarly, emetics have been administered forcibly to cause vomiting for the purpose of recovering narcotics for use as evidence.[16] All of these cases involved the forceful taking of evidence which was held not to be in violation of the privilege, since the evidence obtained was not a testimonial admission from the accused. The evidence was a physical, tangible substance or matter rather than a conveyance from the mind of the accused.

Examples where the privilege was found not to be violated, and where the accused was compelled to submit himself for identification purposes in the courtroom during a trial, include standing up[17] or assuming any desired position or posture,[18] removing hair or beard,[19] or clothing,[20] putting on a mask,[21] exhibiting forearm[22] or hands,[23] trying on a blouse[24] and moving feet into view of the jury.[25] Pretrial evidence can be taken without the consent of the accused for purposes of identification of fingerprints,[26] measurements,[27] photographs,[28] examination of

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[13] People v. Whitaker, 127 Cal. App. 370, 15 P.2d 883 (1932); State v. Renner, 34 N.M. 154, 279 P. 66 (1929); State v. Vroman, 45 S.D. 465, 188 N.W. 746 (1922); State v. Lyle, 125 S.C. 406, 118 S.E. 803 (1923). *See also,* U.S. v. Mullany, 32 F. 370 (C.C.E.D. Mo. 1887); and Bradford v. People, 22 Colo. 157, 43 P. 1013 (1896), where on cross-examination it was held that accused had waived his privilege by taking the stand. *Contra,* State v. Scott, 63 Ore. 444, 128 P. 441 (1912) and Kennison v. State, 97 Tex. Crim. 154, 260 S.W. 174 (1924) held as a confession and, therefore, inadmissible.

[14] Anonymous, 89 Ala. 291, 7 So. 100 (1890).

[15] State v. Berg, 76 Ariz. 96, 259 P.2d 261 (1953); State v. King, 44 N.J. 346, 209 A.2d 110 (1965).

[16] Lane v. U.S., 321 F.2d 573 (5th Cir. 1963); Rochin v. California, 342 U.S. 165, 96 L. Ed. 183, 72 S. Ct. 205 (1952), where a stomach pump was used to salvage capsules of morphine. This was held to violate due process (shocked the conscience and approached the rack and screw) but not the self-incrimination privilege.

[17] Roberson v .U.S., 282 F.2d 648 (6th Cir. 1960), *cert. denied,* 364 U.S. 879 (1960); U.S. v. Socrentino, 78 F. Supp. 425 (D.C.M.D., Penna. 1948); State v. Fries, 246 Wis. 521, 17 N.W.2d 578 (1945).

[18] Commonwealth v. Burke, 339 Mass. 521, 159 N.E.2d 856 (1959).

[19] People v. Strauss, 174 Misc. 881, 22 N.Y.S.2d 155 (1940).

[20] People v. Gardner, 144 N.Y. 119, 38 N.E. 1003 (1894).

[21] Vigil v. People, 134 Colo. 126, 300 P.2d 545 (1956).

[22] State v. Ah Chuey, 14 Nev. 79 (1879).

[23] Reid v. Middleton, 141 Miss. 324, 130 So.2d 554 (1961).

[24] Holt v. U.S., *supra* note 9.

[25] State v. Height, 117 Iowa 650, 91 N.W. 935 (1902).

[26] U.S. v. Kelly, 55 F.2d 67 (2nd Cir. 1932).

[27] U.S. v. Cross, 20 D.C. (9 Mackey) 365 (1892).

[28] Shaffer v. U.S., 24 App. D.C. 417 (1904).

the body[29] including private parts,[30] voice,[31] dyeing a defendant's hair,[32] examination of a suspect by physician for insanity[33] and blood.[34]

Some courts have held that certain forms of evidence for identification are not admissible when given by the accused against his objections, and no court has held that a lie detector may be used on the accused without his consent and such evidence thereafter admitted.[35] Generally, courts allow such evidence where it is for purposes of comparison or identification, whether it was obtained voluntarily or otherwise.

With the advent of technology in the war against crime, the increased use of mechanical evidence and the inability of defense counsel to cross-examine a machine or laboratory test tube has caused concern. The argument that such evidence is hearsay, because it constitutes an unsworn mechanical witness not subject to cross-examination, has been rejected.[36] The rejection of this proposition is sound in that such evidence must be evaluated and interpreted for the court by an expert witness who is subject to cross-examination. Further, the conclusions of an expert witness are subject to final consideration and evaluation by the jury. Courts have generally admitted mechanical evidence on speed detection by electronic radar,[37] comparison of blood types,[38] scientific ballistics for identifying firearms,[39] X-ray pictures,[40] medical testimony on electroencephalographs,[41] Harger Drunkometer test,[42] motion or still pic-

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[29] Wigmore, *supra* note 6, at § 2220; U.S. v. Hung Chang, 134 F. 19 (6th Cir. 1904); McFarland v. U.S., 150 F.2d 593 (D.C. Cir. 1945); Swain v. State, 275 Ala. 508, 156 So.2d 368 (1963); *In re* Stone's Estate, 77 Idaho 63, 286 P.2d 329 (1955); Lawhead v. State, 99 Okla. 197, 226 P. 376 (1924).

[30] Bethel v. State, 178 Ark. 277, 10 S.W.2d 370 (1928).

[31] Beachem v. State, 144 Tex. Crim. 272, 162 S.W.2d 706 (1942).

[32] Smith v. U.S., 187 F.2d 192 (D.C. Cir. 1950), *cert. denied,* 341 U.S. 927, 71 S. Ct. 792 (1950).

[33] Fouquette v. Bernard, 198 F.2d 860 (9th Cir. 1952).

[34] Schmerber v. State, 384 U.S. 757, 86 S. Ct. 1826 (1966); State v. Alexander, 7 N.J. 585, 83 A.2d 441 (1951).

[35] People v. Sims, 395 Ill. 69, 69 N.E.2d 336 (1946).

[36] N.R.L.B. v. Tex-Tan, Inc., 318 F.2d 472 (5th Cir. 1963).

[37] State v. Moffitt, 48 Del. Super. 210, 100 A. 2d 778 (1953); City of East Cleveland v. Ferrell, 168 Ohio St. 298, 154 N.E.2d 630 (1958); State v. Dantonio, 18 N.J. 570, 115 A.2d 35 (1955); People v. Magri, 3 N.Y.S. 2d 562, 147 N.E.2d 728 (1958). For a discussion of police radar and its related problems including the proper accuracy tests, see W. McCarter, Legal Aspects of Police Radar, 16 Clev.-Mar. L. Rev. 455 (1967).

[38] Kemp v. Government of Canal Zone, 167 F.2d 938 (5th Cir. 1950).

[39] State v. Hadley, 25 Ariz. 23, 212 P. 458 (1923).

[40] Howell v. George, 201 Miss. 703, 30 So.2d 603 (1947); Gindin v. Baron, 16 N.J. Super. 1, 83 A.2d 790 (1951).

[41] Melford v. Gaus and Brown Construction Co., 17 Ill. App. 2d 497, 151 N.E.2d 128 (1958).

[42] State v. Olivas, 77 Ariz. 118, 267 P.2d 893 (1954).

tures,[43] finger, palm and footprints,[44] specimens of hair,[45] shoe, [46] tire,[47] and tread marks,[48] blood analysis,[49] urinanalysis,[50] and breath tests.[51] A few jurisdictions have held that some scientific tests cannot be admitted without the showing of a defendant's consent.[52]

Some "tests" have been disparaged as evidence, for example, mental comparison or mere juxtaposition made of a boot track without any actual measurement.[53] More than one court has rejected certain scientific methods because they amount to mechanical attacks on testimonial evidence, or because there is a deep-rooted apprehension that such methods will lead to usurpation of the fact-finding function of the jury.[54] A great majority of courts allow mechanical evidence, however, realizing that where human interpretations can be left to the accuracy of mechanical solution, the accused receives a verdict uninfluenced by individual predispositions. Also, while many scientific tests are concerned with physical objects or conditions, certain mechanical methods relate to an accused's mental state and have not been allowed in court.[55] No appellate court has upheld the admission of findings of lie detectors, the pathometer or polygraph tests, because such tests, in addition to including the possibility of testimonial admissions, have not attained scientific acceptance as a reliable and accurate means of ascertaining truth or deception.[56] The results of narcoanalysis and the use of sodium

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[43] Considine v. U.S., 50 Cir. 272, 112 F. 342 (6th Cir. 1901); Millers' Nat. Ins. Co., Chicago, Ill. v. Wichita Flour Mills Co., 257 F.2d 93 (10th Cir. 1958); Rogers v. Detroit, 289 Mich. 86, 286 N.W. 167 (1939); De Tunno v. Shull, 144 N.E.2d 669 (Ohio App. 1956); Jones v. State, 151 Tex. Crim. 519, 209 S.W.2d 613 (1948).

[44] Murdock v. State, 68 Ala. 567 (1881); Moon v. State, 22 Ariz. 418, 198 P. 288, 16 A.L.R. 362 (1921); State v. Millmeier, 102 Iowa 692, 72 N.W. 275 (1897); McLain v. State, 198 Miss. 831, 24 So.2d 15 (1945); Stacy v. State, 49 Okla. Crim. 154, 292 P. 885 (1930).

[45] Knoll v. State, 55 Wis. 252, 12 N.W. 369 (1882).

[46] Whetston v. State, 31 Fla. 240, 12 So. 661 (1893).

[47] Brady v. McQuown, 241 Iowa 34, 40 N.W.2d 25 (1949); Watson v. State, 141 Neb. 23, 2 N.W.2d 589 (1942).

[48] State v. Lawellin, 125 Kan. 599, 264 P. 1035 (1928).

[49] Davis v. State, 189 Md. 640, 57 A.2d 289 (1948).

[50] State v. Duguid, 50 Ariz. 276, 72 P.2d 435 (1937).

[51] State v. Wardlaw, 107 So.2d 179 (Fla. App. 1958).

[52] Trammell v. State, 162 Tex. Crim. 543, 287 S.W.2d 487 (1956).

[53] Ennox v. State, 130 Tex. Crim. 328, 94 S.W.2d 473 (1936).

[54] J. Richardson, *op. cit. supra* note 11, 154-55.

[55] *Id.* at 153.

[56] Frye v. U.S., 293 F. 1013, 34 A.L.R. 145 (1923); U.S. v. Stromberg, 179 F. Supp. 278 (D.C. S.D. N.Y., 1959); People v. Wochnick, 98 Cal. App.2d 124, 219 P.2d 70 (1950); Colbert v. Commonwealth, 306 S.W.2d 825 (Ky. App. 1957). While admitting the results of such tests is reversible error, such tests may be used as a means of interrogation and investigation, Davis v. State, 308 S.W.2d 880 (Tex. Crim. 1957), or may be admitted as evidence by stipulation by the parties, People v. Houser, 85 Cal. App.2d 686, 193 P.2d 937 (1948); Commonwealth v. McKinley, 181 Pa. Super. 610, 123 A.2d 735 (1956).

pentothal have not been generally recognized by the courts as reliable and trustworthy and are not regarded as competent evidence.[57] The paraffin test, used to determine whether a firearm had been recently fired, has not been accorded sufficient reliability to justify admission of the results of such tests into evidence.[58] Although the Nalline test, used to determine whether or not a person is under the influence of narcotics, has not yet achieved general acceptance by the medical profession as a whole, it has generally been approved as admissible evidence.[59]

Machine Reliability

Certain mechanical methods have been allowed in evidence and others have been deemed as unreliable and, therefore, inadmissible. The question is: what standard of accuracy is necessary to get the evidence on the record? Of course, there is no real *standard* or listing of elements per se. The general rule is that when a scientific method or principle produces accurate results from a well-recognized discovery or scientific precept, and from which a deduction can be made—which must be established as having attained general acceptance in the field to which it belongs—then the *standard* is met.[60] For purposes of identification, a mark which is common to two objects is admissible to show them as being identical, providing the mark does not occur with so many objects in human experience that chances of the two objects being identical are too slight to be appreciable.[61] This involves the mathematical theory of probabilities, wherein the chance of two objects bearing the identical combination of marks is so small as to be negligible, and which experience has confirmed.[62] The courts, therefore, will allow evidence from scientific processes which are the work of educated men in their respective fields of technical experience.[63] Not every innovation, however, will be admissible. Courts will usually withhold such evidence at least until the method has achieved acceptance by the scientific world. When shown that to be reliable and accurate, it will be allowed into evidence.

In this connection the courts will allow evidence where the scientific method is accurate and reliable and the witness so testifying is competent. The major considerations needed to justify testimony based on mechanical methods are the truthworthiness of the process or instrument in general, correctness of the particular analysis or instrument, and a

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[57] Lindsey v. U.S., 237 F.2d 893 (9th Cir. 1956); State v. Thomas, 79 Ariz. 158, 285 P.2d 612 (1955); People v. McCracken, 39 Cal. App.2d 336, 246 P. 2d 913 (1952); Henderson v. State, 94 Okla. Crim. 45, 230 P.2d 495 (1951).

[58] Brooke v. People, 139 Colo. 1388, 339 P.2d 993 (1959).

[59] People v. Williams, 164 Cal. App. 2d 858, 331 P.2d 251 (1958).

[60] Frye v. U.S., *supra* note 56.

[61] J. Wigmore, *op. cit. supra* note 6, at 386.

[62] *Id.* at 389.

[63] J. Richardson, *op. cit. supra* note 11, at 131.

qualified operator to be called as a witness to identify the instrument and interpret the results.[64] The expert witness would then testify that the apparatus has been generally accepted as dependable, that it has been constructed according to accepted procedures and is in good condition and that he is qualified for its use by training and experience.[65] An expert witness may testify not only to facts but also to his opinions and conclusions drawn from the facts, and he must show that he is qualified to speak from observation, study or actual experience.[66] It must be shown, therefore, that the expert witness has possession of the required qualifications, and the trial court is left to determine, completely and without review, whether that witness possesses the qualifications.[67]

Recent Cases

The withdrawal of blood from an accused's body involves questions of whether or not there has been a violation of the self-incrimination privilege of the Fifth and Fourteenth Amendments of the U.S. Constitution, and whether the tests are reliable and accurate. With the technological advances of blood grouping, courts have allowed evidence resulting from the withdrawal of blood from a person's body to disprove paternity[68] and to prove the identity of blood found at the murder scene.[69] Such evidence secured by blood analysis is neither a confession nor testimonial compulsion, but rather should be classified with scientific tests for identification purposes along with the other physical characteristics of the body. Thus, the analysis of blood taken from an unconscious suspect[70] or against the objections of a conscious suspect[71] has been held admissible and not a violation of the privilege. As the Supreme Court said in *Schmerber v. State*,[72] ". . . the privilege protects an accused only from being compelled to testify against himself, or otherwise provide the state with evidence of a testimonial or communicative nature. . . ." This case involved the extraction of blood for analysis where the driver of an automobile was suspected of being intoxicated. It was held that such non-voluntary extraction did not violate the driver's self-incrimination privilege.

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64 Wigmore, *op. cit. supra* note 6, at 190.

65 J. Wigmore, Science of Judicial Proof, 45 (3rd ed. 1937).

66 Meiselman v. Crown Heights Hospital, 285 N.Y. 398, 34 N.E.2d 367 (1941); Dougherty v. Milliken, 163 N.Y. 527, 57 N.E. 757 (1900).

67 Wigmore, *op. cit. supra* note 6, at 640.

68 *Id.* at 610; *Cortese v. Cortese*, 10 N.J. Super. 152, 76 A.2d 717 (App. Div. 1950). *Contra*, State v. Sargent, 100 N.H. 29, 118 A.2d 596 (1955), where evidence was used to show possibility of paternity.

69 State v. Alexander, *supra* note 34.

70 Breithaupt v. Abram, 352 U.S. 432, 77 S. Ct. 408 (1957).

71 Schmerber v. State, *supra* note 34.

72 *Id.* at 1830.

Another physical characteristic of the body is the voice, and courts have held that the voice is a competent means of identification and, therefore, has been held to be admissible as evidence in court.[73] The mere statement by a witness as to the identity of a voice is not admissible,[74] unless the witness can relate facts and circumstances so as to reveal its identity.[75] Generally, the courts will allow judicial compulsion requiring the accused to speak for voice identification, holding that it is not a violation of the self-incrimination privilege.[76] In the continuous series of cases ending with *Miranda,*[77] the evidence which is prohibited by the self-incrimination privilege as communicative or testimonial is that knowledge of the crime which is only within the defendant's control, and if such knowledge was acquired by word or physical coercion. It is now almost universally held that sound recordings are admissible providing a proper foundation is laid for their admission.[78] There has been considerable attention given to the argument that such evidence is hearsay, amounting to an unsworn mechanical witness not subject to cross-examination. These arguments have been rejected.[79]

Sound Recordings

This paper does not cover the vast subject of mechanical or electronic eavesdropping, except to state the general rule that as long as the circumstances attending the use or installation of the eavesdropping device do not involve such unlawfulness as to contravene the rule against illegal obtention, evidence need not be excluded merely because it was secured by means of mechanical or electronic eavesdropping. Placing a recording device on a telephone receiver or recording by use of an extension phone is not a violation, where the consent of one of the parties has been obtained.[80] Such rule is founded on the logical rationale that

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[73] State v. King, *supra* note 15; Fussell v. State, 93 Ga. 450, 21 S.E. 97 (1893); Lenoir v. State, 197 Md. 495, 80 A.2d 3 (1951); People v. Sullivan, 290 Mich. 414, 287 N.W. 567 (1939); Bland v. State, 129 Tex. Crim. 553, 89 S.W.2d 996 (1936).

[74] Barber v. City Drug Store, 173 Iowa 651, 155 N.W. 992 (1916).

[75] U.S. v. LoBue, 180 F. Supp. 955 (D.C. S.D. N.Y. 1960); U.S. v. Moia, 251 F.2d 255 (2nd Cir. 1958); Andrews v. U.S., 78 F.2d 274, 105 A.L.R. 322 (10th Cir. 1935); McGraw v. State, 34 Ala. App. 43, 36 So. 2d 559 (1948); People v. Lorraine, 28 Cal. App. 2d 50, 81 P.2d 1004 (1938); Mayr v. Goldschmidt, 63 Cal. App. 381, 218 P. 621 (1923); Mack v. State, 54 Fla. 55, 44 So. 706 (1907); Godair v. Ham. Nat. Bank, 225 Ill. 572, 80 N.E. 407 (1907); State v. Bassano, 67 N.J. Super. 526, 171 A.2d 108 (1961).

[76] People v. Lopez, *supra* note 11. Also admissible where it was voluntary, Burgman v. U.S., 88 App. D.C. 184, 188 F.2d 637 (D.C. Cir. 1951), *cert. denied,* 342 U.S. 838 (1951); Thomas v. Davis, 249 F.2d 232 (10th Cir. 1957).

[77] Miranda v. State, 384 U.S. 436, 86 S. Ct. 1602, 16 L. Ed. 2d 694 (1966).

[78] U.S. v. Goldman, 118 F.2d 310 (2d Cir. 1941); Commonwealth v. Brinkley, 362 S.W.2d 494 (Ky. App. 1962); State v. Alleman, 218 La. 821, 51 So. 2d 83 (1951); Thompson v. State, 298 P.2d 464 (Okla. Crim. 1956).

[79] N.L.R.B. v. Tex-Tan, Inc., *supra* note 36.

[80] Rathbun v. U.S., 355 U.S. 107, 2 L. Ed. 2d 134, 78 S. Ct. 161 (1957); People v. Maranian, 359 Mich. 361, 102 N.W.2d 568 (1960). *Also,* a tape recording of a conversation where an I.R.S. agent was given a bribe was admissible, U.S. v. Kabot, 295 F.2d 848 (1961).

such information could have been disclosed by the consenting party without the electronic assistance, and a mechanical playback will have less of a tendency to forget, misinterpret or commit error. Even where state statutes forbid electronic eavesdropping to obtain evidence from telephone communications, such statutes are held inapplicable where the device was used with the knowledge and consent of one of the parties.[81]

Before sound recordings can be admitted into court, certain foundations must be laid including a showing that: the device is capable of taking testimony; the operator was competent to operate; the recording is authentic and correct; there were no changes, additions or deletions; and identification of the speakers.[82] The recent use of a device for identifying a speaker's voice involves a machine called a voice graph or spectrograph which was developed by Bell Telephone Laboratories, Inc. The machine is based on the principle that no two voices are identical and that a recording of a voice can be identified just as accurately as a person's fingerprint.[83] In the sound spectrograph, the sample of speech to be analyzed is recorded on a loop of magnetic tape. The recording is then played back many times as an analyzing band filter—by heterodyne methods—advances through the speech band. The output of this filter energizes an advancing stylus which writes on electrosensitive paper mounted on a rotating drum. A spectrum is produced—line by line—giving a three-dimensional display of energy versus frequency and time.[84] The visible speech is then read by the total configurations of the patterns. Many of the subtleties of a sound that the naked ear cannot perceive can be readily distinguished in visual pattern differences. This ability to distinguish sounds has given the sound spectrograph useful possibilities beyond the identification of the human voice.[85]

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[81] People v. Albert, 182 Cal. App. 2d 729, 6 Cal. Rptr. 473 (1960). For a discussion of eavesdropping and wire-tapping *see* D. Hines, Fourth Amendment Limitations on Eavesdropping and Wiretapping, 16 Clev.-Mar. L. Rev. 467 (1967).

[82] Steve M. Solomon, Jr. Inc. v. Edgar, 92 Ga. App. 207, 88 S.E.2d 167 (1955).

[83] Time Magazine, June 23, 1967, Vol. 89, at 66, "Because the frequencies and energy distribution of the human voice are determined by the size and coupling of the nasal, throat and oral cavities and by the manner in which such person uses his articulators (tongue, teeth, lips, soft palate and jaw muscles) . . . it is highly improbable that any two voices can be identical. . . . Whispering, muffling the voice, change its pitch or even mimicking another voice will not alter the basic voice print pattern."

[84] H. Dudley, *Fundamentals of Speech Synthesis* (Bell Telephone Laboratories, Monograph 2648, 1956) presented at Audio Engineering Society Convention, N.Y., October 12, 1955 and published in The Journal of the Audio Engineering Society, Oct. 1955 Vol. 3, 170-85.

[85] Bell Telephone Laboratories, News Release, August 31, 1966. It is useful in diagnosis of diseased hearts or malfunctioning jet engines, investigate noise to improve soundproofing, provide better communications equipment, identify aircraft, ships or submarines and allow the deaf to hear by reading another's voice pattern; Science and Mechanics, October, 1967, Vol. 38, at 91-92, article on L. G. Kersta, Speech Research Scientist with Bell Telephone Laboratories, and the spectrograph's brand new

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Some jurisdictions would be reluctant to allow evidence involving voice identification; others would not allow it if it were obtained involuntarily. These same jurisdictions allow fingerprints, even where compulsed, as evidence; they fail to associate the two similar methods of identification whereby the "print" obtained by each method is associated with the body. Both require expert witnesses to arrive at a conclusion on the final comparison. The machine used in transferring the spoken word into visible material is merely a further aid to the court, and, if accurate, is more reliable than an individual's naked ear. The reliability of the spectrograph has been shown to be dependable and, when operated in accordance with the previous stated requirements of all mechanical evidence, leaves no doubt as to its accuracy.[86]

The machine provides the court with non-testimonial evidence which does not abridge an individual's privilege against self-incrimination. No person has the privilege of refusing to submit to an examination which has the purpose of determining or recording his corporal features or other characteristics for identification. In the *McKenna* case, where the court in pre-trial proceedings ordered the defendant to submit to a tape recording of his voice for purposes of comparing it by use of the spectrograph with a previous recording held by the prosecutor as the actual voice of the extortioner,[87] the results of such comparison should be admissible as evidence in the final proceedings of the court. In this case the accused was merely required to speak into the recording mechanism without the necessity of repeating any certain words. Reading the Gettysburg Address or Dear Abby column would be sufficient to obtain the necessary voice recording.

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method of "fingerprinting" the human voice to be used as a positive identification of telephone callers. Though not practical at present, the plan is to use the device where a telephone subscriber has received threatening or "terror" calls as a means of identifying the mysterious caller; Life Magazine, July 21, 1967, Vol. 63, at 56A-B, spectrograph used to ascertain and locate a faulty vibration indicating a malfunction from the sound of a missile; a dentist can determine whether a patient's teeth are meshing together correctly by the sounds from clicking teeth together; in Watts riot, voice prints helped convict Edward King of arson (case now on appeal); during the 1967 Israeli-Arab conflict, a tape was released by Israel of an alleged phone conversation between Egypt's President Nasser and Jordan's King Hussein in which they decided to blame their defeat on American and British intervention. The voices on the tape were then interpreted by the voice graph, the resulting voice prints were analyzed and by comparison to other speeches recorded previously by the heads of state the identity of the voices wes 100% certain.

[86] *Op. cit. supra* note 84; R. Potter, J. Steinberg, N. French, W. Koeing, H. Dunn, L. Lacy, R. Riesz, L. Schott, H. Dudley, D. Gruenz, Jr., G. Kopp and H. Green, *Technical Aspects of Visible Speech,* presented before the Thirty-first Meeting of the Acoustical Society of America, N.Y. (May, 1946), (Bell Telephone System Monograph B-1415, 1957), and published in the Journal of the Acoustical Society of America (July, 1946), Vol. 17, 1-89; S. Pruzansky and M. Mathews, *Talker-Recognition Procedure Based on Analysis of Variance,* Journal Acoustical Society of America (November, 1964), Vol. 36, 2041-47; A. Presti, *High-Speed Sound Spectrograph,* The Journal of the Acoustical Society of America (September, 1966), Vol. 40, 628-34.

[87] State v. McKenna, 94 N.J. Super. 71, 226 A.2d 757 (1967).

Conclusion

The general rules which determine whether mechanical nontestimonial evidence is admissible into court involve questions of whether the material is competent and relevant, whether the machinery is reliable and accurate, and whether the expert witness is qualified to testify and interpret the results. Such evidence must then be weighed by the jury or court. Unbridled admittance of all mechanical testimony would obviously be too extreme, just as complete inadmissibility of any mechanical testimony would be lacking in rationale and precedent.

In the future more advanced mechanical methods will be employed to obtain evidence of every sort. When such instruments are accepted in their field as accurate and reliable, the courts should not hesitate to allow their results where it involves the identification aspect of a person's physical appearance. As stated by the court in the *McKenna* case, "American justice demands the state to carry the burden of producing evidence sufficient to convict one it seeks to punish. But this burden should not, however, be considered as limiting the state in its use of the swift strides forward in the field of technology and science." [88]

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[88] *Id.* at 74, 226 A.2d at 760.