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NOTES AND COMMENTS

Automobiles—Evidence—Use of Radar Speedmeter

Several cities¹ have recently² begun using a radar device commonly called the "Whammy"³ to aid in obtaining evidence to secure convictions of speeding motorists.⁴ The introduction of this device was greeted with conflicting opinions by North Carolinians⁵ but 100% convictions have been obtained where this evidence was relied upon for conviction.⁶

A brief explanation of the history and operation of the radar speedmeter may be helpful in weighing the legal questions relating to the admissibility of evidence obtained by its use. The machine utilizes the principle of "pulse radar" for its operation. Although active work was

¹ For a list of early users of the radar speedmeter, see MUNICIPAL L. J., Feb., 1951, p. 11.

² The radar speedmeter was first introduced in North Carolina in 1950 when the City of Greensboro purchased one unit and used it for a period of one year solely for the purpose of making speed checks or counts on major thoroughfares and in school zones. Letter to writer from Jeter L. Williamson, Chief of Police, Greensboro, N. C., March 26, 1952.

³ Durham (N. C.) Sun, April 8, 1952, p. 2, col. 6.

⁴ The evidence obtained by the use of the radar speedmeter is used in local recorders or municipal courts to obtain convictions in Durham (The Durham (N. C.) Sun, April 15, 1952 §B, p. 1, col. 5), Raleigh (Raleigh (N. C.) News and Observer, March 28, 1952, §1, p. 18), Greensboro (letter to writer from Jeter L. Williamson, Chief of Police, Greensboro, N. C., March 26, 1952) and possibly others. The admission of this evidence has been justified in practice by having the local judge observe and certify the machine as acceptable. Greensboro (N. C.) Daily News, Aug. 19, 1951, §4, p. 1, col. 1; Raleigh (N. C.) News and Observer, March 28, 1952, §1, p. 18; Address by Hon. Ralph L. Custer, Mayor of Garden City, N. Y., at the N. Y. State Mayors Conference in Syracuse, June 14, 1949, p. 3. Some city officials, however, have expressly admitted that they proceed on the more utilitarian theory that victims will pay the fine rather than appeal the case to courts of last resort to test the validity of the evidence. N. Y. Times, Nov. 18, 1950, p. 17, col. 4

⁵ State newspapers have taken various attitudes toward the "Whammy." One view is illustrated by an editorial stating that "A battalion of Whammies, . . . ought to be set out on North Carolina highways to do their stuff. If they reduce the speed of cars . . . , they will reduce the state's toll of death, injury and destruction." Greensboro (N. C.) Daily News, Nov. 12, 1951; the opposite view is illustrated by an editorial labeling the device as a "speed trap." This paper predicts that "as an aid to traffic safety it will prove a colossal flop. But as a method to antagonize the public it undoubtedly will be a big success." Durham (N. C.) Sun, May 21, 1951. For an expression of the conflicting opinions of several citizens who witnessed a demonstration of the "Whammy," see The Durham (N. C.) Sun, April 15, 1952, §B, p. 1, col. 5.

⁶ Greensboro, N. C.: arrests through March 20, 1952, approximately 400 with 100% convictions, see note 2 *supra*; Winston-Salem, N. C.: 55 arrests and 55 convictions, letter to writer from John M. Gold, City Manager, Winston-Salem, N. C., March 26, 1952; Raleigh, N. C.: 2 cases prior to April 8, 1952, and 2 convictions, Durham (N. C.) Sun, April 8, 1952, p. 2, col. 6.

begun on pulse radar at the Naval Research Laboratory in 1934,⁷ the earliest success was achieved in 1939, when a radar set was given exhaustive tests during battle maneuvers.⁸ Radar employs the echo-timing principle by which distance is measured by the elapsed time between transmission of a radio wave and the receipt of its reflection.⁹ This particular radar device operates in the following manner:

When a series of waves is sent toward an object which is moving toward the transmitter, the length of the reflected wave is shorter than the wave length as measured at the transmitter itself. The greater the speed of the object, the greater the difference between the frequency of the transmitted and received wave lengths. The two waves are mixed in the transmitter and the difference frequency (which tells the speed of the moving object) is converted so as to be read on a meter calibrated directly in miles per hour or registered on a graphic recorder.

The reading on the meter must be taken during the short period that the car remains within range of the speedometer. The range depends to a great extent on the height of the instrument. On the ground, the range is from 75 to 100 feet but at a height of three feet, the range increases to 150 feet. The device is subject to considerable error if mounted at an angle with the road. While errors due to angularity are less than 2% at any distance within 15 feet of the traffic path, at distances between 15 and 25 feet the error may increase to 5%.¹⁰

The speedometer has not been the subject of appellate review,¹¹ there-

⁷ Schooley, *Pulse Radar History*, 31 INSTITUTE OF RADIO ENGINEERS PROCEEDINGS 405 (1949).

⁸ RIDENOUR, *RADAR SYSTEM ENGINEERING* 14 (1947).

⁹ Shoran, *Precision Bombing Aid, Now in Use*, 251 FRANKLIN INSTITUTE J. 564 (1951).

¹⁰ The above was digested from an article, *Highway Radar*, Radio-Craft, Nov., 1947, p. 22; for a more detailed and technical explanation, see Barker, *Radar Measures Vehicle Speed*, 2 TRAFFIC Q. 239 (1948).

¹¹ A thorough search was made of all state reports since this device was first marketed, with particular emphasis on those states where information from the manufacturer indicated the device had been used in prosecuting violators. The Attorney General of North Carolina, however, has given a ruling on the issue. In a 1951 opinion, he said: "It would seem that the opinion of an officer based upon the magic eye apparatus, provided that the magic eye can qualify as a reliable speed recording instrument, would be no more objectionable than his opinion based on his speedometer reading." POPULAR GOVERNMENT, June, 1951, p. 15, col. 3. This, however, seems to beg the question to a large extent as almost any scientific instrument would surmount objections if it could "qualify as reliable." There is also some doubt that the courts would accept a comparison of the radar speedometer with the auto speedometer. The officer reading the auto speedometer has nothing to do with its accuracy and operation, while the officer reading the radar device must be trained, not only to read the meter, but to set up and operate the entire device. He must be able to compute error due to angularity, if such error be present. Radar is affected by certain weather conditions. See *What Does Rain Do to Radar*, 51 AVIATION WEEK 21 (1949). The officer should know if and to what extent this particular device is affected by such conditions and be able to compensate for error if there be any. Furthermore, the auto speedometer itself operates on a very simple mechanical principle that could hardly be compared with the complex electronic circuits and principles that combine to make a radar transmitter and receiver.

fore the admissibility of evidence based upon its operation must be examined in the light of judicial standards previously set for the use of other scientific devices. The courts have consistently followed the rule that evidence obtained from the use of scientific devices is inadmissible unless there is general scientific recognition of their accuracy.¹² The reason is that expert testimony based on scientific tests can be very convincing to a jury, and therefore these tests should be as scientifically reliable as possible. The courts feel that it is for the scientist to determine the soundness and accuracy of new developments in their fields.¹³ A scientific principle or discovery must pass from the experimental to the demonstrative stage by gaining general acceptance in the field to which it belongs before it may be admitted in evidence.¹⁴ It is largely because of this rule that evidence obtained by the use of such devices as the lie detector (polygraph) is generally excluded¹⁵ while evidence relating to fingerprinting¹⁶ and ballistics¹⁷ is admitted since it has been determined by experts that reasonable certainty can follow such tests. This rule also seems to be the basis for the admissibility of chemical analysis of body fluids to determine intoxication,¹⁸ while results of tests made by the "drunkometer" for the same purpose are subject to conflicting decisions as to their probative value.¹⁹

¹² Frye v. United States, 293 Fed. 1013 (D. C. Cir. 1923); State v. Duguid, 50 Ariz. 276, 72 P. 2d 435 (1937); People v. Becker, 300 Mich. 562, 2 N. W. 2d 503 (1942); People v. Forte, 167 Misc. 868, 4 N. Y. S. 2d 913 (County Ct. 1938), aff'd, 279 N. Y. 204, 18 N. E. 2d 31 (1938); State v. Bohner, 210 Wis. 651, 246 N. W. 314 (1933).

¹³ See State v. Bohner, 210 Wis. 651, 246 N. W. 314 (1933); 37 HARV. L. REV. 1138 (1924).

¹⁴ CARDOZA, LAW AND LITERATURE 70 (1931).

¹⁵ Results of lie detector tests were properly excluded from evidence in absence of general scientific recognition of such tests or reasonable certainty of results thereof. People v. Becker, 300 Mich. 562, 2 N. W. 2d 503 (1942); People v. Forte, 279 N. Y. 204, 18 N. E. 2d 31; "The case law on this subject is meager, but the majority hold there is not sufficient scientific recognition of the efficacy of the polygraph to warrant the judicial acceptance of its recording as evidence of the truth or falsity of the testimony of the subject witness." See Cashen, *Admissibility of Evidence as to Results Obtained from Use of Lie Detector*, 13 U. DETROIT L. J. 40 (1949). STANSBURY, NORTH CAROLINA EVIDENCE §86 (1946); but see 3 WIGMORE, EVIDENCE §999 (3d ed. 1940), citing some authority for the admission of such evidence on behalf of the accused.

¹⁶ Moon v. State, 22 Ariz. 418, 198 P. 288 (1921); State v. Conners, 87 N. J. L. 419, 94 Atl. 812 (1915); State v. Huffman, 209 N. C. 10, 182 S. E. 705 (1935); Stacy v. State, 40 Okla. Crim. Rep. 154, 292 P. 885 (1930).

¹⁷ State v. Outerbridge, 82 N. C. 617 (1880); Inbau, *Firearms Identification—"Ballistics"*, 24 J. CRIM. L. 825 (1934).

¹⁸ "We have been unable to find any case where the blood test to determine intoxication has been excluded because of its unreliable value as proof." Kirschwing v. Farrer, 114 Colo. 421, 166 P. 2d 154 (1946); State v. Duguid, 50 Ariz. 276, 72 P. 2d 435 (1937); the American Medical Association has stated that the percentage of alcohol in the blood is a reliable index of the degree of intoxication, especially when it is considered along with other external symptoms. 119 J. AM. MED. ASS'N. 653 (1942); but see, Kurokse v. Aetna Life Ins. Co., 234 Wis. 394, 291 N. W. 384 (1940).

¹⁹ People v. Morse, 35 Mich. 270, 38 N. W. 2d 322 (1949); Newman, *Proof*

Whether or not the radar speedmeter has received sufficient general scientific recognition to satisfy the courts remains to be seen. True, radar as such, has received wide technical acknowledgment in many areas and is now being successfully used for such purposes as tracking hurricanes²⁰ and guiding aircraft.²¹ However, the fact that the use of radar is accepted generally for some purposes does not mean that evidence obtained by its use in connection with measuring speed will be accepted.

Another rule regarding scientific evidence is that such evidence must be introduced through an expert witness.²² The special training necessary to qualify police officers in the operation of the radar speedmeter is "very slight,"²³ in some cases only two hours.²⁴ It will be interesting to see if this lack of extensive training, when considered along with other factors, will qualify an officer as an expert witness in radar.

Evidence obtained by a somewhat similar device has been admitted in Massachusetts.²⁵ A photographic speed recorder obtained the speed of a moving car by taking two pictures of it from behind, one picture about a second later than the other. The second photo was necessarily smaller than the first since the car had moved through a certain distance during this interval. Thus by measuring the difference in size of lines on the two photos, the distance the car travelled during such period and its speed of travel was readily determined by mathematical formula.²⁶ The acceptance of this device, however, seems to a large extent to have been based upon the general scientific acceptance of the accuracy of its component parts and the fact that this court did not require such evidence to be introduced through an expert witness.²⁷

Since the speedmeter only clocks speed for a few feet it could not

of Alcoholic Intoxication, 34 Ky. L. J. 266 (1946); but see, *State v. Hunter*, 4 N. J. Super. 531, 68 A. 2d 274 (1949), admitting the drunkometer tests but imposing high standards of care in its use. See Note 30 N. C. L. REV. 302 (1952).

²⁰ *Radar Tracks Hurricanes; Results Promises Aid in System Operation*, 133 ELEC. WORLD 91 (1950).

²¹ *Radar Landing Systems*, 63 AERO DIGEST 34 (1951).

²² *People v. Fiorita*, 339 Ill. 78, 170 N. E. 690 (1930); *Conley v. Commonwealth*, 265 Ky. 78, 95 S. W. 2d 1094 (1936); but see, *Commonwealth v. Buxton*, 205 Mass. 49, 91 N. E. 128 (1910).

²³ "The special training necessary to qualify an officer in the operation of the speedmeter is very slight and can be accomplished in a relatively short period of time." Letter to writer from Jeter L. Williamson, Chief of Police, Greensboro, N. C., March 26, 1952.

²⁴ Letter to writer from John M. Gold, City Manager, Winston-Salem, N. C., March 26, 1952.

²⁵ *Commonwealth v. Buxton*, 205 Mass. 49, 91 N. E. 128 (1910).

²⁶ *Ibid.*

²⁷ *Ibid.* State introduces extensive evidence showing the trustworthiness of the stopwatch mechanism and that of the chronometer, which was part of the device. As to the rule that such evidence must be introduced through an expert, the court said: "Nor is the fact that the experimenter was not an expert fatal to the introduction of the machine. A man may testify to the existence of thunder and lightning and the disastrous results therefrom without being an expert on electricity or electrical phenomenon."

be used for enforcement of speed laws on state highways of New York or states having similar statutes requiring that a motorist exceed the speed limit for a specified distance before such excess speed shall be unlawful.²⁸ However, the situation was met in Garden City, New York, where the speedmeter is presently in use, by the passage of a new ordinance eliminating any specified distance over which speed must be maintained.²⁹

Another interesting problem is presented by the method of making the arrest and the presentation of the evidence. The North Carolina law forbids an officer to make an arrest without a warrant for a misdemeanor not committed in his presence.³⁰ Whether an offense has or has not been committed "in the presence" of the officer has been the subject of much litigation.³¹ The criteria is that the acts constituting the offense must become known to the officer through one of his senses at the time the offense is committed.³² Although some courts have held this to be too broad and require that the offense become known through a combination of two or more of the officer's senses,³³ there seems to be a uniform requirement that a criminal offense cannot be said to have been committed in the presence of an officer unless three elements are present: one, the officer must not merely be present, he must know of the offense through his senses; two, the officer must know of the very acts which make up the offense, not merely acts showing or evidence indicating that an offense has taken place; and three, he must know of the acts at the time, not become aware of them later.³⁴

²⁸ "A rate of speed by a motor vehicle or a motor cycle on any public highway in excess of fifty miles an hour for a distance of one-fourth of a mile, except where a greater speed is permitted by the state traffic commission, shall be unlawful." *Consol. Laws of N. Y., Vehicle and Traffic Law, §56(3) (1932)*. But see, *People v. Mangini*, 194 Misc. 615, 87 N. Y. S. 2d 34 (1948), holding that this statute did not prevent municipalities from enacting valid speed ordinances which did not include the one-fourth mile provision.

²⁹ Address by Hon. Ralph L. Custer, Mayor of Garden City, N. Y., at the N. Y. State Mayors Conference in Syracuse, June 14, 1949, p. 4.

³⁰ *Alexander v. Lindsay*, 230 N. C. 663, 55 S. E. 2d 470 (1949); *MACHEN, THE LAW OF ARREST* 38 (1950).

³¹ For a good discussion of what is "in an officer's presence" see *MACHEN, THE LAW OF ARREST* 70 (1950).

³² *State v. Pluth*, 157 Minn. 145, 151, 195 N. W. 789, 791 (1923); *State v. Godette*, 188 N. C. 497, 125 S. E. 24 (1924); but see, *Robinson v. Commonwealth*, 207 Ky. 53, 268 S. W. 840 (1925), where arrest without a warrant for carrying a concealed weapon was held valid. As one of the elements of carrying a concealed weapon is the concealment, how can the offense be seen? The Kentucky court, however, held that where an officer saw the imprint of a pistol in the defendant's pocket well enough to know that it was a pistol, it was a crime in the officer's presence and it was still a concealed weapon because hidden from ordinary view.

³³ The sense of smell was held not enough in itself to indicate to an officer that a crime was being committed in his presence, *United States v. Swain*, 15 F. 2d 598 (N. D. Cal. 1926); *United States v. Di Corvo*, 37 F. 2d 124 (D. Conn. 1927); but see, *United States v. Fischer*, 38 F. 2d 830 (M. D. Pa. 1930).

³⁴ *MACHEN, THE LAW OF ARREST* 70 (1950).

Ordinarily, the officer making the arrest in speeding cases is the officer who personally clocked the speed of the violator and no question arises as to the offense having been committed in his presence. However, with the use of the speedmeter, the general practice is for the officer reading the indicator not to pursue an offender. Rather, he relays by radio the description of the speeding car, with or without the license number to a second officer who stops the car when it reaches his post or station.³⁵ This second officer makes the arrest or issues the summons without a warrant and without having witnessed the crime.

Even here no problem would seem to arise if the second officer only issues a summons and does not detain the motorist further if the summons is refused, as the issuance of a summons is not an arrest.³⁶ If, however, the motorist refuses to accept the summons, his arrest by the officer would seem to be unlawful.

In conclusion it may be said that in the absence of a showing of general scientific acceptance, appellate courts would probably refuse to admit testimony founded upon information obtained by the use of the radar speedmeter. It would also appear that evidence based upon the device may not be given the probative value conceded to certain other scientific devices because the limited training course may prevent the operator from qualifying as an expert witness in radar. Furthermore, the arrest procedure now generally used in connection with the machine does not seem to meet the strict requirements of the North Carolina law of arrest.

J. KENNETH LEE.

Bankruptcy—Discharge of Judgments Arising Out of Automobile Accident Suits

When a money judgment is obtained for damages resulting from an automobile accident, and the judgment debtor is subsequently declared bankrupt, a difficult question is frequently presented. Does the judgment survive the bankruptcy proceedings or is the judgment debtor discharged?

Section 17(a) of the United States Bankruptcy Act¹ provides that: "A discharge in bankruptcy shall release a bankrupt from all of his provable debts,² whether allowable in full or in part, except such as

³⁵ N. Y. Times, Nov. 18, 1950, p. 17, col. 4; Greensboro (N. C.) Daily News, Aug. 19, 1951, §4, p. 1, col. 1; personal observation by writer of speedmeter in actual operation in Greensboro, N. C., and Winston-Salem, N. C.

³⁶ MACHEN, THE LAW OF ARREST 8 (1950).

¹ 30 STAT. 550 (1898), as amended, 11 U. S. C. §35 (Supp. 1951).

² It must be borne in mind that non-provable claims are never dischargeable. In order to be provable, a claim arising out of an automobile accident *must be reduced to judgment* before the filing of the petition in bankruptcy, or the action *must be instituted* prior to and pending at the time of the filing of the petition in bankruptcy. 30 STAT. 562 (1898), as amended, 11 U. S. C. §103 (Supp. 1951).