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130 Cal.Rptr. 144
17 Cal.3d 24, 549 P.2d 1240
The PEOPLE, Plaintiff and Respondent,
v.
Robert Emmett KELLY, Defendant and Appellant.
Cr. 19028.
Supreme Court of California.
May 28, 1976.

[17 Cal.3d 27]

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[549 P.2d 1242] Paul Caruso, Robert E. Baron, Beverly Hills, and Peter Brown, Long Beach, for defendant and appellant.

Kenneth R. Thomas, Los Angeles, Stephen J. Heiser, Singer & Osterhoudt, Robert L. Moran and William F. Urich, San Francisco, as amici curiae on behalf of defendant and appellant.

Evelle J. Younger, Atty. Gen., Jack R. Winkler, Chief Asst. Atty. Gen., Daniel J. Kremer, Asst. Atty. Gen., Bernard A. Delaney, Conrad D. Petermann, Karl J. Phaler and John W. Carney, Deputy Attys. Gen., for plaintiff and respondent.

RICHARDSON, Justice.

In this case we examine the new and emerging technique of speaker identification by spectrographic analysis, commonly[17 Cal.3d 28] described as 'voiceprint.' Particularly we inquire whether it has achieved that degree of general scientific acceptance as a reliable identification device which will permit the introduction of voiceprint evidence in California Courts.

We have concluded that, on the record before us, the People's showing on this important issue was insufficient, and that since the voiceprint evidence at issue herein was the primary evidence of defendant's guilt, the judgment of conviction must be reversed. Although voiceprint analysis may indeed constitute a reliable and valuable tool in either identifying or eliminating suspects in criminal cases, that fact was not satisfactorily demonstrated in this case.

Defendant was convicted of extortion (Pen.Code, §§ 518--520) arising out of a series of anonymous, threatening telephone calls to Terry Waskin. The police, acting with Waskin's consent, tape recorded two of these calls (the extortion tapes). An informant familiar with defendant's voice subsequently listened to these tapes and tentatively identified defendant as the caller. Thereafter, the officers obtained a tape recording of defendant's voice during a telephone call (the control tape). Copies of the extortion tapes and the control tape were then sent to Lieutenant Ernest Nash of the Michigan State Police for spectrographic analysis. On the basis of his examination,

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[549 P.2d 1243] Nash concluded that the voices on these tapes were those of the same person.

Defendant was indicted by the grand jury and brought to trial. The case was submitted to the trial court, sitting without a jury, on the grand jury transcript and the testimony at a pretrial hearing on the issue of the admissibility of the voiceprint evidence. The People had sought to introduce Nash's testimony, and had asked the trial court to order that an evidentiary hearing be held to determine the admissibility of this evidence. (See Evid.Code, § 405.) Initially, the trial court on the authority of Hodo v. Superior Court (1973) 30 Cal.App.3d 778, 106 Cal.Rptr. 547, held that California now recognized that the scientific community generally accepted voiceprint analysis as a reliable identification technique. Subsequently the trial court reconsidered its order, however, and ruled that the People would be required to present evidence on the issue of general acceptance. Accordingly, Nash was called and testified that among those who were familiar with and used voice identification analysis the technique was considered reliable. No other expert testimony was presented by either side.

[17 Cal.3d 29] Considering Nash's testimony and relying on Hodo v. Superior Court, supra, and United States v. Raymond (D.D.C.1972) 337 F.Supp. 641, affd. sub nom. United States v. Addison (1974) 162 U.S.App.D.C. 199, 498 F.2d 741, the trial court ruled that voiceprint analysis had attained sufficient scientific approval, and that Nash's testimony identifying defendant as the extortionist was properly admissible.

Defendant attacks his conviction arguing that (1) the People failed to establish that voiceprint techniques have reached the requisite degree of general acceptance in the scientific community, (2) Nash was not qualified to express an expert opinion regarding the judgment of scholars and experts and (3) the testing procedures employed in

identifying defendant's voice were not conducted in a fair and impartial manner. Finding ourselves in general agreement with defendant's first two contentions, we do not reach the third.

1. The Voiceprint Technique

Voiceprint analysis is a method of identification based on the comparison of graphic representations or 'spectrograms' made of human voices. The method utilizes a machine known as a spectrograph which separates the sounds of human voices into the three component elements of time, frequency and intensity. Using a series of lines or bars, the machine plots these variables across electronically sensitive paper. The result is a spectrogram of the acoustical signal of the speaker, with the horizontal axis representing time lapse, the vertical axis indicating frequency, and the thickness of the lines disclosing the intensity of the voice. (See generally, People v. Law (1974) 40 Cal.App.3d 69, 75--76, 114 Cal.Rptr. 708; People v. King (1968) 266 Cal.App.2d 437, 447--449, 72 Cal.Rptr. 478; Comment, Evidence: Admissibility of spectrographic Voice Identification (1971--1972) 56 Minn.L.Rev. 1235, 1239; Comment, The Voiceprint Dilemma: Should Voices be Seen and not Heard? (1975) 35 Md.L.Rev. 267.) Spectrograms are taken of certain cue words, such as 'the,' 'me,' 'on,' 'is,' 'I,' and 'it,' spoken by a known voice and an unknown voice. An examiner then visually compares the spectrograms of the same words, as spoken, and also listens to the two voices. Based upon these visual and aural comparisons, the examiner states his opinion whether or not the voices, known and unknown, are the same. (Comment, supra, 35 Md.L.Rev. at p. 270, fns. 13, 16.) Since the identification process is essentially an exercise in pattern matching, the examiner's opinion is to a large extent a subjective one based upon the relative aural similarity or dissimilarity of the two voices and visual [17 Cal.3d 30] comparison of their spectrograms. (People v. Law, supra, 40 Cal.App.3d at p. 79, fn. 10, 114 Cal.Rptr. 708.) In some instances, the examiner is unable to declare positively either that there is a match or nonmatch of the sample tests, in [549 P.2d 1244] which event no opinion

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is rendered. (Comment, Supra, at p. 270.)

2. General Principles of Admissibility

The parties agree generally that admissibility of expert testimony based upon the application of a new scientific technique traditionally involves a two-step process: (1) the Reliability of the method must be established, usually by expert testimony, and (2) the witness furnishing such testimony must be propely Qualified as an expert to give an opinion on the subject. (See Evid.Code, §§ 720, 801; Jones, Danger-Voiceprints Ahead (1973) 11 Am.Crim.L.Rev. 549, 554.) Additionally, the proponent of the evidence must demonstrate that correct scientific procedures were used in the particular case. (See People v. Adams (1975) 53 Cal.App.3d 109, 115--116, 125 Cal.Rptr. 518 (polygraph tests); United States v. Ridling (E.D.Mich.1972)350 F.Supp. 90, 94 (same); Comment, Supra, 56 Minn.L.Rev. at p. 1244.)

The test for determining the underlying reliability of a new scientific technique was described in the germinal case of Frye v. United States (1923) 54 App.D.C. 46, 293 F. 1013, 1014, involving the admissibility of polygraph tests: 'Just when a scientific principle or 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.' (Italics added.)

We have expressly adopted the foregoing Frye test and California courts, when faced with a novel method of proof, have required a preliminary showing of general acceptance of the new technique in the relevant scientific community. (Huntingdon v. Crowley (1966) 64 Cal.2d 647, 653--654, 51 Cal.Rptr. 254, 414 P.2d 382 (blood tests); People v. Law, supra, 40 Cal.App.3d 69, 74, 114 Cal.Rptr. 708 (voice-prints); People v. Spigno (1957)156 Cal.App.2d 279, 290, 319 P.2d 458 (polygraph tests).) Some criticism has been directed at the Frye standard, primarily on the ground that the test is too conservative, often resulting in the prevention of the admission of relevant evidence (see United States v. Sample (E.D.Pa.1974) 378 [17 Cal.3d 31] F.Supp. 43, 53 (voiceprints admissible in probation revocation proceeding); McCormick, Evidence (2d ed. 1972) § 203, pp. 490--491.) As indicated below, we are satisfied that there is ample justification for the exercise of considerable judicial caution in the acceptance of evidence developed by new scientific techniques.

Arguably, the admission of such evidence could be left, in the first instance, to the sound discretion of the trial court, in which event objections, if any, to the reliability of the evidence (or of the underlying scientific technique on which it is based) might lessen the weight of the evidence but would not necessarily prevent its admissibility. This has not been the direction taken by the California courts or by those of most states. Frye, and the decisions which have followed it, rather than turning to the trial judge have assigned the task of determining reliability of the evolving technique to members of the scientific community from which the new method emerges. As stated in a

recent voiceprint case, United States v. Addison, supra, 498 F.2d 741, 743--744: 'The requirement of general acceptance in the scientific community assures that Those most qualified to assess the general validity of a scientific method will have the determinative voice. Additionally, the Frye test protects prosecution and defense alike by assuring that a minimal reserve of experts exists who can critically examine the validity of a scientific determination in a particular case.' (Italics added.)

Moreover, a beneficial consequence of the Frye test is that it may well promote

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[549 P.2d 1245] a degree of uniformity of decision. Individual judges whose particular conclusions may differ regarding the reliability of particular scientific evidence, may discover substantial agreement and consensus in the scientific community. (See Comment, Supra, 35 Md.L.Rev. 267, at p. 290.)

The primary advantage, however, of the Frye test lies in its essentially conservative nature. For a variety of reasons, Frye was deliberately intended to interpose a substantial obstacle to the unrestrained admission of evidence based upon new scientific principles. 'There has always existed a considerable lag between advances and discoveries in scientific fields and their acceptance as evidence in a court proceeding.' (People v. Spigno, supra, 156 Cal.App.2d at p. 289, 319 P.2d at p. 464.) Several reasons founded in logic and common sense support a posture of judicial caution in this area. Lay jurors tend to give considerable weight to 'scientific' evidence when presented by 'experts' with impressive credentials. We have [17 Cal.3d 32] acknowledged the existence of a '. . . misleading aura of certainty which often envelops a new scientific process, obscuring its currently experimental nature.' (Huntingdon v. Crowley, Supra, 64 Cal.2d at p. 656, 51 Cal.Rptr. at p. 262, 414 P.2d at p. 390; see People v. King,supra, 266 Cal.App.2d at p. 461, 72 Cal.Rptr. 478.) As stated in Addison,supra, in the course of rejecting the admissibility of voiceprint testimony, 'scientific proof may in some instances assume a posture of mystic infallibility in the eyes of a jury . . ..' (United States v. Addison,supra, 498 F.2d at p. 744.)

Exercise of restraint is especially warranted when the identification technique is offered to identify the perpetrator of a crime. "When identification is chiefly founded upon an opinion which is derived from utilization of an unproven process or technique, the court must be particularly careful to scrutinize the general acceptance of the technique." (People v. Law, supra, 40 Cal.App.3d at p. 85, 114 Cal.Rptr. at p. 719; see People v. King, supra, 266 Cal.App.2d at p. 459, 72 Cal.Rptr. 478.) Moreover, once a trial court has admitted evidence based upon a new scientific technique, and that decision is affirmed on appeal by a published appellate decision, the precedent so established may control subsequent trials, at least until new evidence is presented reflecting a change in the attitude of the scientific community.

For all the foregoing reasons, we are persuaded by the wisdom of, and reaffirm our allegiance to, the Frye decision and the 'general acceptance' rule which that case mandates. In the matter before us, the People attempted to satisfy the Frye test by reliance upon prior decisions of the courts of this state and sister states, and upon Lieutenant Nash's testimony. Yet, as discussed below, none of these sources provide satisfactory proof of the reliability of voiceprint evidence.

3. The Voiceprint Cases

Our review of the applicable authorities reveals no uniform or established trend either for or against the admissibility of voiceprint evidence. Cases outside California have reached varying conclusions on the matter. (See United States v. Addison, supra, 498 F.2d 741 (disapproving the trial court's order admitting voiceprint evidence in United States v. Raymond, supra, 337 F.Supp. 641); United States v. Baller (4th Cir. 1975) 519 F.2d 463 (noting a conflict in the decisions, but upholding the trial court's discretion in admitting voiceprint evidence); United States v. Franks (6th Cir. 1975) 511 F.2d 25, 33 (same); United States v. Sample [17 Cal.3d 33] (E.D.Pa.1974) 378 F.Supp. 44 (refusing to follow Frye test for use in probation revocation hearing); Worley v. State (Fla.Ct.App.1972) 263 So.2d 613 (admitting voiceprint evidence); Commonwealth v. Lykus (Mass.1975) 327 N.E.2d 671 (same); State ex rel. Trimble v. Hedman (1971) 291 Minn. 442, 192 N.W.2d 432 (voiceprint evidence admissible

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[549 P.2d 1246] at preliminary, probable cause hearing); State v. Andretta (1972) 61 N.J. 544, 296 A.2d 644 (leaving question open); State v. Olderman (1975) 44 Ohio App.2d 130, 336 N.E.2d 442 (voiceprint evidence admissible 'when properly qualified'); see also Annot. 49 A.L.R.3d 915.)

On the one hand, in Addison the federal Court of Appeals for the District of Columbia disapproved the lower court's admission of voiceprint evidence in Raymond, a case relied upon by the trial court herein. Significantly, Addison/Raymond also involved the sufficiency of Lieutenant Nash's testimony regarding the voiceprint technique. Addison reviewed the record and concluded that Raymond erred in relying upon Nash's testimony as proof of general acceptance by the scientific community: '(T)he District Court (in Raymond) focused more on the reliability

of Lieutenant Nash's conclusion than on the general acceptance of his technique within the scientific community.' (United States v. Addison, supra, 498 F.2d 741, at p. 744.)

On the other hand, several other courts have held that, based upon the particular record before them, voiceprint evidence may be introduced at the discretion of the trial court. Many of these cases also involved an appraisal of the testimony of Lieutenant Nash, one of the leading proponents of the voiceprint technique. For example, in Lykus, supra, a majority of the Massachusetts Supreme Court affirmed a conviction based on voiceprint testimony. The court acknowledged that 'While some scientists have written in approval (of the voiceprint technique), others appear from their writings to have serious reservations as to the issue of admissibility.' (327 N.E.2d at pp. 675--676.) Nevertheless, despite the lack of unanimity among the scientists, the majority in Lykus concluded that the Frye test had been met. The court emphasized that the trial court had conducted a 'lengthy and comprehensive' preliminary hearing on the admissibility issue. Among the witnesses were Lieutenant Nash and Dr. Oscar Tosi, a professor of audiology, speech sciences and physics, who had conducted a two-year study (1968--1970) of the voiceprint technique at Michigan State University; the trial court also considered numerous scientific writings on the subject. (P. 676.) The dissenting opinion in Lykus noted the existence in the record of a [17 Cal.3d 34] substantial body of opposition in the scientific community to the voiceprint technique, and concluded that the existence of such opposition would preclude a finding of general acceptance. (Pp. 679--683.)

The California cases likewise have reached varying conclusions. In 1968, in People v. King, supra, 266 Cal.App.2d 437, 72 Cal.Rptr. 478 (hg. den.), the Court of Appeal reversed a conviction based in part upon voiceprint testimony by Lawrence Kersta, one of the pioneers in the field. King reviewed in detail the nature of the voiceprint technique, and of Kersta's qualifications and testimony, as well as the testimony of various defense experts. The court in King concluded that 'It appears that Kersta's claims for the accuracy of the 'voiceprint' process are founded upon theories and conclusions which are not yet substantiated by accepted methods of scientific verification. His engineering background does not supply this deficiency.' (P. 456, 72 Cal.Rptr. p. 490.) The court emphasized that an understanding of speech communication 'requires a knowledge of anatomy, physiology physics, psychology and linguistics. It requires a knowledge of points of view and methods of investigation of several disciplines. Absent other methods of verification, Or general acceptance by the scientific community or independent experts, a court could only receive Kersta's opinion on faith.' (Id., fn. omitted, italics added.) King concluded that Kersta's testimony, being based upon 'his opinion alone without general acceptance within the scientific community compels us to rule 'voiceprint' identification process has not reached a sufficient level of scientific certainty to be

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[549 P.2d 1247] accepted as identification evidence in cases where the life or liberty of a defendant may be at stake.' (P. 460, 72 Cal.Rptr. p. 493.)

In 1973, a contrary conclusion was reached in Hodo v. Superior Court, supra, 30 Cal.App.3d 778, 106 Cal.Rptr. 547. The question before the Hodo court was whether voiceprint testimony was admissible against defendant At a preliminary examination held to establish probable cause to hold defendant on bribery charges. The court reviewed the testimony offered by the prosecution, and concluded that '. . . the record in the instant case indicates that since King voiceprint identification has received general acceptance by recognized experts in the field who would be expected to be familiar with its use and has therefore reached the standard of scientific acceptance and reliability necessary for its admissibility into evidence.' (Pp. 790--791, 106 Cal.Rptr. p. 554.) In Hodo, the prosecution introduced the expert testimony of both Lieutenant Nash and Dr. Oscar Tosi, referred to above, whose 1968--1970 voiceprint study indicated a high degree of reliability for the technique. Hodo also relied upon cases from other [17 Cal.3d 35] jurisdictions which had admitted voiceprint testimony, including the Ray mond decision, Supra, later disapproved on appeal in Addison, supra.

Since Hodo did not directly involve the admissibility of voiceprint evidence at Trial, the case is not directly on point herein. Moreover, we may take judicial notice of the fact, disclosed by the trial record in Hodo, that when the defendant was subsequently brought to trial, the defense introduced the testimony of Dr. Peter Ladefoged to refute the prosecution's claim that voiceprint analysis had achieved general acceptance in the scientific community. On the basis of Ladefoged's testimony, the trial court Excluded the voiceprint testimony at trial.

Subsequently, in 1974, the Court of Appeal in People v. Law, supra, 40 Cal.App.3d 69, 114 Cal.Rptr. 708, reaffirmed the King position, and held that voiceprint testimony was inadmissible in the situation before it, namely, an attempt to identify a disguised or mimicked voice. The court reviewed the testimony of Doctors Tosi and Ladefoged, and Lieutenant Nash, as well as certain relevant scientific articles (listed at pp. 81--83, 114 Cal.Rptr. 708 of the opn.) and concluded that, '. . . with respect to disguised and mimicked voices in particular, the prosecution did not carry its burden of proof to demonstrate that the scientific principles pertaining to spectrographic identification were beyond the experimental and into the demonstrable stage or that the procedure was sufficiently established to

have gained general acceptance in the particular scientific field in which it belongs. (Citation.)' (P. 84, 114 Cal.Rptr. p. 718.)

The foregoing review of cases from California and other jurisdictions satisfies us that the admissibility of voiceprint testimony remains unresolved. Certainly these cases do not establish, as a matter of law, the reliability of the voiceprint technique. Moreover, amici have cited a number of scientific and legal articles containing differing forms of opposition to the admissibility of voiceprint evidence. Such writings may be considered by courts in evaluating the reliability of new scientific methodology. (See Huntingdon v. Crowley, supra, 64 Cal.2d at p. 656, 51 Cal.Rptr. 254, 414 P.2d 382; People v. Law, supra, 40 Cal.App.3d at pp. 75--83, 114 Cal.Rptr. 708; United States v. Addison, supra, 498 F.2d at pp. 744--745.) Some of the voiceprint literature is considered in such recent cases as People v. Law, supra, 40 Cal.App.3d at pages 81--83, 114 Cal.Rptr. 708, and Commonwealth v. Lykus, supra, 327 N.E.2d at pages 675--682. No useful purpose would be served by an extended discussion of it. We make specific note, however, of a recent article submitted to us by the Attorney General, in which Dr. Tosi observes that 'Possibly, no [17 Cal.3d 36] combination of (voiceprint) methods may ever produce absolutely positive identification

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[549 P.2d 1248] or eliminations in 100% of the cases submitted,' and that the reliability of the voiceprint technique may vary depending upon such factors as the quality and extension of available voice samples, the qualifications of the examiner, and the comprehensiveness of the methods used. Dr. Tosi also notes the need for continuing research and practical forensic experience in this area. (Tosi, The Problem of Speaker Identification and Elimination, in Measurement Procedures in Speech, Language and Hearing (Singh edit. 1975) pp. 428--429.)

4. Lieutenant Nash's Testimony

Finding the case authority on the issue before us conflicting and inconclusive, we turn to the record in the present case to determine whether, as the trial court concluded, the prosecution established the reliability of the voiceprint technique. In so doing, we bear in mind the admonition of People v. Law, supra, 40 Cal.App.3d 69, 85, 114 Cal.Rptr. 708, 718, that 'It is our duty . . ., where the life or liberty of a defendant is at stake, to be particularly careful that there is not only substantial evidence to support the implied finding of (defendant's) identity but that the finding is based upon admissible and nonprejudicial evidence.'

As indicated, Lieutenant Nash was The sole witness testifying on the reliability issue. The record discloses that Nash has been associated with the voiceprint technique since 1967, having been trained in voiceprint analysis by Kersta, the pioneer in this field. At the time of trial, Nash was employed by the Michigan State Police as head of its voice identification unit. Nash studied audiology and speech sciences at Michigan State University, and completed courses in anatomy and the physiology of speech. Although Nash had received approximately 50 hours of college credit in these subjects, he had not attained a formal degree.

Lieutenant Nash testified that since 1967 he has prepared or reviewed 180,000 voice spectrograms. As noted above, he worked with Dr. Tosi in preparing the design for the 1968--1970 Michigan State University study which Dr. Tosi conducted, and he assisted Tosi in drafting the final report of the study. According to Nash, the Tosi study demonstrated a high degree of reliability. It was a 'controlled experimental situation' based on examination and identification of the voices of students and other nonsuspect persons, rather than a forensic, in-the-field, study of the reliability of voiceprint analysis in identifying criminals.

[17 Cal.3d 37] Lieutenant Nash stated that among members of the scientific community involved in voiceprint analysis there is general acceptance of the technique as 'extremely' reliable. Nash admitted, however, that those persons who are actually involved in voiceprint work are primarily voiceprint examiners 'connected with a government agency of some kind,' i.e., law enforcement officers such as Nash himself.

Our analysis of Nash's testimony discloses at least three infirmities which, in combination, are fatal to the People's claim that they established that voiceprint analysis is generally accepted as reliable by the scientific community. First, we think it questionable whether the testimony of a single witness alone is ever sufficient to represent, or attest to, the views of an entire scientific community regarding the reliability of a new technique. Ideally, resolution of the general acceptance issue would require consideration of the views of a typical cross-section of the scientific community, including representatives, if there are such, of those who oppose or question the new technique. Several courts have thus concluded that, before evidence based upon a new scientific method may be introduced, "something more than the bare opinion of one man, however qualified, is required." (People v. King, supra, 266 Cal.App.2d at p. 453, 72 Cal.Rptr. at p. 488, quoting from another voiceprint case, State v. Cary (1967) 49 N.J. 343, 230 A.2d 384, 389; italics added by King.) In

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[549 P.2d 1249] King, for example, the trial court heard the views of three prosecution experts and seven defense experts on the issue of general acceptance. (See also Huntingdon v. Crowley, supra, 64 Cal.2d 647, 654, 51 Cal.Rptr. 254, 414 P.2d 382, wherein the trial court had considered the opinions of two opposing experts on the issue of blood test reliability, as well as numerous articles from relevant literature on the subject.)

One commentator has suggested that in an appropriate case trial courts should take affirmative steps to assure that an accurate description of the views of the scientific community is placed before the court. 'After deciding which are the relevant fields, the court must see that the appropriate experts testify. Where only proponents of a technique appear, the court should Sua sponte take the responsibility of inquiring not just whether the experts believe the scientific community is general in agreement, but whether they are in fact aware of any opposing sentiment in the relevant scientific community. The court should then make an effort to ascertain the extent of any opposition so identified, calling its spokesmen as court-appointed experts if necessary.' (Comment, Supra, 35 Md.L.Rev. 267, at p. 293; fn. omitted, italics added.) In [17 Cal.3d 38] California, the trial court's authority to appoint an expert is set forth in Evidence Code section 730. As the scientific literature referred to above makes clear, in the area of voiceprint analysis there exist several persons whose qualifications would enable them to testify knowledgeably, and critically.

We are troubled by a second feature of the evidentiary record before us. In addition to the trial court's reliance solely upon Nash's testimony to the exclusion of other, possibly adverse, expert witnesses, a serious question existed regarding Nash's ability fairly and impartially to assess the position of the scientific community. Nash has had a long association with the development and promotion of voiceprint analysis. His qualifications in this somewhat limited area cannot be doubted. In addition to his work with Dr. Tosi, Nash was the chief of the Michigan State Police Voice Identification Unit, a position which led him to testify as a voiceprint expert in numerous cases throughout the country. Further, Nash is either a founder or member of four other organizations which promote the use of voiceprint analysis.

Nash's background thus discloses that he is one of the leading proponents of voice-print analysis; he has virtually built his career on the reliability of the technique. This situation is closely akin to that in People v. King, supra, 266 Cal.App.2d 437, 72 Cal.Rptr. 478, in which Kersta, a pioneer in the field, was the chief prosecution witness supporting the admissibility of voiceprint evidence. The court in King rejected Kersta's testimony regarding the scientific basis of voiceprint analysis and warned that '(b)efore a technique or process is generally accepted in the scientific community, self-serving opinions should not be received which invade the province of the trier of fact.' (Id., at p. 458, 72 Cal.Rptr. at p. 491.) Likewise, Nash, a strong advocate of the voiceprint technique, may be too closely identified with the endorsement of voiceprint analysis to assess fairly and impartially the nature and extent of any opposing scientific views. A more detached and neutral observer might more fairly do so. In the absence of additional and impartial evidence regarding general acceptance, the trial court was in a similar position to that presented in King, in which 'a court could only receive Kersta's opinion on faith.' (People v. King, supra, 266 Cal.App.2d at p. 456, 72 Cal.Rptr. at p. 490.)

A third objection to Nash's testimony pertains to his qualifications as an expert in the field of voiceprint analysis. Substantial doubt exists whether Nash possessed the necessary academic qualifications which would have enabled him to express a competent opinion on the issue of [17 Cal.3d 39] the general acceptance of the voiceprint technique in the scientific community.

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[549 P.2d 1250] A person is qualified to testify as an expert if he has special knowledge, skill, experience, training, or education sufficient to qualify him as an expert on the subject to which his testimony relates.' (Evid.Code, § 720, subd. (a).) The trial court is given considerable latitude in determining the qualifications of an expert and its ruling will not be disturbed on appeal unless a manifest abuse of discretion is shown. (Pfingsten v. Westenhaver (1952) 39 Cal.2d 12, 20, 244 P.2d 395; Huffman v. Lindquist (1951) 37 Cal.2d 465, 476, 234 P.2d 34; People v. King, supra, 266 Cal.App.2d at p. 443, 72 Cal.Rptr. 478; Witkin, Cal.Evidence (1966) § 1175, p. 1088.)

However, whether a person qualifies as an expert in a particular case depends upon the facts of that case and the witness' qualifications. (People v. Davis (1965) 62 Cal.2d 791, 801, 44 Cal.Rptr. 454, 402 P.2d 142.) 'The competency of an expert is relative to the topic and fields of knowledge about which the person is asked to make a statement. In considering whether a person qualifies as an expert, the field of expertise must be carefully distinguished and limited.' (People v. King, supra, 266 Cal.App.2d at p. 445, 72 Cal.Rptr. at p. 483.)

The record in the instant case reveals that Nash has an impressive list of credentials in the field of voiceprint analysis. However, these qualifications are those of A technician and law enforcement officer, not a scientist. Neither his training under Kersta, his association with the Tosi study, his limited college study in certain speech sciences, his membership in organizations promoting the use of voiceprints, nor his former position as head of the

Michigan State Police Voice Identification Unit, necessarily qualifies Nash to express an informed opinion on the view of the scientific community toward voiceprint analysis. This area may be one in which only another scientist, in regular communication with other colleagues in the field, is competent to express such an opinion.

Nash was allowed to testify in a dual role, both as a technician and a scientist, in order to show both that the voiceprint technique is reliable and that it has gained general acceptance in the scientific community. From the demonstrably wide technical experience of Nash, it does not necessarily follow that academic and scientific knowledge are present as well. As expressed in King: 'Kersta's engineering abilities must not be [17 Cal.3d 40] confused with or made a substitute for learning and training in the fields of anatomy, medicine, physiology, psychology phonetics or linguistics.' (People v. King, supra, 266 Cal.App.2d at p. 458, 72 Cal.Rptr. at p. 491.) In considering the position of the scientific community, a court is found to let scientists speak for themselves. Nash's undoubted qualifications as a technician, like Kersta's, do not necessarily qualify him as a scientist to express an opinion on the question of general scientific acceptance.

Indeed, it is both noteworthy and commendable that Nash was careful and fair in not claiming that he represented the views of the general scientific community on the subject of the reliability of the voiceprint technique. Instead, he expressed the opinion of those persons engaged in the actual use of the spectrogram, persons who were primarily engaged in law enforcement activities. Although the Frye test may be satisfied by a showing of general acceptance by those scientists who are most familiar with the use of a new technique (People v. Williams (1958) 164 Cal.App.2d Supp. 858, 862, 331 P.2d 251; Commonwealth v. Lykus, supra, 327 N.E.2d at pp. 677--678), such a showing, ordinarily, should be presented by those who are engaged in the scientific fields.

5. Error not Harmless

Although the People have contended that any error in introducing the voiceprint evidence was harmless error,

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[549 P.2d 1251] our review of the record indicates otherwise. The record shows that before recording defendant's voice and consulting with Lieutenant Nash, the investigating officers had considerable difficulty determining whether defendant was indeed the Robert Kelly whose voice was identified by an informant as having made one of the extortion phone calls. In fact, the officers originally had either contacted or spoken by telephone to two other persons named (or claiming to be) Robert Kelly. The record before us strongly suggests that-without the testimony of Lieutenant Nash, the prosecution probably could not have established defendant's guilt beyond a reasonable doubt, given the officers' prior difficulties in establishing the correct identity of the voice on the extortion tapes. Accordingly, we may not deem the error in introducing Nash's testimony harmless error. (People v. Watson (1956) 46 Cal.2d 818, 836, 299 P.2d 243.)

6. Conclusion

We conclude that the People failed to carry their burden of establishing the reliability of voiceprint evidence. We emphasize, however, that [17 Cal.3d 41] our decision is not intended in any way to foreclose the introduction of voiceprint evidence in future cases. We simply circumscribe, carefully and deliberately, the admission of evidence born of new techniques until the time when there is demonstrated solid scientific approval and support of the new methods. The Frye test was not designed to eliminate reliance upon scientific evidence, but to retard its admissibility until the scientific community has had ample opportunity to study, evaluate and accept its reliability. (See United States v. Addison, supra, 498 F.2d at p. 743.) Although the present record is insufficient to justify the admissibility of voiceprint evidence, the future proponent of such evidence may well be able to demonstrate in a satisfactory manner that the voiceprint technique has achieved that required general acceptance in the scientific community.

The judgment is reversed.

WRIGHT, C.J., and McCOMB, TOBRINER, MOSK, SULLIVAN and CLARK, JJ., concur.