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BITE MARK EVIDENCE

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In *State v. Sapsford*, 22 Ohio App.3d 1, 488 N.E.2d 218 (1986), a rape victim was found with bite marks on her body. One suspect was arrested but then released when his dentition did not match the bite marks. A second suspect, Sapsford, was subsequently arrested and ordered by the municipal court to submit to the production of dental casts, close-up photographs of the edges of his teeth, and wax impressions of his bite. He then pleaded guilty and challenged the taking of models of his dentition on constitutional grounds. The court of appeals rejected these challenges.

Sapsford appears to be the first reported Ohio case involving bite mark evidence. Other jurisdictions, however, have considered the issue on numerous occasions. The trial of Ted Bundy for the murder of two Florida State University coeds is probably the most publicized case involving bite mark evidence. *Bundy v. State*, 455 So.2d 330, 348-49 (Fla. 1984). This article examines the use of forensic dentistry at criminal trials, including the admissibility of bite mark evidence.

FORENSIC DENTISTRY

Forensic dentistry, also known as forensic odontology, concerns the application of dentistry to law. See I. Sopher, *Forensic Dentistry* vii (1976) ("the application of dentistry to the legal structure"); Keiser-Nielsen, *Forensic Odontology*, 1 U. Tol. L. Rev. 633, 634 (1969) ("Forensic odontology is that branch of odontology which . . . deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of dental findings."). In criminal trials, forensic dentistry typically is used in two ways: (1) to establish the identity of a homicide victim, and (2) to identify a defendant through a comparison of his dentition with bite marks found on the victim.

IDENTIFICATION OF HOMICIDE VICTIM

The identification of deceased persons by means of their dentition is sometimes the only method by which identity can be established. Although identification by fingerprints is a superior method of establishing identity, that method cannot be used when the skin tissue of the

decedent's fingers is no longer available or when the decedent's fingerprints have never been previously recorded. In contrast to skin tissue, human dentition (as well as dental restorations and prostheses) remains long after death. I. Sopher, *supra*, at 40-41.

Dental identification is based on the theory that every person's dentition is unique. The human adult dentition consists of thirty two teeth, each with five anatomic surfaces. Thus, there are 160 dental surfaces that may contain identifying characteristics. Restorations alone, with varying shapes, sizes, and restorative materials, may offer numerous points of individuality. In addition to restorations, the number of teeth, prostheses, decay, malposition and malrotation, peculiar shapes, root canal therapy, bone patterns, bite relationship, and oral pathology all may provide identifying characteristics. *Id.* at 82. One study has established the uniqueness of human dentition through a statistical analysis. Rawson, Ommen, Kinard, Johnson & Yfantis, *Statistical Evidence for the Individuality of the Human Dentition*, 29 J. Forensic Sci. 245, 252 (1984) ("This mathematical evaluation of a general population sample demonstrates the uniqueness of the human dentition beyond any reasonable doubt. . .").

Comparative Analysis

The identification involves a comparison of antemortem records and postmortem findings to determine points of identity. The antemortem records may consist of written records (including charts), x-rays, and models. Radiographs are particularly helpful because they provide details not usually present in dental charts and they do not contain the errors that are found in charts. Stimson, *Radiology in Forensic Odontology*, 48 *Dental Radiography & Photography* 51, 53-55 (1975). Without a putative identity, however, there is no way to obtain these records; dental records are not maintained in one central depository as are fingerprints. I. Sopher, *supra*, at 41 ("Antemortem dental records, unlike fingerprints, are not easily obtained and recorded, are not centrally classified and are not readily retrievable for comparison."). Even when records are available, a positive identification may not be possible if the records are incomplete or inaccurate. The amount and condition of the postmortem dentition availa-

ble for comparison will also affect whether a positive identification can be made. *Id* at ch. 5 & 7.

There are no minimum points of identity necessary to establish an identification. Stimson, *supra*, at 53 ("There are no specific number of concordant points necessary for positive identification."). The number and quality of points determine whether a positive identification may be made; a few points involving unusual characteristics may be sufficient: "[T]he recovery of only a single tooth or jaw fragment may bear the degree of specificity necessary for positive identification." I. Sopher, *supra*, at 41. See also Stimson, *supra*, at 53 ("If one filling is extremely unique, it could be specific."). However, there must be no unexplained inconsistencies. I. Sopher, *supra*, at 107. For example, a missing tooth in the postmortem dentition is not necessarily inconsistent with the presence of that tooth in the antemortem records. The tooth may have come out after the records were completed, including after death. In contrast, a missing tooth in the antemortem records is inconsistent with the presence of that tooth in the postmortem dentition. See Sperber, *Forensic Odontology*, in Practising Law Institute, *Scientific and Expert Evidence* 721, 731 (2d ed. 1981).

Admissibility

The courts have accepted dental identification as a means of establishing the identity of a homicide victim. See *People v. Westlake*, 106 Cal. App. 247, 289 P. 212 (1930); *Wooley v. People*, 148 Colo. 392, 367 P.2d 903 (1961); *State v. Johnston*, 62 Idaho 601, 113 P.2d 809 (1941); *Commonwealth v. Webster*, 59 Mass. (5 Cush.) 295, 52 Am. Dec. 711 (1850); *State v. Goodson*, 299 Mo. 321, 252 S.W. 389 (1923); *Hawkins v. State*, 60 Neb. 380, 83 N.W. 198 (1900); *Lindsay v. People*, 63 N.Y. 143 (1875); *Fields v. State*, 322 P.2d 431 (Okla. Crim. 1958); *Williamson v. State*, 679 S.W.2d 523, 529-30 (Tex. App. 1983), *rev'd on other grounds*, 672 S.W.2d 484 (Tex. Crim. App. 1984). See also Annot., 86 A.L.R.2d 722 (1979).

According to one court, "it cannot be seriously disputed that a dental structure may constitute a means of identifying a deceased person . . . where there is some dental record of that person with which the structure may be compared." *People v. Mattox*, 96 Ill. App.2d 148, 150-51, 237 N.E.2d 845, 846 (1968). In another case, the court upheld the identification of skeletal remains by a forensic odontologist based on a comparison of the remains and *inter vivos* photographs of the victim. According to the expert, the facial structure, occlusion, and the shape of the teeth and jaw permitted an identification. *Ex parte Dolvin*, 391 So.2d 677 (Ala. 1980). In addition, courts have held that a decedent's dental records are admissible as business records. *E.g.*, *Williamson v. State*, 679 S.W.2d 523, 529 (Tex. App. 1983), *rev'd on other grounds*, 672 S.W.2d 484 (Tex. Crim. App. 1984).

BITE MARK ANALYSIS

Bite mark analysis is a relatively new but important method of identification. One study reported that bite marks occur primarily in sex-related crimes, child abuse cases, and offenses involving physical altercations. Vale & Noguchi, *Anatomical Distribution of Human Bite Marks in a Series of 67 Cases*, 28 J. Forensic Sci. 61 (1983).

Identification of a suspect by matching his dentition with a bite mark found on the victim of a crime rests on

the theory that each person's dentition is unique. See generally Sognaes, Rawson, Gratt & Nguyen, *Computer Comparison of Bitemark Patterns in Identical Twins*, 105 J. Am. Dental A. 449 (1982). In this respect, bite mark comparisons are based on the same principle as the identification of a deceased person. See *People v. Milone*, 43 Ill. App.3d 385, 397, 356 N.E.2d 1350, 1358 (1976) ("The concept of identifying a suspect by matching his dentition to a bite mark found at the scene of a crime is a logical extension of the accepted principle that each person's dentition is unique."). The courts have accepted this theory. See *People v. Milone*, 43 Ill. App.3d 385, 396-97, 356 N.E.2d 1350, 1358 (1976); *State v. Sager*, 600 S.W.2d 541, 573 (Mo. Ct. App. 1980), *cert. denied*, 450 U.S. 910 (1981); *People v. Smith*, 110 Misc.2d 118, 125, 443 N.Y.S.2d 551, 556-57 (Cty. Ct. 1981) ("The basic premise is the unique nature of individual dentition . . . and the virtually infinite number of individual bite configurations."); *State v. Green*, 305 N.C. 463, 471, 290 S.E.2d 625, 630 (1982); *State v. Temple*, 302 N.C. 1, 11-13, 273 S.E.2d 273, 280-81 (1981).

There are, however, significant differences in the application of these two methods. One authority has noted the following problems with bite mark analysis:

[Bite]marks can never be taken to reproduce accurately the dental features of the originator. This is due partially to the fact that bite marks generally include only a limited number of teeth. Furthermore, the material (whether foodstuff or human skin) in which the mark has been left is usually found to be a very unsatisfactory impression material with shrinkage and distortion characteristics that are unknown. Finally, these marks represent only the remaining and fixed picture of an action, the mechanism of which may vary from case to case. For instance, there is as yet no precise knowledge of the possible differences between biting off a morsel of food and using one's teeth for purposes of attack or defense. Keiser-Nielson, *supra*, at 636.

None of these problems is involved with dental identifications. In sum, bite mark identification depends not only on the uniqueness of each person's dentition but also on "whether there is a [sufficient] representation of that uniqueness in the mark found on the skin or other inanimate object." Rawson, Ommen, Kinard, Johnson & Yfantis, *supra*, at 252.

Methods of Comparison

Several methods of bite mark analysis have been proposed. See I. Sopher, *supra*, at 125-26; *State v. Sager*, 600 S.W.2d 541, 569-70 (Mo. Ct. App. 1980) (outlining different methods), *cert. denied*, 450 U.S. 910 (1981). All methods involve three steps: (1) registration of the bite mark and the suspect's dentition, (2) comparison of the dentition and bite mark, and (3) evaluation of the points of similarity or dissimilarity.

Registration of the bite mark by photography is used in all cases; the photographs are then enlarged to life-size proportion for comparison. Where bite indentations (three-dimensional bite marks) are present in the skin tissue, impressions may be obtained; these are used to reproduce models of the bite mark, which can be used for comparison. The defendant's dentition is reproduced by means of models. The reproductions of the bite mark and the defendant's dentition are then analyzed through a variety of different methods, including transparent overlays, direct comparison of photographs, or direct compar

ison of photographs with models. Sperber, *supra*, at 744-46. New techniques, including computerized bite analysis, have been reported. See Beckstead, Rawson & Giles, *Review of Bite Mark Evidence*, 99 J. Am. Dental A. 69, 72 (1979); Sognnaes, Rawson, Gratt & Nguyen, *supra*, at 450 (citing a recent case in which computerized bite analysis was admitted in evidence).

Expert Opinion Testimony

Although the expert's conclusions are based on objective data, the opinion is essentially a subjective one. See Sobel, *Forensic Odontology*, in 2 *Forensic Sciences* 28-32 (C. Wecht ed. 1985); I. Sopher, *supra*, at 140. Like fingerprint and firearms identifications, the conclusions are based on the examiner's experience and expertise. Thus, the qualifications of the expert are critical. The American Board of Forensic Odontology has established certification standards in this field.

It is easier to conclude that two bite marks are incompatible and therefore were not made by the same person, than it is to conclude that the mark has been made by a particular person. See Keiser-Nielson, *supra*, at 637-38; I. Sopher, *supra*, at 140; Sperber, *supra*, at 752. This is due to the fact that any *unexplained* inconsistency between the bite mark and the dentition means that the suspect could not have made the bite mark. See Sperber, *supra*, at 747. A positive identification, however, may still be possible even though some inconsistencies are present, provided the inconsistencies can be explained. One commentator has written:

There may, of course, be slight variations that are consistent — *i.e.*, all of the bite marks are on a larger (or smaller) arch than the teeth themselves. In other words, depending on the location of the bite marks, whether the person (victim or suspect) was passive, unconscious, or struggling, the degree of sucking that occurred during the biting and manual manipulation, the forensic odontologist may be able to explain "consistent variations" in the comparison. *Id.* at 747-48.

There is no accepted minimum number of points of identity required for a positive identification. See Keiser-Nielson, *supra*, at 637-38. The experts who have testified in bite mark cases have used a low of eight points of comparison to a high of fifty two points. *E.g.* State v. Garrison, 120 Ariz. 255, 585 P.2d 563 (1978)(10 points); People v. Slone, 76 Cal. App.3d 611, 143 Cal. Rptr. 61 (1978)(10 points); People v. Milone, 43 Ill. App.3d 385, 356 N.E.2d 1350 (1976)(29 points); State v. Sager, 600 S.W.2d 541 (Mo. Ct. App. 1980)(52 points), *cert. denied*, 450 U.S. 910 (1981); State v. Green, 305 N.C. 463, 290 S.E.2d 625 (1982)(14 points); State v. Temple, 302 N.C. 1, 273 S.E.2d 273 (1981)(8 points); Kennedy v. State, 640 P.2d 971 (Okla. Crim. App. 1982)(40 points); State v. Jones, 273 S.C. 723, 259 S.E.2d 120 (1979)(37 points).

The conclusions that an expert can draw from the evaluation depend on the number and quality of the points of comparison. In some cases experts have testified only that a bite mark is consistent with the defendant's teeth. *E.g.* People v. Watson, 75 Cal. App.3d 384, 400-01, 142 Cal. Rptr. 134, 143 (1977); People v. Williams, 128 Ill. App.3d 384, 397-98, 470 N.E.2d 1140, 1150 (1984)("the defendant could have made the bite mark"); Bludsworth v. State, 98 Nev. 289, 291 n.1, 646 P.2d 558, 559 n.1 (1982); People v. Bethune, 105 A.D.2d 262, 271, 484 N.Y.S.2d 577, 580-81 (1984); State v. Routh, 30 Or. App.

901, 903, 568 P.2d 704, 705 (1977)("similarity").

In other cases experts have testified that it is "highly probable" or "very highly probable" that the defendant made the mark. *E.g.*, People v. Slone, 76 Cal. App.3d 611, 621, 143 Cal. Rptr. 61, 67 (1978); People v. Johnson, 8 Ill. App.3d 457, 461, 289 N.E.2d 722, 726 (1972). In still other cases experts have made positive identifications. *E.g.*, People v. Milone, 43 Ill. App.3d 385, 392-93, 356 N.E.2d 1350, 1355-56 (1976); State v. Sager, 600 S.W.2d 541, 564 (Mo. Ct. App. 1980), *cert. denied*, 450 U.S. 910 (1981); State v. Temple, 302 N.C. 1, 10, 273 S.E.2d 273, 279 (1981).

In one case the expert stated his conclusion in terms of probability theory, testifying that "there is an eight in one million probability that the teeth marks found on the deceased's breasts were not made by appellant." State v. Garrison, 120 Ariz. 255, 258, 585 P.2d 563, 566 (1978). Such a statement appears to be without scientific foundation. The dissenting opinion contains the following comment: "[W]hile Dr. Campbell may have a great deal of expertise in the actual comparison techniques of bite-mark identification, he is totally out of his field when the discussion turns to probability theory." *Id.* at 260, 585 P.2d at 568. See also C. McCormick, *Evidence* 654 (3d ed. 1984). As one commentator has noted:

The problem of specificity in the bite mark analysis results from the lack of a scientific core of basic data for comparison. The results of the bite mark comparison may indicate a perfect or reasonably perfect fit between the bite mark and a suspect's dentition; however, how can one be absolutely or even perhaps reasonably certain that no other individual could have produced a particular bite? Classified bite mark characteristics on large segments of the population are unavailable; therefore, an absolute scientific estimation of specificity regarding the particular bite mark/suspect comparison is not possible. The situation is comparable to the point in the distant past when the 100th set of fingerprints was classified. At the time, it was known that the set of prints did not match the ninety-nine others previously recorded, but it was not known if the set of prints were specific for only the one individual fingerprinted. I. Sopher, *supra*, at 140.

Although most experts and courts have accepted the reliability of bite mark evidence, this acceptance is not universal. Two commentators have recently written:

There is effectively no valid documented scientific data to support the hypothesis that bite marks are demonstrably unique. Additionally, there is no documented scientific data to support the hypothesis that a latent bite mark, like a latent fingerprint, is a true and accurate reflection of this uniqueness. To the contrary, what little scientific evidence that does exist clearly supports the conclusion that crime-related bite marks are grossly distorted, inaccurate, and therefore unreliable as a method of identification. Wilkinson & Gerughty, *Bite Mark Evidence: Its Admissibility is Hard to Swallow*, 12 West. St. U. L. Rev. 519, 560 (1985).

Disagreement Among Experts

Given these factors—the newness of the technique and its subjective character—it is not surprising to find qualified experts disagreeing in individual cases. *E.g.*, State v. Sager, 600 S.W.2d 541, 563-67 (Mo. Ct. App. 1980), *cert. denied*, 450 U.S. 910 (1981); People v. Bethune, 105 A.D.2d 262, 265-70, 484 N.Y.S.2d 577, 580-83 (1984); Patterson v. State, 509 S.W.2d 857, 862 (Tex. Crim. App. 1974); State v. Howe, 136 Vt. 53, 65, 386 A.2d 1125, 1132 (1978). In some cases the experts have

arrived at diametrically opposed conclusions, while in others they disagree only on whether the data is sufficient to support a positive identification. *People v. Milone*, 43 Ill. App.3d 385, 356 N.E.2d 1350 (1976), is an example. In that case three experts testified for the prosecution and four testified for the defense. The prosecution experts all positively identified the defendant's teeth as the source of the bite mark. The defense experts testified either that a positive identification could not be made or that the defendant's teeth did not make the mark. *Id.* at 393, 356 N.E.2d at 1356. Despite this disagreement, the defendant was convicted. Interestingly, one of the experts in that case subsequently wrote that "[r]ecently discovered evidence proves that Milone . . . is innocent." Levine, *Forensic Dentistry: Our Most Controversial Case*, in *Legal Medicine Annual 73* (C. Wecht ed. 1978).

Similarly in *People v. Smith*, 63 N.Y.2d 41, 468 N.E.2d 879, 479 N.Y.S.2d 706 (1984), *cert. denied*, 105 S.Ct. 1226 (1985), seven experts testified, four for the prosecution and three for the defense. While the prosecution experts testified that the bite mark on a murder victim had been made by the defendant, the defense experts testified that not only was the mark not made by the defendant but that the mark "was not a bite mark at all." *Id.* at 58, 468 N.E.2d at 886, 479 N.Y.S.2d at 713. In addition, the experts disagreed about the proper methods that may be used for the comparison. The prosecution experts used two methods of comparison. First, they compared a stone model of the defendant's dentition and impressions made in aluwax from the model with life-size photographs of the mark on the victim. Second, they made photo-to-photo comparisons of the victim's mark and a bite mark known to have been made by the defendant on human tissue four years earlier. *Id.* In contrast, the defense experts compared transparencies made from a model of the defendant's teeth with a photograph of the mark on the victim. The transparencies were then laid over the photograph. *Id.* The defense experts, however, conceded that there was no completely objective method for identifying bite marks and that each method ultimately relied on the judgment of the individual expert.

ADMISSIBILITY

Courts have admitted bite mark evidence in a number of different types of cases:

Homicide prosecutions: *State v. Garrison*, 120 Ariz. 255, 585 P.2d 563 (1978); *People v. Marx*, 54 Cal. App.3d 100, 126 Cal. Rptr. 350 (1975); *People v. Milone*, 43 Ill. App.3d 385, 356 N.E.2d 1350 (1976); *State v. Temple*, 302 N.C. 1, 273 S.E.2d 273 (1981); *State v. Howe*, 136 Vt. 53, 386 A.2d 1125 (1978).

Rape prosecutions: *People v. Johnson*, 8 Ill. App.3d 457, 289 N.E.2d 722 (1972); *People v. Bethune*, 105 A.D.2d 262, 484 N.Y.S.2d 577 (1984); *State v. Green*, 305 N.C. 463, 290 S.E.2d 625 (1982); *State v. Routh*, 30 Or. App. 901, 568 P.2d 704 (1977); *State v. Jones*, 273 S.C. 723, 259 S.E.2d 120 (1979).

Child abuse cases: *Bludsworth v. State*, 98 Nev. 289, 291 n.1, 646 P.2d 558, 559 n.1 (1982).

The typical bite mark case has involved the identification of the defendant by matching his dentition with a mark left on the victim. In several cases, however, the victim's teeth have been compared with marks on the defen-

dant's body. See *Bradford v. State*, 460 So.2d 926, 929-30 (Fla. Dist. Ct. App. 1984); *People v. Bethune*, 105 A.D.2d 262, 271, 484 N.Y.S.2d 577, 580-83 (1984). Other courts have admitted evidence of a bite mark on the defendant without expert testimony. See *Ex parte Smith*, 72 F. Supp. 935 (M.D. Pa. 1947), *aff'd*, 336 U.S. 695 (1949); *People v. Stewart*, 110 Ill. App.2d 435, 249 N.E.2d 725 (1969), *aff'd*, 46 Ill.2d 125, 262 N.E.2d 911 (1970); *State v. McClinton*, 265 S.C. 171, 217 S.E.2d 584 (1975). Several cases have involved bite marks on foodstuff. See *State v. Oritz*, 198 Conn. 220, 502 A.2d 400 (1985); *Doyle v. State*, 159 Tex. Crim. 310, 263 S.W.2d 779 (1954).

People v. Marx, 54 Cal. App.3d 100, 126 Cal. Rptr. 350 (1975), is the leading bite mark case. See generally *Note, The Admissibility of Bite Mark Evidence*, 51 S. Cal. L. Rev. 309 (1978); Vale, Sognaes, Felando & Noguchi, *Unusual Three-Dimensional Bite Mark Evidence in a Homicide Case*, 21 J. Forensic Sci. 642 (1976). The court in *Marx* avoided applying the *Frye* test, which requires acceptance of a novel technique by the scientific community as a prerequisite to admissibility. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923); Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later*, 80 Colum. L. Rev. 1197 (1980). (The Ohio Supreme Court rejected *Frye* in *State v. Williams*, 4 Ohio St.3d 53, 446 N.E.2d 444 (1983)).

According to the court in *Marx*, the *Frye* test "finds its rational basis in the degree to which the trier of fact must accept, on faith, scientific hypotheses not capable of proof or disproof in court and not even generally accepted outside the courtroom." 54 Cal. App.3d at 110, 126 Cal. Rptr. 355-56. The court went on to hold that bite mark evidence did not involve such acceptance by the jury. The basis on which the expert reached his conclusions—models, photographs, and X-rays—were shown to the trier of fact and the expert's conclusions were verifiable by the court. Thus, the "court did not have to sacrifice its independence and common sense in evaluating" the evidence. *Id.* at 111, 126 Cal. Rptr. at 356.

Other courts have also admitted bite mark evidence without applying the *Frye* test. See *State v. Garrison*, 120 Ariz. 255, 585 P.2d 563 (1978); *People v. Watson*, 75 Cal. App.3d 384, 142 Cal. Rptr. 134 (1977); *State v. Oritz*, 198 Conn. 220, 502 A.2d 400, 403 (1985); *Bundy v. State*, 455 So.2d 330, 348-49 (Fla. 1984); *People v. Milone*, 43 Ill. App.3d 385, 356 N.E.2d 1350 (1976); *People v. Johnson*, 8 Ill. App.3d 457, 289 N.E.2d 722 (1972); *Niehaus v. State*, 265 Ind. 655, 359 N.E.2d 513, *cert. denied*, 434 U.S. 902 (1977); *State v. Peoples*, 227 Kan. 127, 605 P.2d 135 (1980); *Bludsworth v. State*, 98 Nev. 289, 646 P.2d 558 (1982); *State v. Green*, 305 N.C. 463, 290 N.E.2d 625 (1982); *State v. Temple*, 302 N.C. 1, 273 S.E.2d 273 (1981); *Kennedy v. State*, 640 P.2d 971 (Okla. Crim. App. 1982); *State v. Routh*, 30 Or. App. 901, 568 P.2d 704 (1977); *State v. Jones*, 273 S.C. 723, 259 S.E.2d 120 (1979); *Patterson v. State*, 509 S.W.2d 857 (Tex. Crim. App. 1974); *State v. Howe*, 136 Vt. 53, 386 A.2d 1125 (1978). See also *People v. Queen*, 130 Ill. App.3d 523, 474 N.E.2d 786 (1985).

Courts applying the *Frye* general acceptance standard, however, have reached the same result. See *United States v. Martin*, 13 M.J. 66, 67-68 (C.M.A. 1982); *People v. Slone*, 76 Cal. App.3d 611, 623-24, 143 Cal. Rptr. 61, 68-69 (1978); *State v. Kleypas*, 602 S.W.2d 863, 868-70

(Mo. Ct. App. 1980); *State v. Sager*, 600 S.W.2d 541, 573 (Mo. Ct. App. 1980), *cert. denied*, 450 U.S. 910 (1981); *People v. Middleton*, 54 N.Y.2d 42, 49-50, 429 N.E.2d 100, 103-04, 444 N.Y.S.2d 581, 584-85 (1981); *People v. Bethune*, 105 A.D.2d 262, 267, 484 N.Y.S.2d 577, 581 (1984); *People v. Smith*, 110 Misc.2d 118, 124-26, 443 N.Y.S.2d 551, 556-57 (Cty. Ct. 1981).

Judicial Notice

No reported case has rejected bite mark evidence. Indeed, its acceptance is so well-established that the New York Court of Appeals has held that its validity need not be proved in every case:

The reliability of bite mark evidence as a means of identification is sufficiently established in the scientific community to make such evidence admissible in a criminal case, without separately establishing scientific reliability in each case, but subject, of course, to the establishment by foundation evidence of the authenticity of the materials used and propriety of the procedure followed in the particular case and to cross-examination intended to test the reliability of the conclusion reached in that case. *People v. Middleton*, 54 N.Y.2d 42, 45, 429 N.E.2d 100, 101, 444 N.Y.S.2d 581, 582 (1981).

See also *People v. Smith*, 63 N.Y.2d 41, 63, 468 N.E.2d 879, 889, 479 N.Y.S.2d 706, 716 (1984), *cert. denied*, 105 S.Ct. 1226 (1985). In short, courts may judicially notice the general validity of bite mark evidence. Judicial notice, however, does not extend to the validity of an identification in a particular case.

Expert Qualifications

Although the qualifications of experts who have testified in the bite mark cases have been challenged in some cases, these challenges have failed. See *People v. Williams*, 128 Ill. App.3d 384, 397, 470 N.E.2d 1140, 1149-50 (1984); *State v. Peoples*, 227 Kan. 127, 132-33, 605 P.2d 135, 139-40 (1980); *State v. Temple*, 302 N.C. 1, 12-13, 273 S.E.2d 273, 280 (1981). Most of the experts have been experienced forensic odontologists. In one case, however, the court ruled a dentist qualified even though the comparison in issue was the first he had made. *Niehaus v. State*, 265 Ind. 655, 359 N.E.2d 513, *cert. denied*, 434 U.S. 902 (1977).

Spoliation Evidence

Evidence that a defendant has attempted to alter his teeth after learning of the prosecution's intention to introduce bite mark evidence is admissible as spoliation evidence. In one case the expert detected new tooth fractures at the time he attempted to cast the defendant's dentition. The defendant was aware that impressions of his teeth would be taken but claimed that the fractures occurred when he bit a bone at a meal. The expert testified that the fractures had to have resulted in some other way. The court held that evidence of the defendant's conduct was admissible: "The spoliation of evidence evinces a consciousness of guilt and is admissible for that reason." *State v. Turner*, 633 S.W.2d 421, 424 (Mo. Ct. App. 1982).

Constitutional Challenges

Defendants have challenged the admissibility of bite mark evidence on the grounds that compelling them to submit to a dental examination is unconstitutional. Courts have ruled that obtaining dental impressions from a defendant does not violate the Fourth Amendment's

proscription against unreasonable searches and seizures: *United States v. Holland*, 378 F. Supp. 144, 154-55 (E.D. Pa.), *aff'd sub. nom.* Appeal of Ehly, 506 F.2d 1050 (3d Cir. 1974), *cert. denied*, 420 U.S. 994 (1975); *People v. Milone*, 43 Ill. App.3d 385, 390-91, 356 N.E.2d 1350, 1354 (1976); *People v. Smith*, 110 Misc.2d 118, 122-23, 443 N.Y.S.2d 551, 555 (Cty. Ct. 1982); *State v. Howe*, 136 Vt. 53, 64, 386 A.2d 1125, 1131-32 (1978). The Ohio court of appeals took this position in *State v. Sapsford*, 22 Ohio App.3d 1, 488 N.E.2d 218 (1983).

Defendants have also challenged the compelled production of dental impressions on Fifth Amendment grounds. Courts have also rejected the self-incrimination argument. See *United States v. Holland*, 378 F. Supp. 144, 154-55 (E.D. Pa.) (obtaining dental impressions from a defendant is not compelled self-incrimination), *aff'd*, 506 F.2d 1050 (3d Cir. 1974), *cert. denied*, 420 U.S. 994 (1975); *State v. Asherman*, 193 Conn. 695, 478 A.2d 227, 240 (1984) (state constitution), *cert. denied*, 105 S.Ct. 1749 (1985); *People v. Milone*, 43 Ill. App.3d 385, 392, 356 N.E.2d 1350, 1355 (1976); *People v. Smith*, 110 Misc.2d 118, 121-22, 443 N.Y.S.2d 551, 554-55 (Cty. Ct. 1982); *People v. Allah*, 84 Misc.2d 500, 502, 376 N.Y.S.2d 399, 401 (Sup. Ct. 1975).

The Fifth Amendment cases rely on the U.S. Supreme Court's decision in *Schmerber v. California*, 384 U.S. 757 (1966), in which the Court held that the privilege against self-incrimination covers only *communicative or testimonial* evidence, not *physical or real* evidence. According to the Court:

It is clear that the protection of the privilege reaches an accused's communications, whatever form they might take. . . . On the other hand, both federal and state courts have usually held that it offers no protection against compulsion to submit to fingerprinting, photographing, or measurements, to write or speak for identification, to appear in court, to stand, to assume a stance, to walk, or to make a particular gesture. The distinction which has emerged, often expressed in different ways, is that the privilege is a bar against compelling "communications" or "testimony," but that compulsion which makes a suspect or accused the source of "real or physical evidence" does not violate it. *Id.* at 763-64.

The Ohio court of appeals in *State v. Sapsford*, 22 Ohio App.3d 1, 488 N.E. 218 (1983), also adopted the *Schmerber* reasoning.

In one case the accused argued that his Sixth Amendment right to counsel was violated. The court rejected this argument, finding that the taking of nontestimonial evidence was not a "critical stage" of a criminal prosecution. *State v. Howe*, 136 Vt. 53, 63, 386 A.2d 1125, 1131 (1978). The court relied on the Supreme Court's decision in *United States v. Wade*, 388 U.S. 218 (1967), in which the Court stated:

[Preparatory steps in the Government's investigation such as analyzing of] fingerprints, blood sample, clothing, hair [are not] critical stages at which the accused has the right to the presence of counsel. Knowledge of the techniques of science and technology is sufficiently available, and the variables in techniques few enough, that the accused has the opportunity for a meaningful confrontation of the Government's case at trial through the ordinary processes of cross-examination of Government's expert witnesses and the presentation of the evidence of his own experts. The

denial of a right to have his counsel present at such analyses does not therefore violate the the Sixth Amendment; they are not critical stages since there is minimal risk that his counsel's absence at such stage might derogate from his right to a fair trial. *Id.* at 227-28.

RELATED ISSUES

Laboratory Reports

In *State v. Stokes*, 433 So.2d 96 (La. 1983), the defendant was compelled to submit to the taking of dental impressions because wounds resembling bite marks were found on the victim. After comparing the defendant's teeth impressions with the bite marks, the state's expert concluded that there was not enough evidence to make a positive identification. A copy of his written report was presented to the defense and the defense attempted to have the report admitted as evidence. The state supreme court upheld the trial court's ruling excluding the report as inadmissible hearsay. According to the court, the report did not qualify for admission as a business record: "Without the testimony of the doctor, it would be difficult to assess the validity of the test upon which the opinions of the doctor expressed in the report were based." *Id.* at 103.

Stokes is inconsistent with evidentiary rules in other jurisdictions. For example, Ohio Rule of Evidence 803(8), which governs the public records exception to the hearsay rule, precludes the admission of police records "unless offered by [the] defendant." Although Federal Rule 803(8)(B) does not contain comparable language, it has been interpreted to permit the introduction of police reports when offered by the defense. See *United States v. Smith*, 521 F.2d 957, 968-69 n.24 (D.C. Cir. 1975). See generally P. Giannelli & E. Imwinkelried, *Scientific Evidence* ch. 6 (1986)(laboratory reports).

Right to Defense Witnesses

In *Thorton v. State*, 255 Ga. 434, 339 S.E.2d 240 (1986), the state obtained dental impressions from the defendant, so that his teeth could be compared to marks appearing on an autopsy photograph of the victim. The defense then moved for the appointment of a defense expert at state expense because the defendant was indigent. The Georgia Supreme Court held that the defendant was entitled to the appointment of "an appropriate professional, whose experience, at minimum, is substantially equivalent to that of the state's expert witness."

Although the court did not cite it, the U.S. Supreme Court's decision in *Ake v. Oklahoma*, 105 S.Ct. 1087 (1985), supports its ruling. *Ake* involved a request for psychiatric assistance in a case which raised an insanity

defense. The Court ruled: "We hold that when a defendant has made a preliminary showing that his sanity at the time of the offense is likely to be a significant factor at trial, the Constitution requires that a State provide access to a psychiatrist's assistance on this issue, if the defendant cannot otherwise afford one." *Id.* at 1092. See generally P. Giannelli & E. Imwinkelried, *Scientific Evidence* ch. 4 (1986)(securing expert assistance).

Discovery

In *State v. Adams*, 481 A.2d 718 (R.I. 1984), the prosecution failed to disclose a bite mark report, despite a defense request for the discovery of scientific reports. The Rhode Island Supreme Court held that the deliberate failure to disclose such a report was reversible error. The court also held that a cast impression of the bite mark was tangible evidence and therefore also subject to discovery. According to the court, the state's failure to disclose may have hindered the defense: "Had the cast impression been made available to defendant prior to trial, he would have been able to obtain an independent forensic dentist to examine the case and the impression taken of his own mouth. The results of such a test could have been very significant to defendant." *Id.* at 724.

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