STATE OF NEW HAMPSHIRE

CARROLL, SS SUPERIOR COURT

Docket No. 2011-CR-041

State of New Hampshire
v.
Richard Moulton

ORDER ON MOTION TO PRECLUDE WITNESS (OSTROWSKI)

The defendant moved to preclude a witness for the State, Stephen Ostrowski, from testifying to his conclusion concerning the matching of tape ends, or in the alternative for a *Daubert* hearing, *Daubert v. Merrell Dow Chemical,* 509 U.S. 579 (1993), to determine whether Mr. Ostrowski may be permitted to testify about "fracture matching," and in particular to tape end matching, as an expert. The State objected, asserting that the record before the court, particularly the 44 page transcript of the deposition of Mr. Ostrowski in this case, is sufficient for the court to first determine that it does not need to conduct a *Daubert* hearing and then determine that Mr. Ostrowski may testify as an expert in the matching of tape ends.

By order dated January 6, 2012, the court determined that, on the record then before it, the application of fracture matching techniques to tape ends is a "less usual or more complex" issue giving sufficient cause for questioning reliability, *Baker Valley*, 148 N.H. at 617, as to warrant a pre-trial hearing to assist the court in making the necessary determinations. The court accordingly deferred ruling on the defendant's motion to preclude the witness pending hearing and requested the Clerk to schedule a hearing at which Mr. Ostrowski would be available to testify and at which counsel would be prepared to argue the admissibility of Mr. Ostrowski's expert opinion. In that order, the court noted that because Mr. Ostrowski's deposition and the parties arguments as presented in their pleadings on this issue were already in the record and had been reviewed by the court, both Mr. Ostrowski's testimony and the parties' arguments at the hearing would supplement, but not duplicate, the record already before the court.

The *Daubert* hearing was held on January 18, 2012. Upon hearing, and upon consideration of the pleadings of the parties on this issue and of the deposition of the witness, the defendant's motion to preclude the witness is denied.

At the hearing, the defense moved to continue the conclusion of the hearing and trial and to stay any order on the motion to preclude in order to give them time to consult an expert about articles or studies provided to them by the State just prior to the *Daubert* hearing. Because the court reaches its conclusions without reliance on the three articles or studies at issue, the motion to continue and stay is denied.

The duty of the trial court when presented with disputed expert testimony is to determine whether it is admissible under N.H. Rule Evid. 702.

> Rule 702 states: If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue,

a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise. N.H. R. Ev. 702. Thus, expert testimony must rise to a threshold level of reliability to be admissible. *Baker Valley Lumber v. Ingersoll-Rand*, 148 N.H. 609, 613, 813 A.2d 409 (2002).

In *Baker Valley*, we applied the *Daubert* framework for evaluating the reliability of expert testimony to Rule 702. *Id.* at 614. Subsequently, in 2004, the legislature enacted RSA 516:29-a, which provides:

> I. A witness shall not be allowed to offer expert testimony unless the court finds:
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> (a) Such testimony is based upon sufficient facts or data;
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> (b) Such testimony is the product of reliable principles and methods; and
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> (c) The witness has applied the principles and methods reliably to the facts of the case.
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> II. (a) In evaluating the basis for proffered expert testimony, the court shall consider, if appropriate to the circumstances, whether the expert's opinions were supported by theories or techniques that:
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> (1) Have been or can be tested;
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> (2) Have been subjected to peer review and publication;
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> (3) Have a known or potential rate of error; and
>
> (4) Are generally accepted in the appropriate scientific literature.
>
> (b) In making its findings, the court may consider other factors specific to the proffered testimony.

"Section II of RSA 516:29-a unambiguously codifies the four *Daubert* factors we applied in *Baker Valley*, and section I(b) codifies *Daubert's* requirement that the court preliminarily assess 'whether the reasoning or methodology underlying the testimony is scientifically valid.'" *State v. Langill*, 157 N.H. 77, 85, 945 A.2d 1, 2008 N.H. LEXIS 39, *16 (2008) (quoting *Daubert*, 509 U.S. at 592-93; citation omitted). "The trial court functions only as a gatekeeper, ensuring a methodology's reliability before permitting the fact-finder to determine the weight and credibility to be afforded an expert's testimony." *Baker Valley*, 148 N.H. at 616 (citation omitted). The inquiry is a flexible one, and the focus "must be solely on the principles and methodology, not on the conclusions that they generate." *State v. Dahood*, 148 N.H. 723, 727, 814 A.2d 159 (2002) (quotation omitted). Moreover, the list of *Daubert* factors are "meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply even in every instance in which the reliability of scientific testimony is challenged." *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 151, 119 S. Ct. 1167, 143 L. Ed. 2d 238 (1999). Thus, one or more of these factors is relevant only "if appropriate to the circumstances." RSA 516:29-a, II(a).

"Importantly, the *Daubert* test does not stand for the proposition that scientific knowledge must be absolute or irrefutable." *Dahood*, 148 N.H. at 727. To be sure, "it would be unreasonable to conclude that the subject of scientific

> testimony must be known to a certainty; arguably, there are no certainties in science." *Id.* (quotation omitted). Rather, "the proposed scientific testimony must be supported by appropriate validation—i.e., good grounds, based on what is known." *Id.* (quotation omitted). "[A]s long as an expert's scientific testimony rests upon good grounds, ... it should be tested by the adversary process—competing expert testimony and active cross-examination—rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies." *Langill*, 157 N.H. at 88, 2008 N.H. LEXIS 39 at *24 (quotation omitted). Thus, "[i]f [the evidence] is of aid to a judge or jury, its deficiencies or weaknesses are a matter of defense, which affect the weight of the evidence but do not determine its admissibility." *Dahood*, 148 N.H. at 727 (citation omitted).
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> In *Langill*, we interpreted RSA 516:29-a, I(c) as requiring the trial court to also "examine whether a witness has in actuality reliably applied the methodology to the facts of the case." *Langill*, 157 N.H. at 87, 2008 N.H. LEXIS 39 at *22. However, for the testimony to be inadmissible, the flaws in application must so infect the procedure as to skew the methodology itself. *Id.* at 88. Otherwise, "the adversary process is available to highlight the errors and permit the fact-finder to assess the weight and credibility of the expert's conclusions." *Id.* (citation omitted).

Baxter v. Temple, 157 N.H. 280, 283-285 (2008).

In order to make these determinations, the trial court is not always required to conduct a pre-trial hearing.

> We emphasize that our adoption of *Daubert* does not require a trial court to conduct a pre-trial hearing in every case involving disputed expert testimony. The decision to hold such an evidentiary hearing rests within the trial court's sound discretion. In cases where the testimony's reliability is properly taken for granted, or where the information before the court is sufficient to reach a reliability determination, the trial court need not and should not conduct an evidentiary hearing. Pre-trial hearings, thus, should be limited to the less usual or more complex cases where cause for questioning the expert's reliability arises.

Baker Valley, 148 N.H. at 617 (citations and quotations omitted).

Prior to its January 6, 2012 order for a *Daubert* hearing, the court had reviewed Mr. Ostrowski's pretrial discovery deposition under oath and the cases cited by the State, particularly *Commonwealth v. Gomes,* 459 Mass. 194, 205-206 (2011), in support of its assertion that no hearing was required because the requirements for admission had been met. The court disagreed, determining in that order instead that notwithstanding *Gomes,* 459 Mass. at 205-206 (concluding that trial judge acted within discretion in allowing witness to give expert fracture match opinion testimony concerning tape ends), and notwithstanding Mr. Ostrowski's testimony that he has previously been qualified in a New Hampshire Superior Court criminal case to testify to tape end matching, the application of fracture matching techniques to tape ends is a "less usual or more complex" issue giving sufficient cause for questioning reliability, *Baker Valley*, 148 N.H. at 617, as to warrant a pre-trial hearing to assist the court in making the necessary determinations.

Had the record then included some of the additional information supplied at the hearing concerning the science of fracture matching and concerning Mr. Ostrowski's qualifications and experience, as it does now, the court would have concluded that this is not a less usual or more complex case where cause for questioning the expert's reliability arises and that because pre-trial *Daubert* hearings are to be limited to such cases, *Baker Valley*, 148 N.H. at 617, no hearing was necessary. Although the court lacked the information then to make such a determination, upon hearing it has such information now, and accordingly determines that the witness will not be precluded from testifying.

As noted above, the State provided the defense with three articles or studies asserted to support its position just prior to the hearing. The court need not and does not decide whether a party is required to provide the other party all scholarly works it asserts in support of its burden under RSA 516:29-a prior to the hearing because the court need not and does not rely on the three articles or studies at issue here in making its decision.

The court finds the conclusions of the Massachusetts Supreme Judicial Court in *Gomes,* 459 Mass. at 203-206, and the reasoning underlying those conclusions to be persuasive. *But cf. Jefferson v. State*, ___ S.E.2d ___, 2011 Ga. App. LEXIS 962, (Ga. Ct. App. Nov. 3, 2011) (Overturning the trial court's decision to admit fracture match expert testimony concerning tape ends, explaining that under *Harper v. State*, 249 Ga. 519, 292 S.E.2d 389 (1982), Georgia law requires such testimony to have "reached a verifiable state of scientific certainty" and that the state "had presented no expert witness who opined that the underlying scientific theory had reached a scientific stage of verifiable certainty.") Accordingly, so that this court's reasoning may be understood without need to locate a copy of the Massachusetts Supreme Judicial Court opinion in *Gomes*, the court sets out the relevant portions of *Gomes* here at length.

The *Gomes* defendant was charged with first degree murder. *Gomes,* 459 Mass. at 195. On appeal, he asserted among other things that "expert testimony to the effect that there was a 'fracture match' between the exposed end of a roll of electrical tape found in the defendant's home and one end of a piece of tape found on the murder weapon was both incompetent and not based on science that had been shown to be reliable." *Id.* In its investigation, the police had discovered a bag held by electrical tape to the ejection port of a firearm used in the crime, *id.* at 203, and had discovered a roll of electrical tape in searching the defendant's apartment, *id.* at 197. At trial, a criminalist with the Boston police department compared the end of the roll of tape with the ends of the piece of tape affixed to the firearm. *Id.* at 198. "She found a 'fracture match' from which she opined that the piece taken from the gun had been severed from the roll of tape seized from the defendant's bedroom dresser drawer." *Id.*

> The defendant argues that the judge erred by admitting the opinion testimony of a criminalist with the Boston police department that one end of a piece of black electrical tape that held the velvet bag to the ejection port of the gun matched the end of the roll of electrical tape seized from the defendant's apartment. He asserts that the Commonwealth had failed to establish both that the science of "tape-end" (fracture) matching was reliable and that the criminalist was a competent expert in this field. The defendant also argues that counsel's failure to challenge the criminalist's opinion on these grounds constituted ineffective assistance of counsel. HN4In our review under G. L. c. 278, § 33E, which is more favorable to a defendant than the constitutional standard for effective assistance of counsel, we look to see if there was error, whether by the judge,

the prosecutor, or defense counsel, and if there was, we then inquire if it created a substantial likelihood of a miscarriage of justice. *Commonwealth v. Wright*, 411 Mass. 678, 681-682, 584 N.E.2d 621 (1992).

Gomes, 459 Mass. at 203-04.

The defendant faults counsel for failing to request a hearing, pursuant to *Commonwealth v. Lanigan*, 419 Mass. 15, 25-26, 641 N.E.2d 1342 (1994), to test the reliability of the science of "fracture matching." He further argues that the Commonwealth failed to satisfy the *Lanigan* standard. The witness described "fracture match" as a "physical match" or "jigsaw match" that occurs when a substance or an item has been broken into one or more pieces, and the jagged ends are observed to fit together. The underlying premise of a "fracture match" is that an item that is broken or torn by human action will not be fractured in exactly the same way twice. This is because the application of human force is not precisely reproducible, and the characteristics of a break or a tear will be different every time. Thus, a break or a tear brought about by human force will be unique, and the resulting ends at the point of the break or tear will interlock in a unique "match." The criminalist further testified that this nonreproducibility and uniqueness theory has been subject to peer review and publication, that efforts had been made to determine error rates, and that the theory has been generally accepted in the scientific community. The defendant has not refuted that testimony.

Id. at 204.

We have said that "general acceptance in the relevant scientific community will continue to be the significant, and often the only, issue." *Commonwealth v. Lanigan, supra* at 26. In his decision denying the defendant's motion for a new trial, the motion judge, who also was the trial judge, indicated that, notwithstanding the absence of a *Lanigan* motion challenging the reliability of fracture matching science, he performed the *Lanigan* gatekeeper analysis at the hearing on the Commonwealth's motion in limine seeking admission of the fracture match testimony. The judge implicitly accepted the foundational testimony of the criminalist as to the general acceptance of fracture match theory within the scientific community. Moreover, he indicated that he relied on the witness's education, training, and experience, and looked to his own common sense in evaluating the reliability of fracture match theory, which depends not on esoteric scientific principles but rather on common experience that is within the grasp of the ordinary jury. This analysis was appropriate in the circumstances. *See Commonwealth v. Goodman*, 54 Mass. App. Ct. 385, 391, 765 N.E.2d 792 (2002). We accept the trial judge's observation, and conclude that he acted within his discretion in allowing the fracture match evidence. *See Canavan's Case*, 432 Mass. 304, 312, 733 N.E.2d 1042 (2000) (standard of review is abuse of discretion).

Id. at 204-05.

Indeed, "fracture-match" testimony has been accepted in at least five States, and the defendant has directed our attention to no case where the theory has been rejected. *See Davis v. State*, 2 So. 3d 952, 956 (Fla. 2008), *cert. denied*, 129 S.

> Ct. 2872, 174 L. Ed. 2d 585 (2009) (broken knife blade); *Grim v. State*, 841 So. 2d 455, 458-459 (Fla.), *cert. denied*, 540 U.S. 892, 124 S. Ct. 230, 157 L. Ed. 2d 166 (2003) (masking tape); *State v. Dressner*, 45 So. 3d 127, 134 (La. 2010), *cert. denied*, 131 S. Ct. 1605, 179 L. Ed. 2d 500 (2011) (broken knife blade); *State v. Smith*, 988 So. 2d 861, 867 (La. Ct. App. 2008) (wood); *Commonwealth v. McCullum*, 529 Pa. 117, 121, 602 A.2d 313 (1992) (broken jewel stone in bracelet); *State v. Zuniga*, 320 N.C. 233, 251-252, 357 S.E.2d 898, *cert. denied*, 484 U.S. 959, 108 S. Ct. 359, 98 L. Ed. 2d 384 (1987) (pieces of torn newspaper); *State v. Jackson*, 111 Wash. App. 660, 667, 46 P.3d 257 (2002), aff'd, 150 Wn.2d 251, 76 P.3d 217 (2003) (duct tape).

Id. at 205.

> There is no merit to the defendant's contention that the criminalist was not qualified to give a "fracture-match" opinion. He bases his argument largely on the alleged absence of any evidence that the witness had ever examined any evidence for a fracture match, that there was no evidence she had ever been qualified previously as a fracture match expert, and that fracture matching is not a subset of chemistry. The witness has a master's degree in forensic chemistry. She has had a wide range of fracture match experience involving a wide variety of materials in the course of her graduate studies in forensic chemistry. She had specific practice in performing fracture matches in workshops at graduate school. At least one court has held that fracture match testimony is an appropriate subject for opinion testimony by a forensic chemist. *State v. Zuniga*, supra at 252-253. "There is no requirement that testimony on a question of discrete knowledge come from an expert qualified in that subspecialty rather than from an expert more generally qualified." *Commonwealth v. Mahoney*, 406 Mass. 843, 852, 550 N.E.2d 1380 (1990). *See* M.S. Brodin & M. Avery, MASSACHUSETTS EVIDENCE § 7.5.2, at 424-425 (8th ed. 2007 & Supp. 2011), and cases cited. To the point that the witness had never before been qualified as a fracture match expert, we have previously observed that "even for the most highly qualified expert there must always be a first time." *Commonwealth v. Rhoades*, 379 Mass. 810, 818, 401 N.E.2d 342 (1980).

Id. at 205-06.

> "The crucial issue is whether the witness has sufficient 'education, training, experience and familiarity' with the subject matter of the testimony." *Letch v. Daniels*, 401 Mass. 65, 68, 514 N.E.2d 675 (1987), *Gill v. North Shore Radiological Assocs.*, 10 Mass. App. Ct. 885, 886, 409 N.E.2d 248 (1980) (testimony of orthodontist permissible in dental malpractice action against defendant pedodontist). We conclude that the judge acted within his discretion in allowing the witness to give fracture match opinion testimony. *See Letch v. Daniels, supra.*

Id. at 206.

Here, the State asserts that Mr. Ostrowski will testify that a portion of duct tape associated with the scene of the alleged crime came from a specific roll of duct tape, which it asserts was found at the defendant's residence. Prior to the hearing, the court had Mr. Ostrowski's testimony at deposition concerning the principles and methods underlying his

work, and brief reference in the deposition to articles and textbooks concerning the underlying science. That information, even in combination with Mr. Ostrowski's deposition explanations concerning principles and methods and their reliability, the court deemed insufficient to make the necessary determinations as to whether the offered testimony is the product of reliable principles and methods under RSA 516:29-a. Upon hearing, the court now has, among other things, the lab protocols used by the witness in conducting such examinations (Exhibit 1), the Bradley article referred to by Mr. Ostrowski during his deposition (Exhibit 3), and extracts from portions of the Vanderkolk textbook to which Mr. Ostrowski testified at deposition (Exhibit 7, page 12). Prior to hearing, the court had much more information from Mr. Ostrowski's deposition concerning whether his testimony was based upon sufficient facts or data and whether he had applied the principles and methods reliably to the facts of the case. Now, upon hearing, in addition to his testimony on these topics at deposition, the court now has Mr. Ostrowski's testimony to the effect that he has been permitted to testify as an expert in fracture matching in four homicide cases in New Hampshire, including the Sullivan County case he referenced in his deposition in which he testified to tape end matching, and to the effect that he has worked on 40 fracture matching cases, including 7 involving tape end matching, and that his personal error rate by blind second examination in real cases and in training exercises is zero, and his testimony to the effect that he co-teaches a course entitled "Pattern Evidence Analysis"[1] as an adjunct instructor at Boston University School of Medicine's Biomedical Forensic Science Graduate Program which instructs on "fracture matching," including tape end matching, and has his detailed testimony concerning the ways in which the lab protocols for fracture matching, which the court now has (Exhibit 1), including application of the ACE-V (Analysis, Comparison, Evaluation, Verification) methodology, were followed in this case.

Adopting the reasoning of the *Gomes* court, 459 Mass. at 203-06, and considering in addition to the deposition testimony previously before the court the portions of the testimony and exhibits presented at the hearing referred to above, the court concludes that the offered scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, that the offered testimony is based upon sufficient facts or data, is the product of reliable principles and methods, and based upon a reliable application of the principles and methods to the facts of the case, and that Mr. Ostrowski is qualified as an expert in this area by knowledge, skill, experience, training, or education. Accordingly the motion to preclude his testimony is denied.

So ordered.

January 19, 2012

Steven M. Houran
Presiding Justice

[1] Mr. Ostrowski testified that he uses the Vanderkolk textbook in this course.