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THE ADMISSIBILITY OF DNA EVIDENCE IN MASSACHUSETTS AFTER *COMMONWEALTH v.* *LANIGAN*

I. INTRODUCTION

In *Commonwealth v. Lanigan*,¹ (*Lanigan I*), the Massachusetts Supreme Judicial Court upheld a pretrial ruling of the Superior Court that prohibited the admission of DNA test results to implicate the defendant in the rape of a child.² The court held that DNA test results were inadmissible because the statistical analysis used in determining the frequency with which the defendant's DNA profile would occur in the general population was not generally accepted by the experts in the field of population genetics.³

On remand, the Commonwealth submitted a different methodology for determining the frequency of a match between DNA from the defendant and DNA recovered from the crime scene.⁴ A Superior Court judge allowed the DNA evidence to be admitted at trial, and the defendant was found guilty of rape.⁵ The defendant appealed and on review in *Commonwealth v. Lanigan*,⁶ (*Lanigan II*), the Supreme Judicial Court held that the prosecution's new process of statistical analysis provided an adequate basis upon which DNA test results may be used as evidence.⁷

This note will present the history of admissibility of scientific evidence in Massachusetts courts and analyze the evolution of the court's rationale to allow DNA evidence to be admitted into evidence.

II. HISTORY

In 1923, the United States Court of Appeals for the District of Columbia in *Frye v. U.S.*⁸ established guidelines to assist lower courts in determining which scientific principles should be admissible at trial.⁹ The *Frye* test requires that, before scientific evidence is admitted at trial, the

¹ 596 N.E.2d 311 (Mass. 1992).

² *Id.* at 318.

³ *Id.* at 316.

⁴ *Commonwealth v. Lanigan*, 641 N.E.2d 1342, 1344 (Mass. 1994).

⁵ *Id.* at 1343.

⁶ 641 N.E.2d 1342 (Mass. 1994).

⁷ *Id.* at 1350.

⁸ 293 F. 1013 (1923).

⁹ *Id.* at 1014. The test was a systolic blood pressure deception test.

principle being employed by the expert must be generally accepted within the scientific community.¹⁰ Although the court failed to offer any rationale for adopting this standard, the logic behind the decision is clear.¹¹ The general acceptance standard guarantees that there are experts capable of determining the validity of novel scientific claims, thereby relieving the burden on trial judges to make a decision that they are not generally qualified to make.¹² The general standard also ensured a uniformity of decisions throughout the country, as well as a decrease in evidentiary hearings to determine the validity of scientific claims.¹³

Up until the 1960's, Massachusetts courts did not subscribe to the general acceptance test outlined in *Frye*, but instead focused on the reliability of the scientific evidence as a measure of admissibility.¹⁴ In 1963 the Massachusetts Supreme Judicial Court (SJC) began to move away from a strict reliability examination of scientific evidence to the *Frye* standard of general acceptance within the scientific community.¹⁵ In *Fatalo*, the SJC

¹⁰ *Id.* The Court stated:

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 the 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.

Id.

¹¹ *Id.* While the Court makes reference to the fact that "[n]umerous cases are cited in support of this rule," no cases were cited. *Id.*

¹² *Daubert v. Merrell Dow Pharmaceuticals*, 113 S. Ct. 2786, 2799 (1993) (Rehnquist, J., concurring).

¹³ E.g., Paul C. Gianelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States A Half of Century Later*, 80 COLUM. L. REV. 1197, 1207 (1980).

¹⁴ See *Commonwealth v. Stappen*, 143 N.E.2d 221, 223 (Mass. 1957) (holding that blood tests were admissible to show paternity). The court concluded that there was "substantial authority to support the scientific reliability of blood grouping tests to prove biologically the impossibility of paternity." *Id.* See also *Commonwealth v. D'Avella*, 162 N.E.2d 19, 22 (Mass. 1959) (holding that blood test were so reliable that judicial notice was proper). The Court noted that: "[e]vidence which is regarded and acted upon every day as conclusive by skilled scientists outside of the court ought not to be treated merely as some evidence (to be believed or disbelieved as the trier of fact sees fit) when it is adduced in court." *Id.* at 21.

¹⁵ See *Commonwealth v. Fatalo*, 191 N.E.2d 479, 481 (Mass. 1963) (holding poly-graph tests inadmissible). For an overview of the justifications for using the *Frye* general acceptance standard, see William C. Thompson & Simon Ford, *DNA Typing: Acceptance and Weight of the New Genetic Identification Tests*, 75 VA. L. REV. 45, 54-55 (1989).

ruled that the results of a polygraph test were inadmissible because such tests did not have general recognition within the scientific community¹⁶. In the years following *Fatalo*, the SJC, in a series of cases concerning the admissibility of polygraph evidence, struggled with the application of the *Frye* rule.¹⁷ The inability of the court to outline a policy regarding the admissibility of scientific evidence was exacerbated when the SJC strayed from the *Frye* doctrine in *Commonwealth v. Vitello*.¹⁸ The court in *Vitello* once again found that the results of a polygraph test were inadmissible; however, the court then proceeded to independently evaluate the reliability of the polygraph test and created a new rule that would allow a defendant to request the court's permission to take a polygraph test.¹⁹ This exception to the *Frye* rule was soon overruled and the court embraced the *Frye* general acceptance test for admissibility of scientific evidence in Massachusetts.²⁰ Even though the *Frye* test has been accepted as the foundation for scientific evidentiary issues, the test is not applicable in all situations where a party seeks to in-

¹⁶ See 191 N.E.2d at 481 (holding that the scientific reliability of polygraph tests has not been sufficiently established). The Court went on to further qualify the level of recognition needed within the scientific community stating: "[w]e do not hold that such recognition must be universal or that the test must be proven infallible, but rather that the substantial doubts which presently revolve about the polygraph test must be removed." *Id.*

¹⁷ See *Commonwealth v. A. Juvenile*, 313 N.E.2d 120, 125 (Mass. 1974) (holding that polygraph test was generally not admissible). The Court, however, ruled that the results of a polygraph test may be admitted if:

the trial judge, after a close and searching inquiry into the qualifications of the examiner, the fitness of the defendant for such examination, and the methods used in conducting the tests, may, in the proper exercise of his discretion, admit the results, not as binding or conclusive evidence, but to be considered with all other evidence as to innocence or guilt.

Id. at 124. See also *Commonwealth v. Moynihan*, 381 N.E.2d 575, 581 (Mass. 1978) (polygraph evidence not admissible as independent evidence of innocence). The Court also ruled that polygraph test results could be used to corroborate the defendant's testimony. *Id.*

¹⁸ 381 N.E.2d 582 (Mass. 1978).

¹⁹ *Id.* at 585 n.2. The Court held that any evidence gained from a polygraph test may be used to impeach or corroborate the defendant's testimony. *Id.* at 597-599. The defendant was also allowed to request a voir dire to determine the polygraph examiner's qualifications, the procedures under which the exam would be given, and even the propriety of the test questions. *Id.* at 599.

²⁰ See *Commonwealth v. Mendes*, 547 N.E.2d 35, 36 (Mass. 1989) (polygraph tests are inadmissible as independent proof of defendant's innocence or guilt). The reasoning for the reversal is still unclear. Even the Court seemed perplexed by its own decision stating: "whatever justification there may have been for our single departure from the *Frye* rule . . . that justification no longer exists." *Id.* at 41. The Court found that the *Frye* rule was now "embedded in our law." *Id.* at 37.

introduce scientific evidence via expert testimony.²¹ When experts are offering testimony based upon their personal experience and expertise, the *Frye* test does not apply.²²

The *Frye* test in Massachusetts has been used not only in relation to polygraphs, but to other scientific evidence as well.²³ Until recently, one particular body of evidence, DNA fingerprinting, had not been subjected to such scrutiny, mainly because the testing process was so new.²⁴ In *Commonwealth v. Curnin*,²⁵ the SJC was asked to consider whether DNA test results comparing the DNA of the defendant with DNA found at the crime scene were admissible.²⁶ The court rejected the admissibility of DNA evidence on the basis that, although the underlying theory and lab processes used in the DNA testing had general acceptance within the scientific community as required by the *Frye* test, the implementation of those scientific concepts was not generally accepted.²⁷ Although the DNA test analysis was deemed inadmissible, the court left open the possibility that the statistical analysis evidence may be admissible in the future under certain conditions.²⁸

²¹ See *Commonwealth v. Devlin*, 310 N.E.2d 353, 357 (Mass. 1974) (recognizing that reading and comparison of x-rays as generally recognized medical practice). In *Devlin*, the defendant was accused of manslaughter however, because the body had no head or hands, identification was impossible. *Id.* at 354-355. An expert radiologist was brought in by the police to compare spine x-rays from the body and those of John J. Rooney, Jr. who was believed to be the victim. *Id.* at 355.

²² *Id.* at 357. The Court rejected the argument that the theory used to identify the body must be generally accepted by the scientific community. *Id.*

²³ See *Commonwealth v. Lykus*, 327 N.E.2d 671, 672 (Mass. 1975) (admitting voice spectrograms as evidence defendant kidnapped child). The Court found that even though the process of voice spectrogram analysis was similar to polygraph analysis, the spectrograms were more reliable because the examiner was not extrapolating from data taken from a machine. *Id.* at 674-675. Although the voiceprints were deemed reliable, the Court qualified its support of the technology by adding that this type of analysis should be "subject to the closest of judicial scrutiny." *Id.* at 679.

²⁴ See Barry Scheck, *DNA and Daubert*, 15 CARDOZO L. REV. 1959,1963 n.17 (1994) (discussing forensic DNA typing techniques).

²⁵ 565 N.E.2d 440 (Mass. 1991).

²⁶ *Id.* at 441.

²⁷ 565 N.E.2d at 441-442. At trial, the prosecution presented evidence that the test results showed that "only one Caucasian in 59,000,000 has the same distinctive DNA components that were found in the DNA comparison test." *Id.* at 442. The defense produced an expert who testified that the lab's conclusions were based on faulty data base and there were also questions as to whether the probability determinations were affected by structuring within racial groups. *Id.* at 444.

²⁸ 565 N.E.2d at 445. Specifically, the Court stated that the evidence would satisfy the *Frye* test if "the relevant scientific community can generally agree on a means of arriv-

The evidentiary issue of admissibility of results obtained from DNA testing was revisited in *Commonwealth v. Phoenix*.²⁹ In *Phoenix*, the prosecution admitted into evidence the test results of allotype genetic testing of bloody fingerprints found on a brown paper bag near the victim.³⁰ At trial, the defense agreed that genetic allotype testing was generally accepted by the scientific community.³¹ On appeal, the appellant argued that under *Mendes*, even though a scientific test is generally admissible, the results of this particular test were unreliable and thus inadmissible.³²

The SJC noted that the prosecution's expert witness testified extensively on the general acceptance of the testing procedure and the defense did not provide any opposing expert testimony.³³ Because the defense attacked the testing procedure and the skill and knowledge of the Commonwealth's expert witness, the court ruled that any defense challenge would go only to the weight of the evidence, not to its admissibility.³⁴ The *Phoenix* court did not address the issue of whether conditions had sufficiently changed to allow the admission of statistical analysis evidence.³⁵ In 1992, the SJC took steps to answer that question.

III. THE DECISION

In *Commonwealth v. Lanigan*³⁶ (*Lanigan I*), the defendant, Thomas J. Lanigan, was indicted for the crimes of rape and indecent assault on three minors.³⁷ The Commonwealth submitted a sample of the defendant's blood as well as a semen sample removed from the clothing of the alleged rape victim to the Federal Bureau of Investigation (FBI) for DNA testing.³⁸ The FBI extracted DNA from both samples and by using Restriction Fragment

ing at a conservative estimate of the probability of another person having the same alleles and thus resolve all uncertainties and variables in favor of the defense." *Id.*

²⁹ 567 N.E.2d 193 (Mass. 1991).

³⁰ *Id.* at 195.

³¹ *Id.* at 200.

³² *Id.*

³³ *Id.*

³⁴ 567 N.E.2d at 201. The Court ruled that the expert testimony was admissible because "... it did not pertain to the probability that the donor of the blood on the bag was of a certain race, but rather to the qualities of the known blood of the defendant and of the victim." *Id.* at 200 n.6.

³⁵ *Id.* at 200 n.6.

³⁶ 596 N.E.2d 311 (Mass. 1992).

³⁷ *Id.* at 312.

³⁸ *Id.*

Length Polymorphism (RFLP) analysis, determined that the defendant's DNA matched the DNA recovered from the semen sample.³⁹ The defendant filed a motion in limine to prevent the Commonwealth from introducing any of the DNA test results.⁴⁰ The defense argued that DNA test results were not generally accepted within the scientific community and therefore the *Frye* standard of admissibility was not met.⁴¹ At a *Frye* hearing, the motion judge heard testimony from four expert witnesses who testified that the theory or process used to test the DNA samples was generally accepted within the scientific community.⁴² The judge agreed with the Commonwealth that DNA testing is generally accepted in the scientific community and therefore admissible.⁴³ The judge also ruled, however, that there is still disagreement within the scientific community as to the statistical probability estimates used by the FBI to determine whether there was a match between the defendant's DNA and the DNA from the semen sample.⁴⁴ Without the statistical analysis, the DNA test was inadmissible.⁴⁵ The Commonwealth was allowed leave to appeal to the full court.⁴⁶

On appeal, the Commonwealth argued that it need not show unanimity within the scientific community in order to meet the *Frye* criteria of

³⁹ *Id.* The FBI laboratory estimated that the probability of a match between the DNA extracted from the child's clothing and DNA selected from an individual at random from the general Caucasian population ranged from 4 million to one to 2.4 million to one depending upon the data base used. *Id.* For a comprehensive description of RFLP testing, see generally NATIONAL RESEARCH COUNCIL, DNA TECHNOLOGY IN FORENSIC SCIENCE 1-50 (1993) [hereinafter NRC REPORT].

⁴⁰ 596 N.E.2d at 313-314.

⁴¹ *Id.* at 314.

⁴² *Id.* The four expert witnesses were (1) Dr. Harold Deadman, a chemist for the FBI's DNA Analysis Unit; (2) Dr. David Housman, a molecular biology professor at Massachusetts Institute of Technology (MIT), (3) Dr. Robin Cotton, deputy director of Cellmark's laboratory (DNA testing lab), and (4) Dr. Neil Risch, a population geneticist at Yale University. *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ 596 N.E.2d at 314. The *Lanigan I* Court stated that: "we would not permit the admission of test results showing a DNA match (a positive result) without telling the jury anything about the likelihood of that match occurring." *Id.* (quoting *Curnin*, 565 N.E.2d at 442-443 n.7).

⁴⁶ 596 N.E.2d at 312. The Commonwealth had originally sought leave from a single justice from the SJC. *Id.* The single justice held that the Superior Court's ruling to not allow the DNA evidence was equivalent to a motion to suppress and therefore, the Commonwealth was allowed to appeal to the full Court. *Id.*

general acceptance.⁴⁷ The SJC agreed with the Commonwealth's argument in part, but still held that processes by which the laboratories estimated the frequency of the defendant's DNA profile had not gained general acceptance in the field of population genetics.⁴⁸ The court found that there was a "lively, and still very current, dispute" which suggested there was "something much more than a lack of unanimity."⁴⁹ The case was remanded to the Massachusetts Superior Court.⁵⁰

At the end of the opinion, the court noted that a report by the National Research Council (NRC) provided several recommendations for DNA testing.⁵¹ The report recommended the use of a "ceiling frequency" that would provide the most conservative estimate of the frequency of a DNA profile.⁵² The court suggested that such a principle would find general agreement within the scientific community because the frequency estimates would err on behalf of the defendant.⁵³

On remand in *Commonwealth v. Lanigan*⁵⁴ (*Lanigan II*), the Commonwealth used the ceiling principle for estimating the frequency with which the defendant's DNA profile would occur in the general population.⁵⁵ The presiding Massachusetts Superior Court judge ruled that the DNA evidence was admissible and at a bench trial, the defendant was found guilty of rape.⁵⁶ The SJC granted the defendant's request for direct appellate review.⁵⁷

In *Lanigan II*, the SJC once again returned to the question of the admissibility of evidence relating to DNA testing.⁵⁸ The defendant argued that expert opinion evidence regarding the probability of a random match of the defendant's DNA was inadmissible because the process by which the

⁴⁷ 596 N.E.2d at 316; see also *Commonwealth v. Lykus*, 327 N.E.2d 671, 675 (Mass. 1975) (stating that "neither infallibility nor unanimous acceptance of the principle need be proved to justify its admission in evidence").

⁴⁸ 596 N.E.2d at 316.

⁴⁹ *Id.* at 316.

⁵⁰ *Id.* at 318.

⁵¹ *Id.* at 316; see NRC REPORT, *supra* note 41 at 3-6.

⁵² See NRC REPORT *supra* note 41 at 10-14.

⁵³ 596 N.E.2d at 316.

⁵⁴ 641 N.E.2d 1342 (Mass. 1994).

⁵⁵ *Id.* at 1344.

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.* at 1346.

frequency was determined was not generally accepted within the scientific community.⁵⁹ The Commonwealth argued that the use of the ceiling principle to determine the statistical probability of a random DNA match resolved any dispute that members of the scientific community had over the validity of such determinations.⁶⁰

The SJC ruled that evidence of the probability of a DNA match in a random population was properly admitted.⁶¹ In reaching its decision, the court found that the Commonwealth had successfully advanced the theory of the ceiling principle in support of determining DNA frequency calculations.⁶² The court noted that several other jurisdictions had also embraced the ceiling principle as a sufficiently accepted method of determining statistical probabilities.⁶³

The court then resolved to set forth a clear standard for determining the admissibility of scientific opinion evidence.⁶⁴ The court recognized that prior to *Mendes*, the test for the admissibility of scientific opinion evidence had been the *Frye* test.⁶⁵ After ruling that DNA evidence was inadmissible in *Curnin* and *Lanigan I*, the court realized that by strictly following the general acceptance tenant of the *Frye* test, reliable evidence that would normally be admissible could be withheld from the trier of fact.⁶⁶

The SJC concluded that the ultimate test for determining the admissibility of scientifically-based expert testimony should be the reliability of the theory or process underlying such testimony.⁶⁷ By shifting the focus of the test, the court adopted the reasoning of the United States Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*⁶⁸ In the *Daubert* decision, the United States Supreme Court held that the general

⁵⁹ 641 N.E.2d at 1346.

⁶⁰ *Id.* The ceiling principle represents "the greatest observed frequency of particular alleles within a given number of randomly selected population groups" which would "automatically provide for the greatest, and therefore the most conservative, estimate of the frequency of a DNA profile." *Id.* at 1347 n.4 (quoting *Lanigan I*, 596 N.E.2d at 316).

⁶¹ 641 N.E.2d at 1350.

⁶² *Id.* at 1347.

⁶³ *Id.* (citing *State v. Bloom*, 516 N.W.2d 159, 167 (Minn. 1994); *State v. Anderson*, 881 P.2d 29, 47 (N.M. 1994); *State v. Cauthron*, 846 P.2d 502, 517 (Wash. 1993)).

⁶⁴ 641 N.E.2d at 1348.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ 113 S. Ct. 2786 (1993).

acceptance test was a relevant factor in determining the admissibility of scientifically-based expert testimony, but such acceptance should not be the sole criterion.⁶⁹ The SJC applied the reasoning of the *Daubert* opinion to the *Lanigan II* case, holding that the ceiling principle, although criticized by some population geneticists, does not produce a probability prediction that would err to the defendant's disadvantage.⁷⁰ Because the Commonwealth had demonstrated the reliability of the process underlying the scientifically-based expert testimony, the court held that the evidence of the probability of a DNA match in a randomly selected population was properly admitted.⁷¹

IV. ANALYSIS

The SJC decision to reject the general acceptance test of the *Frye* case and embrace the relevancy test of *Daubert* has important consequences for the future admissibility of DNA evidence. The *Daubert* Court outlined pertinent considerations to assist a court in determining if certain methodology or reasoning is scientifically valid.⁷² The United States Supreme Court concluded that lower courts should consider whether the methodology could be readily falsified, subject to peer review, generally accepted within a relevant scientific community, or had a known or potential rate of error.⁷³

In the *Lanigan* case, DNA testing was performed by the FBI forensic laboratory using the Restriction Fragment Length Polymorphism (RFLP) technique to determine whether the defendant was the source of the semen.⁷⁴ The question presented to the court in *Lanigan II* was very narrow. The SJC considered whether the statistical analysis used to determine the DNA match was consistent with either the *Frye* general acceptance standard or the reliability standard of *Daubert*.⁷⁵ The SJC determined that the analysis was reliable under the *Daubert* standard and declined to examine other considerations.⁷⁶ The remaining question is whether RFLP testing, or any other

⁶⁹ *Id.* at 2797. The Court stated that: "a reliability assessment does not require, although it does permit, explicit identification of a relevant scientific community and an express determination of a particular degree of acceptance within that community." *Id.* (quoting *United States v. Dowling*, 753 F.2d 1224, 1238 (3rd Cir. 1985)).

⁷⁰ 641 N.E.2d at 1349.

⁷¹ *Id.* at 1350.

⁷² 113 S. Ct. 2786, 2796-97 (1993).

⁷³ *Id.*

⁷⁴ 596 N.E.2d at 312.

⁷⁵ 641 N.E.2d at 1348-49.

⁷⁶ *Id.* at 1349.

form of DNA testing, fully satisfies the other considerations outline by the Supreme Court in *Daubert*.

There are currently two major techniques of DNA testing being used by forensic laboratories in the United States; the RFLP technique, and the Polymerase Chain Reaction (PCR) technique.⁷⁷ Along with DNA testing, there are other methods of genetic testing that are used as methods of forensic identification.⁷⁸ Since these testing procedures have limited usefulness and have been admissible in court for many years, they will not be considered further.

RFLP testing has come under increased scrutiny as defense lawyers try to punch holes in the technology. In particular, commentators have seized upon the notions of contamination of forensic samples and a lack of industry wide laboratory standards to argue that RFLP testing is not scientifically valid and should not be admissible in court.⁷⁹ The substance of these arguments is whether the considerations mapped out by the Supreme Court in *Daubert* go to the admissibility of DNA testing or should go towards the weight of the evidence.⁸⁰

The possibility of contaminated DNA samples leading to false positives and lack of a universal laboratory standard for testing should go to the weight of the evidence and not whether RFLP testing should be admissible. RFLP testing has a proven track record in the academic field,⁸¹ has been

⁷⁷ See William C. Thompson & Simon Ford, *DNA Typing: Acceptance and Weight of the New Genetic Identification Tests*, 75 VA. L. REV. 45 (1989) (describing three major tests that are currently available for DNA typing); Dan Burk, *DNA Fingerprinting: Possibilities and Pitfalls of a New Technique*, 28 JURIMETRICS J. 455 (1988) (overview of DNA typing).

⁷⁸ See Thompson & Ford, *supra* note 79, at 51 (identifying traditional genetic identification techniques). Such techniques as ABO typing, human leukocyte antigen (HLA) typing, red blood cell enzymes, and serum proteins are still used today by forensic scientists but have severe drawbacks because they are useful only under restricted circumstances and their identification value is limited. *Id.*

⁷⁹ See generally Barry Scheck, *DNA and Daubert*, 15 CARDOZO L. REV. 1959, 1997 (1994) (laboratory error rate is the most important reliability factor to be considered); see also Jonathan J. Koehler, *Error and Exaggeration in the Presentation of DNA Evidence at Trial*, 34 JURIMETRICS J. 21 (1993) (false positive error rate effects reliability of statistical interpretation of DNA match).

⁸⁰ See Scheck, *supra* note 82, at 1981 (estimates of laboratory error are not a question of weight but admissibility). But see *People v. Wesley*, 140 Misc. 2d 306, 533 N.Y.S.2d 643 (Albany County Ct. 1988) (holding laboratory procedures, methodology, and quality control go to weight of the evidence, not admissibility).

⁸¹ See Thompson & Ford, *supra* note 79, at 60 (theory of DNA typing is so well accepted that it is unlikely to be challenged).

extensively peer reviewed and accepted within the scientific community,⁸² and is not easily falsified.⁸³ To disallow RFLP testing on the basis of the possibility of error in testing would be synonymous to throwing out the baby with the bath water. Any associated problems with contamination, human error, or any other laboratory irregularities should be brought out under cross examination to destroy the credibility of the expert testimony or to raise reasonable doubt as to the reliability of the RFLP test results. To claim that RFLP testing should be inadmissible unless all possible rates of error are known is far too strict a policy. Such a policy goes against the liberal theory of admitting DNA evidence outlined in the *Daubert* decision and explicitly accepted by the SJC in *Lanigan II*.⁸⁴

By accepting the *Daubert* test, the SJC in the *Lanigan II* case came full circle from earlier rulings by returning to a relevance based standard for admissibility of DNA evidence.⁸⁵ The court in *Lanigan II* put forth the principle that the preliminary assessment of DNA testing is the reliability of the process or theory.⁸⁶ This standard represents a more liberal and open approach to allowing different types of scientific evidence, particularly DNA testing, to be heard by the trier of fact.⁸⁷ The *Lanigan II* holding moved the court away from the strict general acceptance standard of *Frye* towards the more inclusive standard of reliability outlined in *Daubert*.⁸⁸ The SJC, however, also accepted the idea that general acceptance of the underlying process or theory in the scientific community will continue to be an important way to demonstrate reliability and validity.⁸⁹ That is not to say that reliability cannot be established without general acceptance, but the SJC is not comfortable in the notion of letting every form of scientific test or

⁸² See Thompson & Ford, *supra* note 79, at 64-76 (outlining scientific acceptance of the procedures of RFLP analysis).

⁸³ See Thompson & Ford, *supra* note 79, at 75 n.139 (results of tests are permanent record that can be interpreted by others).

⁸⁴ See *supra* notes 71-73 and accompanying text (discussing standards of admissibility of DNA test results).

⁸⁵ See *supra* note 71 and accompanying text (discussing court's reasoning).

⁸⁶ 641 N.E.2d at 1348.

⁸⁷ See generally 113 S. Ct. at 2794 (holding general acceptance standard austere and incompatible with federal rules of Evidence).

⁸⁸ See *supra* note 68 and accompanying text (discussing restrictive nature of general acceptance test).

⁸⁹ 641 N.E.2d at 1348 (discussing general usefulness of general acceptance test).

theory (so called "free-for-all") into evidence.⁹⁰ The *Daubert* decision calls for the judge in a preliminary hearing to be a form of "gatekeeper," who will be responsible for assessing whether the opinion being offered is "scientific" under Fed. R. Evid. 702 and whether the process or theory is relevant.⁹¹

In following *Daubert*, the SJC made a sound decision to follow the federal courts. The court, however, must not be swayed to limit the flexible framework put forth by the United States Supreme Court. The balance between the relevancy and general acceptance tests will cause an increase in the amount of DNA testing allowed into evidence but it will also prevent a flood of false and misleading information from being brought into court as well. There are, of course, some problems with the court's decision to follow this standard. With an increase in the amount and sophistication of new technology entering the halls of justice, judges will be required to make difficult choices with little or no scientific background. Also, an increased flexibility of criteria for determining admissibility of DNA testing methods could lead to inconsistent results between the courts. There are still many unanswered questions the SJC must respond to before this system can work efficiently and effectively. Precise guidelines are needed to define who is eligible to be an expert—whether opinion testimony goes to the weight of the evidence or towards its admissibility—and—if general acceptance in the community is indeed important—who defines the community and how large a community is sufficient to determine reliability.

V. CONCLUSION

DNA testing is a very powerful tool that has the ability to send a man to jail or clear his name. There are still many problems associated with DNA technology in the courtroom and these problems should not be overlooked. It is important, however, to remember that DNA evidence is only one piece of the puzzle needed in a trial. The jury should be allowed to hear all the evidence and the defense should be allowed to refute that evidence. By incorporating the *Daubert* test to determine the admissibility of scientifically-based opinion testimony, the Massachusetts Supreme Judicial Court

⁹⁰ See 641 N.E.2d at 1349 (recognizing that reliability may be demonstrated by other means than general acceptance).

⁹¹ See 113 S. Ct. at 2795 (recognizing role of trial judge as gatekeeper under Rule 702 of the Federal Rules of Evidence); *id.* at n.7 (discussing obligations of trial judge under Rule 702).

has taken a large step towards bringing the criminal justice system into the 21st century in a fair and conscientious way.

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