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# POLYGRAPH ADMISSIBILITY IN MASSACHUSETTS UNDER THE NEW STANDARD

“It takes two to speak the truth, -- one to speak, and another to hear.”<sup>1</sup>

## I. INTRODUCTION

A recent change in the standard of admissibility for scientific expert testimony provided the Massachusetts Supreme Judicial Court with an opportunity to set predictable guidelines for polygraph admissibility.<sup>2</sup> In the past, the court set polygraph admission apart from all other types of scientific evidence with a changing and unpredictable standard. The previous standard for admitting expert testimony based on a scientific theory or process required a finding that the relevant community of scientists generally accepted the theory or process.<sup>3</sup> While the court originally rejected polygraph evidence for failing to meet that standard,<sup>4</sup> it later ruled polygraph evidence admissible by creating an exception.<sup>5</sup>

Eventually, however, the court eliminated this exception for polygraph evidence, returning to the present *per se* rule against admissibility.<sup>6</sup> The court eliminated this exception by noting the polygraph's continued failure to attain general acceptance, its unreliability, irrelevance, and overly prejudicial effects upon juries.<sup>7</sup> While the new standard of admissibility allows for the admission of a scientific method or theory not yet generally accepted, it requires that the proponent establish its reliability and relevance.<sup>8</sup> Furthermore, even with

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<sup>1</sup> Henry David Thoreau, Wednesday.

<sup>2</sup> See *Commonwealth v. Lanigan*, 419 Mass. 15, 26, 641 N.E.2d 1342, 1349 (1994) (adopting a new standard to determine admissibility of scientific evidence).

<sup>3</sup> *Commonwealth v. Fatalo*, 346 Mass. 266, 269, 191 N.E.2d 479, 481 (1963) (finding general acceptance of a scientific theory a prerequisite to judicial acceptance).

<sup>4</sup> *Id.* at 270, 641 N.E.2d at 481 (holding polygraphy lacks general acceptance).

<sup>5</sup> See *Commonwealth v. A Juvenile*, 365 Mass. 421, 429, 313 N.E.2d 120, 126 (1974) (holding polygraph results admissible in limited circumstances despite no general acceptance).

<sup>6</sup> See *Commonwealth v. Mendes*, 406 Mass. 201, 212, 547 N.E.2d 35, 41 (1989) (returning to strict application of *Frye* general acceptance rule for polygraphy).

<sup>7</sup> See *id.* at 211, 547 N.E.2d at 40-41 (reviewing “shortcomings” of the polygraph method).

<sup>8</sup> See *Lanigan*, 419 Mass. at 26, 641 N.E.2d at 1349 (reasoning that evidentiary relevance and reliability determine scientific validity).

reliability and relevance established, a court can always exclude evidence if its prejudicial effects outweigh its probative value.<sup>9</sup>

This article analyzes Massachusetts as well as federal precedent governing the reliability, relevance, and prejudicial effects of polygraph. Such analysis will help determine whether the use of polygraphy can meet the new standard.

## II. MECHANICS OF POLYGRAPH TESTING

While several methods of polygraph testing exist, the control question examination remains the most commonly used technique.<sup>10</sup> In conducting a control question exam, a polygraph examiner questions a subject hooked up to a machine which measures and records involuntary bodily responses including blood pressure, pulse rate, respiration, and perspiration.<sup>11</sup> The underlying theory assumes that an examinee's untruthful response elicits involuntary, measurable physiological changes in the body caused by fear or anxiety.<sup>12</sup>

The questions asked by the polygraph examiner include both relevant and control questions.<sup>13</sup> Relevant questions pertain directly to the criminal activity the defendant stands accused of, while purposely vague control questions relate only to acts similar to the crime in question.<sup>14</sup> Control questions, designed to

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<sup>9</sup> FED. R. EVID. 403.

<sup>10</sup> See *Mendes*, 406 Mass. at 207, 547 N.E.2d at 38 (finding polygraphers investigating criminal incidents usually employ control question technique).

<sup>11</sup> See *Commonwealth v. Vitello*, 376 Mass. 426, 431, 381 N.E.2d 582, 586 (1978) (outlining the basis of polygraphy) citing Skolnick, *Scientific Theory and Scientific Evidence: An Analysis of Lie-Detection*, 70 YALE L.J. 694, 700 (1961). Pneumographs strapped around the examinee's chest and abdomen measure the rate and depth of respiration. Susan M. Flanagan, *Employer - Employee Relations -- The Employee Polygraph Protection Act: Eliminating Polygraph Testing in Private Employment is Not The Answer*, 11 S. ILL. U. L.J. 355, 355 n.9 (1987). A blood pressure cuff placed around the examinee's bicep measures cardiovascular activity, and electrodes attached to the examinee's fingertips measure perspiration, termed galvanic skin response. *Id*

<sup>12</sup> See *A Juvenile*, 365 Mass. at 426, 313 N.E.2d at 124 (discussing polygraphy's fundamental assumptions). Most agree a polygraph machine, when competently operated, accurately measures and records involuntary bodily responses. See W. Thomas Halbeib, *United States v. Piccononna: The Eleventh Circuit Adds Another Approach to Polygraph Evidence in the Federal System*, 80 KY. L.J. 225, 230-31 (1991-92) (reviewing mechanics of polygraph technique). Not everyone, however, agrees with the underlying assumption that an untruthful response causes fear or anxiety and the accompanying physiological changes. *Id*.

<sup>13</sup> See *Commonwealth v. Mendes*, 406 Mass. 201, 207, 547 N.E.2d 35, 38 (1989) (describing control question technique).

<sup>14</sup> *Id*.

arouse an examinee that has truthfully answered relevant questions, provide a basis for comparison with the relevant questions.<sup>15</sup> Specifically, when control questions elicit stronger physiological reactions than relevant questions the examiner concludes that the subject answered the relevant question truthfully.<sup>16</sup> Alternatively, when the relevant questions produce stronger physiological responses than control questions the examiner concludes that the subject answered deceptively.<sup>17</sup> Polygraph examiners form their expert opinions regarding a defendant's truthfulness based on more than just the charts produced by the polygraph machine.<sup>18</sup> The experts also consider information collected prior to the exam, and pre- and post-test interviews with the examinee.<sup>19</sup>

Initially, an examiner reads all reports concerning the alleged criminal incident and speaks with police officers and attorneys involved in the case.<sup>20</sup> After collecting this initial data, the examiner informs the examinee about the test and the examinee's legal rights and inquires into medical problems or use of drugs.<sup>21</sup> Next, an examiner conducts a pretest interview with the examinee.<sup>22</sup> During this interview, the examiner convinces the examinee of the machine's accuracy in detecting deception to heighten the examinee's physiological reactions.<sup>23</sup> Finally, after administration of the exam, the examiner discusses the test with the examinee to clarify certain responses.<sup>24</sup>

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<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> See *Commonwealth v. Vitello*, 376 Mass. 426, 434-37, 381 N.E.2d 587-89 (1978) (discussing phases of polygraph exam, which include data collection, pretest interview, testing, and post test interview).

<sup>19</sup> *Id.*

<sup>20</sup> *Id.* at 434, 381 N.E.2d at 587.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> *Commonwealth v. Vitello*, 376 Mass. 426, 434, 381 N.E.2d 582, 587 (1978).

<sup>24</sup> *Id.* at 437, 381 N.E.2d at 589. After the examiner has interpreted the charts produced by the polygraph machine and observed the examinee's demeanor during the test, the examiner forms a conclusion as to the examinee's veracity. *Id.* If the examiner concludes the defendant lied, the post test interview provides the defendant a chance to explain certain responses. *Id.* At this time the examiner may also attempt to obtain a confession. *Id.*

### III. HISTORY OF POLYGRAPH ADMISSIBILITY IN MASSACHUSETTS

More than seventy years ago *Frye v. United States*<sup>25</sup> established the "general acceptance" test.<sup>26</sup> *Frye* required the exclusion of any novel scientific evidence fixed in a principle which failed to gain "general acceptance in the particular field in which it belongs."<sup>27</sup> The *Frye* standard gained widespread acceptance among federal and state courts because it is aimed at having those most able to determine a process' reliability, namely the scientists in the particular field, decide the validity of a method or theory.<sup>28</sup> While the standard shifted the responsibility of determining the reliability of new scientific techniques to the scientific community, judges still had to determine exactly what it is that must be "generally accepted," define the relevant field in which to search for acceptance, and decide what constitutes acceptance.<sup>29</sup>

While advocates claimed the *Frye* standard promoted uniformity of decision, many criticized the standard for responding too slowly in admitting reliable scientific theories.<sup>30</sup> Despite the criticism, this test prevailed throughout state and federal courts for more than seventy years barring many forms of scientific-based evidence, including DNA and polygraph results.<sup>31</sup>

In 1963, the Massachusetts Supreme Judicial Court, ruling for the first time

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<sup>25</sup> 293 F. Supp. 1013 (D.C. Cir. 1923).

<sup>26</sup> *Id.* at 1014.

<sup>27</sup> *Id.* The *Frye* Court ruled on the admissibility of systolic blood pressure, the precursor to the modern polygraph machine. *Id.* The court offered no explanation nor cited any authority when announcing the requirement that scientific theories must gain general acceptance prior to admission into evidence. *Id.*

<sup>28</sup> See Steven M. Egesdal, Note, *The Frye Doctrine and Relevancy Approach Controversy: An Empirical Evaluation*, 74 GEO. L.J. 1769, 1769 (1986) (stating majority of courts adhere to general acceptance standard in evaluating admission of scientific evidence); Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, Half-Century Later*, 80 COLUM. L. REV. 1197, 1198 (1980) (observing courts uniformly apply general acceptance standard); see also *United States v. Skeens*, 494 F.2d 1050, 1053 (D.C. Cir. 1974) (noting general acceptance standard uniformly applied in circuits); *United States v. Addison*, 498 F.2d 741, 743 (D.C. Cir. 1974) (stating standard assures most qualified individuals speak to the scientific method).

<sup>29</sup> Harvard Law Review Association, *Confronting The New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1490, 1491 (May 1995).

<sup>30</sup> See *United States v. Piccinonna*, 885 F.2d 1529, 1532 n.7 (11th Cir. 1989) (revisiting polygraph admissibility because *Frye* standard subject to wide criticism).

<sup>31</sup> See *Commonwealth v. Mendes*, 406 Mass. 201, 202, 547 N.E.2d 35, 35-36 (1989) (ruling polygraph evidence inadmissible for failure to gain general acceptance); see also *Commonwealth v. Curnin*, 409 Mass. 218, 221-22, 565 N.E.2d 440, 442 (1991) (holding DNA evidence inadmissible for failure to gain general acceptance).

on the admissibility of polygraph evidence, adopted the *Frye* "general acceptance" standard to exclude such evidence in criminal trials.<sup>32</sup> In *Commonwealth v. Fatalo*,<sup>33</sup> a defendant accused of assault and battery was prevented from submitting favorable expert opinion testimony based on a polygraph examination.<sup>34</sup> The court clarified that the standard did not require universal acceptance, but removal of substantial doubts about the test's or theory's scientific reliability.<sup>35</sup> After reviewing several publications, the court found substantial doubt still surrounded the polygraph technique.<sup>36</sup> Despite extensive testing, the court agreed with several scientists' reviews that the claimed error rates were both inconclusive and misleading.<sup>37</sup> Finding much dispute surrounding the statistical accuracy of the polygraph test the court concluded that admission would transform the trial into a "battle of the experts" which would only confuse the jury.<sup>38</sup> After this decision, polygraph test results remained inadmissible in Massachusetts for the next ten years.<sup>39</sup>

Upon reexamination under the same admissibility standard, the Supreme Judicial Court in *Commonwealth v. A Juvenile*<sup>40</sup> maintained that polygraphy failed to achieve general acceptance but then inexplicably held the results admissible when certain requirements are satisfied.<sup>41</sup> Reviewing the same factors for indicia of general acceptance, the court concluded that substantial

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<sup>32</sup> See *Commonwealth v. Fatalo*, 346 Mass. 266, 269, 191 N.E.2d 479, 481 (1963) (announcing theory must have general acceptance of relevant community of scientists prior to judicial acceptance).

<sup>33</sup> 346 Mass. 266, 191 N.E.2d 479 (1963).

<sup>34</sup> *Id.* at 269, 191 N.E.2d at 481.

<sup>35</sup> *Id.* at 270, 191 N.E.2d at 481.

<sup>36</sup> *Id.*

<sup>37</sup> *Commonwealth v. Fatalo*, 346 Mass. 266, 270, 191 N.E.2d 479, 481 (1963).

<sup>38</sup> See *id.* at 286, 191 N.E.2d at 480 (fearing trial would focus on probative value of test rather than guilt or innocence of defendant).

<sup>39</sup> See *Commonwealth v. A Juvenile*, 365 Mass. 421, 313 N.E.2d 120 (1974) (reexamining admissibility of polygraph test results).

<sup>40</sup> 365 Mass. 421, 313 N.E.2d 120 (1974).

<sup>41</sup> See *id.* at 424, 313 N.E.2d at 123 (recognizing polygraph's potential value in criminal trial process). While the *A Juvenile* court strayed from the general acceptance standard, it did not overrule its previous decision in *Fatalo*. *Id.* The court enunciated that although the polygraph test had made evidentiary advances, it had not achieved general acceptance. *Id.*; see also *Vitello*, 376 Mass. at 444, 381 N.E.2d at 592 (reviewing previous holdings regarding polygraph evidence). The court "recognized in *A Juvenile* that failure to achieve the standard of general acceptance need not freeze the evidentiary development of the polygraph in view of its unique potential as a tool of justice." *A Juvenile*, 365 Mass. at 424, 313 N.E.2d at 123.

advances had occurred in the field of polygraphy since its last ruling.<sup>42</sup> According to the court, further testing had produced an increase in the reliability of polygraphs.<sup>43</sup> In fact, the court cited one scientific study that reported laboratory test results with less than a one percent margin of error.<sup>44</sup> With polygraph tests administered under less than “laboratory conditions,” however, the court stressed the importance of a qualified examiner in producing reliable results.<sup>45</sup>

Finding increased reliability, but not general acceptance, the court imposed requirements upon the admissibility of polygraph test results in criminal trials.<sup>46</sup> These requirements mandated the defendant move for the application of a polygraph test, agree to the admissibility of the results regardless of the outcome, and voluntarily waive the constitutional right against self-incrimination.<sup>47</sup> Further, the court imposed the requirement that trial judges conduct a voir dire inquiry to establish the examiner’s qualifications based on their experience, training, and demonstrated ability.<sup>48</sup> Once the judge found the defendant fit to take the exam and the methods used in administering the exam sound, the judge retained discretion to admit the examiner’s testimony for consideration with all other evidence, as to innocence or guilt.<sup>49</sup>

The court warned that this “cautious first step” could lead to total rejection of polygraph evidence or lead to a “useful tool of justice,” but such a determination must await testing in the courts.<sup>50</sup> While the court made an exception to a strict application of the *Frye* test in the area of polygraphy, it continued to strictly enforce *Frye* as a threshold requirement for evaluating other forms of scientific evidence.<sup>51</sup> *A Juvenile* perhaps indicated that polygraph

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<sup>42</sup> *A Juvenile*, 365 Mass. at 422, 313 N.E.2d at 122.

<sup>43</sup> *Id.* at 425, 313 N.E.2d at 123.

<sup>44</sup> *Commonwealth v. A Juvenile*, 365 Mass. 421, 428, 313 N.E.2d 120, 125 (1974).

<sup>45</sup> *See id.* at 429-30, 313 N.E.2d at 126 (emphasizing importance of examiner’s qualifications to producing reliable polygraph results).

<sup>46</sup> *Id.* at 430-31, 313 N.E.2d at 126-27.

<sup>47</sup> *A Juvenile*, 365 Mass. at 430-31, 313 N.E.2d at 126-27.

<sup>48</sup> *Id.* at 429-30, 313 N.E.2d at 126.

<sup>49</sup> *See Commonwealth v. A Juvenile*, 365 Mass. 421, 429-30, 313 N.E.2d 120, 125-26 (1974) (leaving admissibility within trial judges’ discretion). Prior to admitting expert testimony concerning polygraph test results, trial judges should conduct a voir dire of an examiner and make other appropriate findings. *Id.*

<sup>50</sup> *Id.* at 432-35, 313 N.E.2d at 127-29.

<sup>51</sup> *See Commonwealth v. Gomes*, 403 Mass. 258, 265-66, 526 N.E.2d 1270, 1275 (1989) (requiring general acceptance of electrophoresis of dried blood stains); *Commonwealth v. Beausoleil*, 397 Mass. 206, 214-15, 490 N.E.2d 788, 793-94 (1986)

testing had, in the Supreme Judicial Court's opinion, almost reached general acceptance in the relevant field to warrant such an exception.

After four years of testing in the courts, inconsistent conclusions about the purposes for which courts could admit polygraph test results prompted clarification from the Supreme Judicial Court in 1978.<sup>52</sup> In *Commonwealth v. Vitello*,<sup>53</sup> after reviewing the polygraph method, the rules of evidence, and various policy considerations, the court further limited the use of polygraph test results to the impeachment or corroboration of a defendant's testimony.<sup>54</sup> With this ruling, the court limited the admissibility of polygraph results to cases where the defendant chose to testify and excluded it as independent evidence of innocence or guilt.

The *Vitello* court conducted a balancing test of the probative value and the "probable dangers" of admitting polygraph testimony as independent evidence of a defendant's guilt or innocence.<sup>55</sup> The court concluded that the "probable dangers" of admitting unfavorable polygraph test results to prove a defendant's guilt outweighed the test's probative value.<sup>56</sup> The "probable dangers" considered by the court included, confusing and prejudicing the jury, intruding upon the jury function, and wasting judicial time and resources.<sup>57</sup> The court also noted that the probative value of using polygraph results as independent evidence diminished because the test results depended largely upon the competence and subjectivity of the examiner.<sup>58</sup>

While the polygraph method still failed to achieve general acceptance, and

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(holding human leukocyte antigen testing in paternity cases to general acceptance standard); *Commonwealth v. Kater*, 388 Mass. 519, 531-34, 447 N.E.2d 1190, 1198-99 (1983) (applying general acceptance standard to hypnotically aided testimony); *Commonwealth v. Whynaught*, 377 Mass. 14, 17, 384 N.E.2d 1212, 1215 (1979) (holding theory of radar speedometer to general acceptance standard); *Commonwealth v. Lykus*, 367 Mass. 191, 204-05, 327 N.E.2d 671, 678-79 (1975) (ruling scientific method of voice analysis generally accepted).

<sup>52</sup> Compare *Commonwealth v. Moynihan*, 376 Mass. 468, 478-79, 381 N.E.2d 575, 581 (1978) (affirming trial court's admission of polygraph evidence only for impeachment or corroboration), with *Commonwealth v. Vitello*, 376 Mass. 426, 453-54, 381 N.E.2d 582, 597 (1978) (reversing trial court's admission of unfavorable polygraph evidence in prosecution's case-in-chief).

<sup>53</sup> 376 Mass. 426, 381 N.E.2d 582 (1978).

<sup>54</sup> *Id.* at 453-54, 381 N.E.2d at 597.

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> *Commonwealth v. Vitello*, 376 Mass. 426, 443-47, 381 N.E.2d 582, 592-94 (1978).

<sup>58</sup> *Id.*

despite its potential prejudicial effects, the *Vitello* court found the test results sufficiently reliable for use in determining a defendant's credibility as a witness.<sup>59</sup> The justifications for allowing the results for impeachment or corroboration include encouraging the defendant to testify, which would improve the truth seeking function of the trial process.<sup>60</sup> In addition, the court found that despite doubts about the method's reliability, using the test results promised a more accurate way to aid the jury in assessing credibility than the introduction of prior criminal behavior.<sup>61</sup> Between 1974 and 1989, criminal defendants in Massachusetts could use polygraph evidence to corroborate their testimony, and the Commonwealth could use it to impeach a defendant's testimony.<sup>62</sup>

After fifteen years of allowing polygraph evidence for the limited purpose of corroborating or impeaching a defendant's testimony, the Supreme Judicial Court in *Commonwealth v. Mendes*<sup>63</sup> held polygraph evidence inadmissible for any purpose in criminal trials.<sup>64</sup> The court, overruling *Vitello*, claimed the polygraph test's continued evidentiary shortcomings and the lack of general scientific acceptance required a return to a strict application of the *Frye* rule.<sup>65</sup> The majority cited to "nearly unanimous rejection of such evidence by courts throughout the United States (at least in the absence of stipulation)."<sup>66</sup>

The *Mendes* court returned to the typical polygraph evidence objections: subjectivity; dependence on the competence, experience, and education of the examiner; likelihood of prejudicial impact and usurping the jury's role; and the judicial burden of ensuring the presence of qualified experts and properly administered exams.<sup>67</sup> *Mendes* reaffirmed strict adherence to the general acceptance standard, stating that "the rule is embedded in our law."<sup>68</sup> Thus, absent a finding of general acceptance, or a change in the standard of

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<sup>59</sup> *Id.* at 453-54, 381 N.E.2d at 597.

<sup>60</sup> *Id.* at 455, 381 N.E.2d at 598.

<sup>61</sup> *Id.*

<sup>62</sup> *Commonwealth v. Mendes*, 406 Mass. 201, 212, 547 N.E.2d 35, 41 (1989) (ruling polygraph evidence no longer admissible for any purpose); *Commonwealth v. A Juvenile*, 365 Mass. 421, 430-31, 313 N.E.2d 120, 126-27 (1974) (holding polygraph evidence admissible subject to trial judge's discretion).

<sup>63</sup> 406 Mass. 201, 547 N.E.2d 35 (1989).

<sup>64</sup> *Id.* at 212, 547 N.E.2d at 41. Polygraph evidence is inadmissible for substantive, impeachment, and corroborative purposes. *Id.*

<sup>65</sup> *See id.* at 207, 547 N.E.2d at 38 (holding court never determined that appropriate scientists had accepted validity of polygraph test).

<sup>66</sup> *Id.* at 203, 547 N.E.2d at 36.

<sup>67</sup> *Commonwealth v. Mendes*, 406 Mass. 201, 211, 547 N.E.2d 35, 41 (1989).

<sup>68</sup> *Id.* at 205, 547 N.E.2d at 37.

admissibility, the court decided to exclude polygraph test results altogether.

#### IV. A NEW STANDARD OF ADMISSIBILITY

The standard of admissibility for expert scientific testimony has changed in the Commonwealth.<sup>69</sup> In *Commonwealth v. Lanigan*,<sup>70</sup> the Supreme Judicial Court held, "without adequately articulated reasons," admission of novel scientific evidence no longer requires general acceptance.<sup>71</sup> Instead, admissibility depends on establishing the reliability or validity of the underlying theory or process.<sup>72</sup> The new standard, adopted from the United States Supreme Court decision in *Daubert v. Merrell Dow Pharmaceuticals*,<sup>73</sup> further requires that the reliable scientific testimony assist the trier of fact.<sup>74</sup>

In *Daubert* the Supreme Court held that the Federal Rules of Evidence overruled the *Frye* standard.<sup>75</sup> Specifically, Federal Rule 702, which regulates the admission of scientific testimony, replaced the rigid general acceptance requirement.<sup>76</sup> 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."<sup>77</sup> The *Daubert* Court interpreted this standard, which appears only to require helpfulness to the fact finder,<sup>78</sup> to also require an assessment of the

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<sup>69</sup> *Commonwealth v. Lanigan*, 419 Mass. 15, 26, 641 N.E.2d 1342, 1349 (1994).

<sup>70</sup> 419 Mass. 15, 641 N.E.2d 1342 (1994).

<sup>71</sup> *Id.* at 24, 641 N.E.2d at 1348.

<sup>72</sup> *Id.* The court asserted this new admissibility standard "is consistent with our test of demonstrated reliability." *Id.*

<sup>73</sup> 509 U.S. 579, 113 S. Ct. 2786 (1993).

<sup>74</sup> *Commonwealth v. Lanigan*, 419 Mass. 15, 25, 641 N.E.2d 1342, 1349 (1994). Federal Rule of Evidence 702 requires an inquiry into whether the scientific opinion testimony will help the fact finder. *Id.* The Supreme Judicial Court noted that Massachusetts Proposed Rule of Evidence 702 contains the same language as Federal Rule of Evidence 702. *Id.* This inquiry, which indicates the relevance of the evidence, was not actually made by the *Lanigan* Court. *Id.* The *Lanigan* Court's brief analysis focused only upon the reliability of DNA probability matching. *Id.* at 25-27, 641 N.E.2d at 1349-50.

<sup>75</sup> *Daubert*, 509 U.S. at 597, 113 S. Ct. at 2794.

<sup>76</sup> *Id.*

<sup>77</sup> FED. R. EVID. 702.

<sup>78</sup> *See Lanigan* 419 Mass. at 25, 641 N.E.2d at 1349 (discussing *Daubert* opinion). The Supreme Judicial Court in *Lanigan* noted that the Supreme Court in *Daubert* found a requirement of reliability "implicit in rule 702, which on its face uses helpfulness to the trier of fact as the test of admissibility of expert testimony based on scientific knowledge."

reliability of the proposed evidence.<sup>79</sup>

The first of this two-part inquiry establishing the method or theory's scientific reliability involves a flexible application of several factors to the proposed evidence.<sup>80</sup> The Court deemed this inquiry necessary under both Rules 702 and 104(a), which require trial court judges to decide, as a question of law, the preliminary questions concerning the qualifications of a person to be a witness and the admissibility of evidence.<sup>81</sup> The *Daubert* Court suggested that an assessment of the theory's falsifiability, peer review and publication, known or potential error rate, and general acceptance would indicate the validity or reliability of the proposed theory.<sup>82</sup> After this initial assessment, the court must then determine whether the scientific knowledge will assist the fact finder.<sup>83</sup> This second inquiry essentially involves a determination of the relevance of the scientific opinion testimony. While relevance inquiries require the evidence relate to an issue in the case, Rule 702 requires "a valid scientific connection" to an issue in question.<sup>84</sup> Finally, even if a court finds the theory or method both reliable and relevant, the court retains the discretion to exclude any evidence having more prejudicial effect than probative value pursuant to Rule 403.<sup>85</sup>

In *Lanigan*, the Supreme Judicial Court used the suggestions of the *Daubert* Court in ruling on the admissibility of DNA probability matching and the use of the "ceiling principle."<sup>86</sup> In determining the method's reliability, the court first analyzed whether the technique had been tested.<sup>87</sup> While the court recognized the necessity of more testing, it concluded that it expected this need in a developing scientific technique.<sup>88</sup> In examining peer review, the court found substantial disagreement among experts regarding the application of the "ceiling principle."<sup>89</sup> Nevertheless, the court iterated that it did not require unanimity of

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*Id.*

<sup>79</sup> *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 570, 590, 113 S. Ct. 2786, 2795 (1993).

<sup>80</sup> *Id.* at 593-94, 113 S. Ct. at 2796-97.

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> *Id.* at 592-93, 113 S. Ct. at 2795-96.

<sup>84</sup> *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 570, 592-93, 113 S. Ct. 2786, 2795-96 (1993).

<sup>85</sup> *Id.* at 95, 113 S. Ct. at 2798.

<sup>86</sup> *Commonwealth v. Lanigan*, 419 Mass. 15, 26, 641 N.E.2d 1342, 1349 (1994).

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> *Id.* at 26-27, 641 N.E.2d at 1349.

opinion among the relevant scientists.<sup>90</sup> In analyzing known or potential error rate, the *Lanigan* court appeared content that any error in the “ceiling principle” calculation would not result in a disadvantage to the defendant.<sup>91</sup> Finally, due to the disagreement among population geneticists, DNA probability matching had not attained general acceptance.<sup>92</sup> Despite these findings on the reliability of the “ceiling principle”, the court held admission of evidence in the trial as proper.<sup>93</sup> The court failed, however, to address the relevance or any prejudicial effects of admission of the evidence. Even though the *Lanigan* court claimed that *Daubert* provided “little guidance” in applying the new admissibility standard, the court’s brief analysis appears to follow the reliability criteria.<sup>94</sup> The importance of the *Lanigan* decision, therefore, lies not only with its adoption of a new admissibility standard, but also with its adherence to the criteria suggested by the Supreme Court in how to meet this standard.

Since *Lanigan*, the court has briefly addressed application of the new standard to polygraph evidence.<sup>95</sup> While a procedural flaw in *Commonwealth v. Stewart*<sup>96</sup> prevented the court from ruling on admissibility, the court nonetheless discussed how a proponent could establish the reliability of polygraph evidence.<sup>97</sup> This brief reference indicated that courts will assess the reliability of polygraphy on a case by case basis, requiring the examiner to prove their qualifications through their accuracy rate in previously administered tests.<sup>98</sup>

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<sup>90</sup> *Id.* at 26, 641 N.E.2d at 1349.

<sup>91</sup> *Commonwealth v. Lanigan*, 419 Mass. 15, 26, 641 N.E.2d 1342, 1349 (1994).

<sup>92</sup> *Id.*

<sup>93</sup> *Id.* The court’s entire analysis of the “ceiling principle’s” reliability occupies only one paragraph. *Id.*

<sup>94</sup> *Id.* at 25-27, 641 N.E.2d at 1348-49.

<sup>95</sup> *See Commonwealth v. Stewart*, 422 Mass. 385, 389, 663 N.E.2d 255, 259 (1996) (stating reliability of theory underlying polygraph testing must be established prior to admission). The *Stewart* case established that polygraphy will no longer be held to the *Frye* general acceptance standard. *Id.* *But see Commonwealth v. LaCaprucia*, 41 Mass. App. Ct. 496, 502, 671 N.E.2d 984, 989 (1996) (stating Supreme Judicial Court has “given no indication” that it will abandon *Frye* in polygraph context).

<sup>96</sup> 422 Mass. 385, 663 N.E.2d 255 (1996).

<sup>97</sup> *Id.* at 389, 663 N.E.2d at 259. Ruling that a post trial polygraph exam was not newly discovered evidence, Justice Wilkins discussed the requirement polygraph proponents must show to establish the requisite reliability. *Id.*

<sup>98</sup> *Id.* The *Stewart* court stated:

If polygraphic evidence is to be admissible in a given case, it seems likely that its reliability will be established by proof in a given case that a qualified tester who conducted the test had in similar circumstances demonstrated, in a statistically valid number of independently verified and controlled tests,

Unlike the four reliability factors enunciated in *Daubert*, which focus on a method's validity in the abstract, the Supreme Judicial Court will likely require additional proof of the validity of the particular test.

A proponent of polygraph opinion testimony in Massachusetts must establish the reliability of the polygraph method, the reliability of the particular test, the relevance of the testimony, and prove that the probative value outweighs any prejudicial effect. The following analysis will review federal court application of *Daubert* to polygraphy, and Massachusetts precedent, in helping to make that determination.

## V. ANALYSIS

### A. Reliability Inquiry

Two federal district courts found polygraphy reliable after conducting a thorough analysis under the *Daubert* criteria.<sup>99</sup> While one of those courts strictly inquired into the four factors suggested in *Daubert*,<sup>100</sup> the other added additional criteria resembling the requirement hinted at in *Stewart*.<sup>101</sup> A close review of each court's analysis should assist a proponent of polygraph evidence in the Commonwealth to establish the requisite reliability.

The first of the two cases, *United States v. Crumby*<sup>102</sup> decided by United States District Court for the District of Arizona, strictly adhered to the *Daubert* criteria in determining reliability.<sup>103</sup> In considering whether polygraphy had been tested, subjected to peer review, evaluated for known or potential error rates, and achieved general acceptance, the *Crumby* court considered testimony from Dr. David Raskin, a leading expert in polygraphy.<sup>104</sup> The *Crumby* court first inquired into the extent polygraphy has been tested by scientific method.<sup>105</sup> Dr.

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the high level of accuracy of the conclusions that the tester reached in those tests.

*Id.*

<sup>99</sup> See *United States v. Crumby*, 895 F. Supp. 1354, 1361 (D. Ariz. 1995) (holding polygraph reliable under *Daubert* and Federal Rule of Evidence 702); *United States v. Galbreth*, 908 F. Supp. 877, 890-95 (D.N.M. 1995) (applying *Daubert*).

<sup>100</sup> *Crumby*, 895 F. Supp. at 1358.

<sup>101</sup> *Galbreth*, 908 F. Supp. at 893.

<sup>102</sup> 895 F. Supp. 1354 (D. Ariz. 1995).

<sup>103</sup> *Id.* at 1358.

<sup>104</sup> *Id.* Dr. Raskin holds a Masters degree and a Ph.D in psychology from the University of California at Los Angeles, belongs to many professional and honorary organizations, and has published articles in polygraphy. *Id.* Additionally, Dr. Raskin testified at an evidentiary hearing before the court on the reliability of polygraphy. *Id.*

<sup>105</sup> *United States v. Crumby*, 895 F. Supp. 1354, 1359 (D. Ariz. 1995).

Raskin testified that the control question examination, the kind administered in that case, and the most commonly used technique, is based on scientific method and has been subjected to extensive testing.<sup>106</sup> After explaining how to conduct a control question examination, Dr. Raskin testified to the scientific techniques used to measure involuntary physiological responses.<sup>107</sup> Based on this testimony and other authorities, the *Crumby* court found that the science of polygraphy has been subjected to “vigorous scientific testing” and the underlying assumptions of the method “deeply analyzed” by both polygraphers and psychophysicologists.<sup>108</sup> The court found the first *Daubert* requirement satisfied because many scientific tests have validated the science of polygraphy.<sup>109</sup>

After reviewing scholarly articles critiquing studies and findings of those in the field, the court recognized the existence of “extensive peer review and publication” in the science of polygraphy and its underlying assumptions.<sup>110</sup> Finding this *Daubert* requirement satisfied, the court then examined polygraph’s known and potential error rates.<sup>111</sup> Again Dr. Raskin testified that studies he conducted, along with numerous others, consistently produced an accuracy rate of approximately ninety percent.<sup>112</sup> Specifically, Dr. Raskin testified to a five percent error rate for tests depicting truthful subjects and a ten percent error rate for tests depicting deceptive subjects.<sup>113</sup> This testimony, deemed persuasive by the court, led to the conclusion that the error rates in polygraphy “are extremely low, especially when compared to other more inexact forensic sciences.”<sup>114</sup>

Finding these first three reliability indicators satisfied, the court turned to an examination of polygraph’s general acceptance in the relevant scientific community.<sup>115</sup> While the court did not view this factor as significant, it did review a study indicating substantial acceptance by psychophysicologists.<sup>116</sup> Further, the court found endorsement from a number of organizations and

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<sup>106</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> *United States v. Crumby*, 895 F. Supp. 1354, 1395 (D. Ariz. 1995).

<sup>111</sup> *Id.* at 1360.

<sup>112</sup> *Id.*

<sup>113</sup> *Id.* at 1359. Based on these statistics, Dr. Raskin explained it is twice as likely an innocent subject will wrongly be deemed deceptive than a guilty subject will wrongly be deemed innocent. *Id.*

<sup>114</sup> *United States v. Crumby*, 895 F. Supp. 1354, 1360 (D. Ariz. 1995).

<sup>115</sup> *Id.* at 1360.

<sup>116</sup> *Id.*

polygraphers. Thus, the *Crumby* court found “widespread” acceptance satisfying the final factor.<sup>117</sup>

The United States District Court for the District of New Mexico, in *United States v. Galbreth*, reviewed the same factors as the *Crumby* court but included additional inquiries specifically for ruling on a polygraph’s reliability.<sup>118</sup> Like the *Crumby* court, the *Galbreth* court first reviewed the quantity and quality of laboratory and field studies of the control question technique.<sup>119</sup> The *Galbreth* court found these tests could determine the scientific validity of the technique and in fact revealed its high degree of accuracy.<sup>120</sup> The court then examined several journal articles written by experts in the field of polygraphy, including Dr. Raskin’s.<sup>121</sup> While hundreds of published articles exist on this technique, the court most closely considered the peer-reviewed journal articles finding such scrutiny a “component of good science.”<sup>122</sup> In reviewing the accuracy rate of polygraphy, the *Galbreth* court accepted the testimony of Dr. Raskin that exams properly administered by highly qualified examiners produce an accuracy rate of approximately ninety percent.<sup>123</sup> In reviewing general acceptance in the relevant scientific community, the court found a “high degree of acceptance” among well-informed members of the community.<sup>124</sup>

In addition to these four *Daubert* factors, the *Galbreth* court also required the existence and maintenance of standards regulating those who administer the exams.<sup>125</sup> The court found more than twenty states require examiners to obtain a license and that federal guidelines require examiners attend a certifying polygraph school and to have their work reviewed.<sup>126</sup> More significantly, the *Galbreth* court also required proof of the proper administration of the polygraph exam.<sup>127</sup> So, while the *Daubert* factors required establishment of the method’s reliability, the *Galbreth* court required establishment of the reliability of the test

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<sup>117</sup> See *id.* (emphasizing minimal importance of general acceptance in reliability inquiry).

<sup>118</sup> *United States v. Galbreth*, 908 F. Supp. 877, 890-94 (D.N.M. 1995).

<sup>119</sup> See *id.* at 885-88 (reviewing details of Dr. Raskin’s laboratory and field studies).

<sup>120</sup> *Id.* at 891.

<sup>121</sup> *Id.*

<sup>122</sup> *Id.*

<sup>123</sup> *United States v. Galbreth*, 908 F. Supp. 877, 892 (D.N.M. 1995).

<sup>124</sup> *Id.* at 892-93.

<sup>125</sup> *Id.* at 892.

<sup>126</sup> *Id.*

<sup>127</sup> See *id.* at 893-94 (requiring proper application of polygraph technique in individual case).

administered to a particular defendant.<sup>128</sup> This inquiry focused on both the examiner's competence to administer an exam and the conditions of the particular test.<sup>129</sup> While the *Galbreth* court was unsure whether *Daubert* required a finding of validity for the specific application of a scientific technique, it deemed it "imperative" in the context of polygraph.<sup>130</sup> The court deemed this additional inquiry necessary due to the nature of the polygraph technique. A reliable polygraph result rests entirely on a properly conducted exam by a competent examiner therefore the validity of an exam must be established by more than merely establishing the theory's reliability in the abstract.<sup>131</sup>

A comparison of the reliability analysis conducted by the *Crumby* and *Galbreth* courts with the analysis conducted by the Supreme Judicial Court in *Lanigan* leads to a conclusion that polygraphy can meet the reliability inquiry. In reviewing whether the "ceiling principle" had been tested, the *Lanigan* court conceded that, as a new technique, more testing needed to be done.<sup>132</sup> In examining peer review, the *Lanigan* court recognized substantial disagreement among the experts on the application of the principle. Regarding the error rate, the *Lanigan* court did not require a specific percentage, but rather was satisfied that any error would weigh in the defendant's favor. Finally, due to the substantial disagreement among the population geneticists, the principle falls short of attaining general acceptance.

While the Supreme Judicial Court conducted a relaxed inquiry into the ceiling principle's reliability, *Crumby* and *Galbreth* show that even if the court subjects polygraph to a more thorough inquiry, the standard can be met. Based on the dicta in *Stewart*, however, a proponent of expert testimony based on polygraph results should anticipate the Commonwealth will require proof in any given case of the validity of the particular exam. As a result, a practitioner should hire a licensed polygraph examiner with substantial experience in administering the control question technique to validate the individual test.

### B. Relevance Inquiry

The relevance inquiry envisioned by the *Daubert* court requires the scientific opinion testimony to have a "valid scientific connection" to an issue

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<sup>128</sup> *United States v. Galbreth*, 908 F. Supp. 877, 893-94 (D.N.M. 1995).

<sup>129</sup> *Id.*

<sup>130</sup> *See id.* at 880-82 (surmising *Daubert* opinion's abstract analysis inadvertently omitted this requirement).

<sup>131</sup> *Id.*

<sup>132</sup> *See supra* notes 86-93 and accompanying text.

in question.<sup>133</sup> This inquiry does not seem to pose a problem for polygraph evidence because any time a defendant's answers indicate truthfulness or deceptiveness on a relevant question it will be pertinent to the issue in question. In *Galbreth*, for example, the defendant stood accused of failure to report income on his income tax return.<sup>134</sup> The result of his polygraph exam indicated truthful responses regarding his knowledge and intent.<sup>135</sup> Therefore, the *Galbreth* court concluded that the testimony related to the issue in question and provided a "valid scientific connection to the pertinent inquiry."<sup>136</sup> Thus, the relevance inquiry appears to impose only a slight burden upon a proponent of polygraph opinion testimony.

### C. Prejudicial Effect of Polygraph Evidence

A proposed rule in Massachusetts may also establish grounds for barring polygraph exams by excluding evidence whose prejudicial effect outweighs its probative value. Massachusetts' Proposed Rule of Evidence 403 allows courts to exclude all relevant and reliable evidence carrying "the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by consideration of undue delay, waste of time, or needless presentation of evidence." Under this balancing test, Massachusetts' courts could exclude polygraph evidence, although the *Crummy* and *Galbreth* Courts still admitted it after this inquiry.

An example of the court citing prejudicial effects as grounds to exclude polygraph exams is found in *Mendes*.<sup>137</sup> After eliminating the *Frye* exception and returning to *per se* inadmissibility, the *Mendes* court listed several prejudicial effects of admitting polygraph evidence.<sup>138</sup> Concerns included juries giving undue weight to expert testimony, experts infringing upon the jury's role of determining credibility, polygraph evidence deciding guilt or innocence, and the cost and time required to verify an expert's qualifications.<sup>139</sup>

In the fifteen years prior to *Mendes*, however, several of the Supreme Judicial Court's opinions contemplated these potentially prejudicial effects. Rather than exclude polygraph evidence, the court decided to limit the purposes for admitting polygraph evidence. In *Vitello*, after considering the possibility of

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<sup>133</sup> *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 591-92, 113 S. Ct. 2786, 2796 (1993).

<sup>134</sup> *United States v. Galbreth*, 908 F. Supp. 877, 895 (D.N.M. 1995).

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> *Commonwealth v. Mendes*, 406 Mass. 201, 211-12, 547 N.E.2d 35, 41 (1989).

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

polygraph evidence confusing or prejudicing the jury, usurping the jury's function and wasting trial resources, the court decided to confine admission, but only to impeach or corroborate a defendant's testimony.<sup>140</sup> Despite the possibility of prejudice, the court still found value in using polygraph exams for a limited purpose rather than eliminating its use entirely.<sup>141</sup>

## VI. CONCLUSION

After a searching analysis, it appears that polygraphy can meet this new admissibility standard and will finally receive consistent treatment in the Commonwealth. While determining the scientific reliability of polygraphy using the new standard involves a substantial undertaking, the benefits of polygraphy can only enhance the truth seeking function of the trial courts.

*Angela Lackard*

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<sup>140</sup> Commonwealth v. Vitello, 376 Mass. 426, 451-52, 381 N.E.2d 582, 596-97 (1978).

<sup>141</sup> *Id.*

