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## Daubert in the States

Paul Giannelli\*

In 1993, the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*<sup>1</sup> overruled the general acceptance standard set forth in *Frye v. United States*,<sup>2</sup> a 1923 decision by the D.C. Circuit. In its place, the Court substituted a reliability test for determining the admissibility of scientific evidence. The *Frye* standard had been the majority rule in both federal and state courts until *Daubert*. This article discusses the reactions of state courts to the *Daubert* decision.

*Daubert* rests on an interpretation of the Federal Rules of Evidence,<sup>3</sup> and therefore as a statutory, rather than a constitutional, case, it is not binding on the states. This is true even in the forty jurisdictions that have adopted evidence rules based on the Federal Rules.<sup>4</sup> For example,

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<sup>1</sup> *Daubert v. Merrell Dow Pharmaceutical, Inc.*, 509 U.S. 570 (1993).

<sup>2</sup> *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

<sup>3</sup> 509 U.S. at 587 ("We interpret the legislatively-enacted Federal Rules of Evidence as we would any statute.")

<sup>4</sup> See Joseph & Saltzburg, *The Federal Rules of Evidence in the States* iii (1992) (preface).

the Arizona Supreme Court has declined to follow *Daubert*, noting that it was "not bound by the United States Supreme Court's non-constitutional construction of the Federal Rules of Evidence when we construe the Arizona Rules of Evidence."<sup>5</sup> The Court went on to remark: "Our rules . . . are court-enacted. While the United States Supreme Court considers congressional purpose, this court—when construing a rule we have adopted—must rely on text and our own intent in adopting or amending the rule in the first instance."<sup>6</sup> Similarly, the Nebraska Supreme Court has commented: "[N]otwithstanding that our rule 702 parallels the federal rule 702, *Daubert* does not apply to state court decisions. The increasing prevalence of expert evidence cautions against the admission of scientific evidence which is still the subject of dispute and controversy in the relevant scientific communities. . . . We thus adhere to the *Frye* standard. . . ."<sup>7</sup>

### Pre-*Daubert* Approaches

An understanding of the post-*Daubert* developments requires

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<sup>5</sup> *State v. Bible*, 858 P.2d 1152, 1183 (Ariz. 1993), cert. denied, 511 U.S. 1046 (1994).

<sup>6</sup> *Id.*

<sup>7</sup> *State v. Dean*, 523 N.W.2d 681, 692-93 (Neb. 1994).

some appreciation of the pre-*Daubert* case law. At the time *Daubert* came before the Supreme Court, there were four approaches to the admissibility of scientific evidence in this country. First, a majority of jurisdictions followed the *Frye* general acceptance test, including most federal circuit courts. Second, a number of courts had rejected *Frye*, adopting a relevancy test. Under this view, if the expert was qualified, the underlying technique used by that expert was also qualified. In practice, this approach often left the reliability issue to the jury.

In the 1980s, a third position began to develop, one that rejected *Frye* but required a judicial determination of reliability. This reliability approach was more stringent than the relevancy approach. Under this approach, the trial court was required to go beyond the expert's qualifications and scrutinize the reliability of the underlying scientific technique. This approach was the precursor of the Supreme Court's decision in *Daubert*.

Finally, an approach labelled "*Frye* plus" surfaced in some DNA cases. This approach is not an alternative that replaces *Frye*, but rather it adds a further element to the *Frye* test. Moreover, it is not necessarily tied to the *Frye* rule. Indeed, some recent decisions may be described as "*Daubert* plus."

### ***Frye v. United States***

Numerous state courts continue to apply the *Frye* test post-*Daubert*. Since 1993, *Frye* has been applied to a wide range of scientific techniques in criminal cases, including Human Leukocyte Antigen (HLA)

testing,<sup>8</sup> battered women syndrome,<sup>9</sup> and intoxication testing<sup>10</sup> (including the horizontal gaze nystagmus test).<sup>11</sup> *Frye* has also been applied to various aspects of DNA evidence: RLFP,<sup>12</sup> PCR,<sup>13</sup> binning,<sup>14</sup> band-

<sup>8</sup> *Commonwealth v. Khamphouseane*, 642 A.2d 490, 492 (Pa. Super.) (Human Leukocyte Antigen (HLA) testing to establish paternity in a statutory rape case generally accepted), appeal denied, 649 A.2d 669 (Pa. 1994).

<sup>9</sup> *State v. Riker*, 869 P.2d 43, 48-50 (Wash. 1994) (en banc) (battered person syndrome generally accepted but only in a long-term relationship).

<sup>10</sup> *Seewar v. Summerdale*, 601 So. 2d 198, 200 (Ala. Crim. App. 1992) (Intoxilyzer 5000 generally accepted).

<sup>11</sup> E.g., *People v. Leahy*, 882 P.2d 321, 334 (Cal. 1994) ("[T]estimony by police officers regarding the mere administration of the HGN test is insufficient to meet the general acceptance standard . . ."); *State v. Witte*, 836 P.2d 1110, 1121 (Kan. 1992) (HGN "evidence requires a *Frye* foundation for admissibility."); *State v. Klawitter*, 518 N.W.2d 577, 585 (Minn. 1994) (HGN satisfies *Frye*).

<sup>12</sup> E.g., *State v. Cauthron*, 846 P.2d 502, 512 (Wash. 1993) (General scientific theory underlying DNA identifications and the RFLP test generally accepted in the relevant scientific communities).

<sup>13</sup> E.g., *State v. Carter*, 524 N.W.2d 763, 783 (Neb. 1994) (DNA-PCR DQ alpha statistical probability calculations not generally accepted); *State v. Russell*, 882 P.2d 747, 768 (Wash. 1994) (PCR-DQ alpha generally accepted; the Cetus kit is only one means of PCR testing and need not be shown to be generally accepted), cert. denied, 514 U.S. 1129 (1995).

<sup>14</sup> E.g., *People v. Venegas*, 36 Cal. Rptr. 2d 856, 864-66 (Cal. App. 1995) (prosecution failed to establish that FBI "binning" method and statistical calculations satisfy *Frye*; reliability of Cell-

shifting,<sup>15</sup> statistical calculations,<sup>16</sup> and the ceiling principle.<sup>17</sup>

Many important jurisdictions still adhere to the *Frye* rule: Alaska,<sup>18</sup> California,<sup>19</sup> Colorado,<sup>20</sup> Florida,<sup>21</sup> Illinois,<sup>22</sup> Kansas,<sup>23</sup>

mark DNA method in prior case did not automatically apply to FBI method).

<sup>15</sup> *Hayes v. State*, 660 So. 2d 257, 262, 264 (Fla. 1995) ("Florida utilizes the *Frye* test"; courts may take judicial notice on some aspects of DNA, but correcting for band-shifting is not generally accepted).

<sup>16</sup> E.g., *State v. Sivri*, 646 A.2d 169, 189-92 (Conn. 1994) (while DNA evidence generally accepted, case remanded to decide if population frequency calculations are generally accepted); *Lindsey v. People*, 892 P.2d 281 (Colo. 1995) (en banc) (DNA population statistics generally accepted under *Frye*).

<sup>17</sup> E.g., *State v. Buckner*, 890 P.2d 460, 462 (Wash. 1995) (en banc) (statistics based on ceiling principle generally accepted but testimony that only one Caucasian in 19.25 billion (four times the present population of the Earth) inadmissible); *State v. Bloom*, 516 N.W.2d 159, 167 (Minn. 1994) (random match probability based of interim ceiling method admissible).

<sup>18</sup> *Harmon v. State*, 908 P.2d 434, 440-41 (Alaska 1995) (DNA evidence, both RFLP and PCR, satisfies the *Frye* test; statistical analysis accompanying each form of DNA testing also generally accepted).

<sup>19</sup> E.g., *People v. Leahy*, 882 P.2d 321, 331 (Cal. 1994) (The "*Kelly* formulation [of *Frye* under Cal. Evid. Code] survived *Daubert* . . .").

<sup>20</sup> *Lindsey v. People*, 892 P.2d 281, 288 (Colo. 1995) (en banc) (applying *Frye*; DNA statistics generally accepted despite "subgroup" debate) (noting *Daubert* "issue not now before us").

<sup>21</sup> *Flanagan v. State*, 625 So. 2d 827, 829 n.2 (Fla. 1993) (Despite *Daubert*, "Florida continues to adhere to the *Frye* test.").

<sup>22</sup> *People v. Miller*, 670 N.E.2d 721 (Ill. 1996) ("Illinois follows the *Frye* standard for the admission of novel scientific evidence.").

Maryland,<sup>24</sup> Nebraska,<sup>25</sup> New York,<sup>26</sup> and Washington.<sup>27</sup> Some *Frye* jurisdictions, however, have not definitively rejected *Daubert*; but have merely postponed consideration of the issue.<sup>28</sup> In other cases, intermediate appellate courts have felt bound to apply *Frye* until their respective state supreme courts speak on the issue.<sup>29</sup>

<sup>23</sup> *State v. Hill*, 895 P.2d 1238, 1245 (Kan. 1995) ("Kansas has repeatedly applied *Frye*.").

<sup>24</sup> *United States Gypsum Co. v. Baltimore*, 647 A.2d 405, 423 (Md. 1994) (asbestos evidence).

<sup>25</sup> *State v. Carter*, 524 N.W.2d 763, 783, 779 (Neb. 1994) ("[W]e decline to adopt the less demanding *Daubert* standard and reaffirm *Frye* as the standard for determining the admissibility of DNA evidence.").

<sup>26</sup> *People v. Wesley*, 633 N.E.2d 451, 455-56 (N.Y. 1994) (Lifecodes DNA method generally accepted; visual matching accepted by scientific community in 1988).

<sup>27</sup> *State v. Riker*, 869 P. 2d 43, 48 n.1 (Wash. 1994) (en banc) (Court will "continue to adhere to the view that the *Frye* analysis is a threshold inquiry to be considered in determining the admissibility of evidence under ER 702"; however, "many of the 'general observations' made [in *Daubert*] may be of use to trial judges in making the threshold *Frye* determination.").

<sup>28</sup> *Commonwealth v. Crews*, 640 A.2d 395, 400 n.2 (Pa. 1994) ("*Daubert* relaxes, somewhat, the impediments to admission of novel scientific evidence. . . . Whether or not the rationale of *Daubert* will supersede or modify the *Frye* test in Pennsylvania is left to another day.").

<sup>29</sup> *State v. Cissne*, 865 P.2d 564, 569 (Wash. App. 1994) ("[U]ntil such time as our Supreme Court abandons *Frye* and interprets ER 702 in the same manner as *Daubert* Fed. R. Evid. 702, we are bound by . . . previous decision.").

In defending its decision to adhere to *Frye*, the Washington Supreme Court made the following comment:

The State maintains that this court should abandon *Frye* and adopt *Daubert*. The State argues that *Frye* is difficult to apply. While *Frye* may be difficult to apply in some contexts, this is a result of the complexity of the particular science at issue, the extent to which the scientific community has made its view known, and the extent of any dispute in the scientific community. The same, or similar problems, arise under *Daubert*, including questions of testability, the extent to which the scientific technique or method is accepted by the scientific community, and drawing the line between legitimate science and "junk" science, along with other questions. Questions of admissibility of complex, controversial scientific techniques or methods, like those involving DNA evidence, are going to be difficult under either standard.<sup>30</sup>

### Relevancy Approach

In his 1954 evidence text, Professor Charles McCormick criticized the *Frye* test. In his view:

"General scientific acceptance" is a proper condition upon the court's taking judicial notice of scientific facts, but not a criterion for the admissibility of scientific evidence. Any relevant conclusions which

are supported by a qualified expert witness should be received unless there are other reasons for exclusion. Particularly, its probative value may be overborne by the familiar dangers of prejudicing or misleading the jury, unfair surprise and undue consumption of time.<sup>31</sup>

The balancing of probative value against other factors such as misleading the jury, of which McCormick spoke, is comparable to present Federal Rule 403. In practice, however, this approach might be quite different. Since most trial judges do not possess the scientific background to determine relevance/reliability, the judge "will generally be forced to accept the probative value of the evidence as what a qualified expert testifies it to be."<sup>32</sup> In effect, qualifying the expert presumptively qualifies the technique. This is too lax a standard for criminal cases. Moreover, "[t]he major flaw in the relevancy analysis . . . is its failure to recognize the distinctive problems of scientific evidence."<sup>33</sup>

*Daubert* implicitly rejects this approach. The United States Supreme Court emphasized: "That the *Frye* test was displaced by the Rules of Evidence does not mean, however, that the Rules themselves place no limits on the admissibility of sci-

<sup>31</sup> McCormick, *Evidence* 363-64 (1954).

<sup>32</sup> Strong, "Questions Affecting the Admissibility of Scientific Evidence," 1970 U. Ill. L.F. 1, 22.

<sup>33</sup> Giannelli, "The Admissibility of Novel Scientific Evidence: *Frye v. United States*, A Half-Century Later," 80 Colum. L. Rev. 1197, 1250 (1980).

<sup>30</sup> *State v. Copeland*, 922 P.2d 1304, 1314 (Wash. 1996) (en banc).

entific evidence. Nor is the trial judge disabled from screening such evidence. To the contrary, under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable."<sup>34</sup>

Despite *Daubert*, some courts still follow this approach. For example, in *State v. Peters*<sup>35</sup> the Wisconsin Court of Appeals, in upholding the admissibility of DNA evidence, stated that Wisconsin followed neither *Frye* nor *Daubert*: "Once the relevancy of the evidence is established and the witness is qualified as an expert, the reliability of the evidence is a weight and credibility issue for the factfinder and any reliability challenges must be made through cross-examination or by other means of impeachment."<sup>36</sup>

In *State v. Donner*,<sup>37</sup> an intoxication case, the same court wrote:

[B]efore *Daubert*, the *Frye* test was not the law in Wisconsin. To that extent, Wisconsin law and *Daubert* coincide. Beyond that, Wisconsin law holds that "any relevant conclusions which are supported by a qualified witness should be received unless there are other reasons for exclusion."

<sup>34</sup> 509 U.S. at 589.

<sup>35</sup> *State v. Peters*, 534 N.W.2d 867 (Wis. App. 1995) (DNA admissible notwithstanding the absence of Native Americans from the database used to project the likelihood of a coincidental DNA match), rev. denied, 537 N.W.2d 572 (Wis. 1995).

<sup>36</sup> *Id.* at 873.

<sup>37</sup> *State v. Donner*, 531 N.W.2d 369 (Wis. App. 1995), rev. denied, 534 N.S.2d 86 (Wis. 1995).

Stated otherwise, expert testimony is admissible in Wisconsin if relevant and will be excluded only if the testimony is superfluous or a waste of time.

Assuming that *Daubert* in its application represents something beyond *Walstad*, we observe that we . . . are bound to follow our supreme court case law.<sup>38</sup>

In sum, *Daubert* not only rejects *Frye* but the relevancy test as well.

### Reliability Approach

A number of jurisdictions have explicitly rejected *Frye* in favor of the *Daubert* approach—for example, Connecticut,<sup>39</sup> Indiana,<sup>40</sup> Kentucky,<sup>41</sup> Massachusetts,<sup>42</sup> New

<sup>38</sup> *Id.* at 374 (quoting *State v. Walstad*, 351 N.W.2d 469, 487 (Wis. 1984)).

<sup>39</sup> *State v. Porter*, 694 A.2d 1262 (Conn. 1997) (polygraph).

<sup>40</sup> *Steward v. State*, 652 N.E.2d 490, 498 (Ind. 1995) ("The concerns driving *Daubert* coincide with the express requirement of Indiana Rule of Evidence 702(b) that the trial court be satisfied of the reliability of the scientific principles involved. Thus, although not binding upon the determination of state evidentiary law issues, the federal evidence law of *Daubert* and its progeny is helpful to the bench and bar in applying Indiana Rule of Evidence 702(b)."); *McGrew v. State*, 673 N.E.2d 787, 800 (Ind. App. 1996) ("[T]he State failed to present any evidence to satisfy the first three prongs of *Daubert*.").

<sup>41</sup> *Cecil v. Commonwealth*, 888 S.W.2d 669, 675 (Ky. 1994) (clinical psychologist testimony on mens rea properly admitted under *Daubert*).

<sup>42</sup> *Commonwealth v. Lanigan*, 641 N.E.2d 1342, 1349 (Mass. 1994) ("We accept the basic reasoning of the *Daubert* opinion.").

Mexico,<sup>43</sup> Oklahoma,<sup>44</sup> South Dakota,<sup>45</sup> Texas,<sup>46</sup> and West Virginia.<sup>47</sup>

Even before *Daubert*, however, courts in non-*Frye* jurisdictions had adopted a type of "reliability" approach. For example, in 1984 the Oregon Supreme Court rejected the *Frye* test, but then went on to exclude polygraph evidence under the Oregon Rules of Evidence.<sup>48</sup> Louisiana applied a comparable analysis in polygraph and voice stress analysis cases.<sup>49</sup> Similarly, courts ex-

cluded truth-serum evidence on this basis.<sup>50</sup>

Post-*Daubert* cases falling into this category include: Arkansas,<sup>51</sup> Delaware,<sup>52</sup> Georgia,<sup>53</sup> Iowa,<sup>54</sup> Louisiana,<sup>55</sup> Montana,<sup>56</sup> North Carolina,<sup>57</sup>

<sup>43</sup> *State v. Alberico*, 861 P.2d 192 (N.M. 1993).

<sup>44</sup> *Taylor v. State*, 889 P.2d 319, 328, 332 (Okla. Crim. App. 1995) ("[T]he time is right for this court to abandon the *Frye* test and adopt the more structured and yet flexible admissibility standard set forth in *Daubert*.").

<sup>45</sup> *State v. Hofer*, 512 N.W.2d 482, 484 (S.D. 1994) ("[G]eneral acceptance in the scientific community is no longer required.") (intoxilyzer).

<sup>46</sup> *E.I. Du Pont de Nemours & Co. v. Robinson*, 923 S.W.2d 549, 554 (Tex. 1995) (commenting that *Daubert* properly strengthens the role of trial judge as gatekeeper in civil cases).

<sup>47</sup> *Wilt v. Buracker*, 443 S.E.2d 196, 203-4 (W. Va. 1993) ("*Daubert's* analysis of Federal Rule 702 should be followed in analyzing the admissibility of expert testimony under 702 of West Virginia Rules of Evidence."), cert. denied, 115 S. Ct. 1129 (1994).

<sup>48</sup> *State v. Brown*, 687 P.2d 751, 775 (Or. 1984) (en banc) ("Notwithstanding the usual deference to trial court discretion, we as an appellate court retain our role to determine the admissibility of scientific evidence under the Oregon Evidence Code.").

<sup>49</sup> *State v. Catanese*, 368 So. 2d 975, 981 (La. 1979) ("[A]fter engaging in a balancing process at the appellate level similar to that recommended by McCormick and other writers, we con-

clude that at present in our court system the probative value [of polygraph evidence] is so outweighed by the reasons for its exclusion that the evidence should not be admitted. . . ."); *State v. Thompson*, 381 So. 2d 823, 824 (La. 1980) (rejecting voice stress analysis).

<sup>50</sup> *Harper v. State*, 292 S.E.2d 389, 395-96 (Ga. 1982) (rejecting *Frye* rule but nevertheless excluding truth serum evidence as unreliable).

<sup>51</sup> *Moore v. State*, 915 S.W.2d 284, 294 (Ark. 1996) (DNA evidence no longer novel; "*Daubert* . . . adopted a reliability approach to Rule 702, comparable to the relevancy approach of *Prater* in which reliability is the critical element.").

<sup>52</sup> *Nelson v. State*, 628 A.2d 69, 73-75 (Del. 1993) ("Our decisions [in prior cases] are consistent with the Supreme Court's decision in *Daubert*.").

<sup>53</sup> *Carr v. State*, 482 S.E.2d 314 (Ga. 1997) (dog alert to fire accelerants not shown "with verifiable certainty" to be accurate and reliable).

<sup>54</sup> *Hutchison v. American Family Mut. Ins. Co.*, 514 N.W.2d 882, 885 (Iowa 1994) (*Daubert* consistent with Iowa precedents).

<sup>55</sup> *State v. Foret*, 628 So. 2d 1116, 1123-27 (La. 1993) ("Past decisions of this court have espoused similar sentiments [as *Daubert*].").

<sup>56</sup> *State v. Moore*, 885 P.2d 457, 471 (Mont. 1994) ("[T]he guidelines set forth in *Daubert* are consistent with our previous holding . . . concerning the admission of expert testimony of novel scientific evidence, and we, therefore, adopt the *Daubert* standard.").

<sup>57</sup> *State v. Goode*, 461 S.E.2d 631 (N.C. 1995) (bloodstain pattern interpretation admissible under North Caro-

Oregon,<sup>58</sup> Utah,<sup>59</sup> Vermont,<sup>60</sup> and Wyoming.<sup>61</sup> Consequently, *Daubert* did not have much of an effect in these jurisdictions, except to the extent that it moved a state from the less stringent relevancy approach to the reliability approach. In contrast, in *State v. Cosby*<sup>62</sup> the Utah Supreme Court indicated that its reliability approach was more stringent than the one required by *Daubert*. The Court wrote:

If there is a noteworthy difference between the two opinions, it is perhaps that our opinion in *Rimmäs* provides a detailed and rigorous outline for trial courts to follow when making determinations concerning the admissibility of scientific evidence. . . . "[T]he trial court should carefully explore each logical link in the chain that leads to expert testimony given in court and determine its reliability." The Supreme Court in *Daubert*, on the

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lina approach which is consistent with *Daubert*).

<sup>58</sup> *State v. O'Key*, 899 P.2d 663, 680 (Or. 1995) (en banc) ("Both *Daubert* and *Brown* allow *Frye*'s 'general acceptance' standard to be considered as one factor in the trial court's decision about admissibility. . . . Faced with a proffer of expert scientific testimony, an Oregon trial court . . . should find *Daubert* instructive"; HGN intoxication test is scientifically valid).

<sup>59</sup> *State v. Cosby*, 927 P.2d 638, 642 (Utah 1996).

<sup>60</sup> *State v. Brooks*, 643 A.2d 226 (Vt. 1993) (*Daubert* consistent with Vermont precedents).

<sup>61</sup> *Springfield v. State*, 860 P.2d 435, 442-43 (Wyo. 1993).

<sup>62</sup> *State v. Cosby*, 927 P.2d 638 (Utah 1996).

other hand, emphasized a more flexible approach. . . .)<sup>63</sup>

### ***Frye* "Plus" & *Daubert* "Plus"**

Before *Daubert* was decided, several courts had applied a *Frye*-plus test.<sup>64</sup> For example, in *People v. Castro*,<sup>65</sup> the court set forth a three-pronged analysis for the admissibility of scientific evidence. The proponent must show that (1) the underlying theory has been generally accepted, (2) the procedures implementing the theory have been generally accepted, and (3) the testing laboratory has followed these procedures. Because of the "complexity" of DNA analysis and its "powerful impact" on a jury, the court held that "passing muster under *Frye* alone is insufficient." In the court's view, the prosecution satisfied the first two prongs but not the third. *Daubert*, *Frye*, and the relevancy approach all relate only to the first two prongs.

Note, however, that this requirement predated the DNA cases. In a 1971 case involving chromatographic ink analysis, the court stated: "It is widely recognized that the party offering the results of laboratory tests must . . . vouch for its correct administration in the particular case."<sup>66</sup> Moreover, this founda-

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<sup>63</sup> *Id.* at 642 (quoting *State v. Rimmäs*, 775 P.2d 388, 403 (Utah 1989)).

<sup>64</sup> Goldberg, "A New Day for DNA?," 78 A.B.A. J. 84, 84 (Apr. 1992) ("*Frye* Plus").

<sup>65</sup> *People v. Castro*, 545 N.Y.S.2d 985, 987 (Sup. 1989).

<sup>66</sup> *United States v. Bruno*, 333 F. Supp. 570, 574 (E.D. Pa. 1971).



tional requirement is applied daily in intoxication and radar cases.<sup>67</sup>

While the Alabama and Nebraska Supreme Courts adopted the three-prong test,<sup>68</sup> the federal courts split on the issue. In *United States v. Two Bulls*,<sup>69</sup> the Eighth Circuit adopted the *Castro* approach. In contrast, the Second Circuit, which had earlier rejected *Frye*, also rejected this "el-

<sup>67</sup> See 1 Giannelli & Imwinkelried, *Scientific Evidence* 36 (2d ed. 1993) (listing cases involving polygraph and voiceprint as well as other types of scientific evidence that adopt this position).

<sup>68</sup> See also *Ex parte Perry*, 586 So. 2d 242, 249-50 (Ala. 1991) (adopting the three-pronged test) ("In this particular case, did the testing laboratory perform generally accepted scientific techniques without error in the performance or interpretation of the tests?"); *Ex parte Hutcherson*, 677 So. 2d 1205, 1209 (Ala. 1996) ("[T]he testimony from forensic scientist Elaine Scott failed to satisfy the third prong of the *Perry* test because she did not testify as to the quality controls used by the Mobile laboratory [for DNA]. Additionally, testimony from Roger Morrison failed to sufficiently meet the third prong, because he explained only one type of quality control procedure used and did not testify as to other quality control procedures used. . . ."); *State v. Houser*, 490 N.W.2d 168, 181 (Neb. 1992) ("[T]he trial court, in determining admissibility of DNA evidence, must first be satisfied, and find, as to the general acceptance of relevant DNA theories in the scientific community and must be satisfied as to the acceptance and validity of the methodology of testing DNA used. The trial court then determines if specific procedures were properly followed in the case before the court.").

<sup>69</sup> *United States v. Two Bulls*, 918 F.2d 56 (8th Cir. 1990) (adopting *Castro* approach), vacated en banc, dismissed as moot after defendant's death, 925 F.2d 1127 (8th Cir. 1991).

evated standard" as "even more stringent than that in *Frye*."<sup>70</sup>

The post-*Daubert* developments are difficult to categorize. Several *Frye* jurisdictions have addressed this issue. In *People v. Wesley*,<sup>71</sup> the New York Court of Appeals affirmed *Frye* but held that case-specific errors generally go to the weight of the evidence, to its admissibility. As the highest court in New York, *Wesley* overrules *Castro*. In rejecting the three-pronged test, the Maryland Court of Appeals adopted an intermediate approach: "Although these particularized challenges ordinarily will go to the weight of the evidence rather than its admissibility, the trial judge retains discretion to exclude evidence if it is so unreliable that it would not be helpful to the factfinder."<sup>72</sup>

Even after *Daubert*, the Eighth Circuit in *United States v. Martinez*<sup>73</sup> continued to impose this "plus" requirement:

We believe that the reliability inquiry set forth in *Daubert* mandates that there be a preliminary showing that the expert properly performed a reliable methodology in arriving at his opinion. . . . In order to determine whether scientific testimony is reliable, the court must conclude that the testimony was derived from the application

<sup>70</sup> *United States v. Jakobetz*, 955 F.2d 786, 794-95 (2d Cir.), cert. denied, 506 U.S. 837 (1992).

<sup>71</sup> *People v. Wesley*, 633 N.E.2d 451, 458 (N.Y. 1993).

<sup>72</sup> *Armstead v. State*, 673 A.2d 221, 235 (Md. 1996).

<sup>73</sup> *United States v. Martinez*, 3 F.3d 1191, 1197-98 (8th Cir. 1993).

of a reliable methodology or principle in the particular case.

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Thus, we conclude that the court should make an initial inquiry into the particular expert's application of the scientific principle or methodology in question. The court should require the testifying expert to provide affidavits attesting that he properly performed the protocols involved in DNA profiling.<sup>74</sup>

In *United States v. Galbreth*,<sup>75</sup> a federal district court also discussed the *Daubert* "plus" issue in a polygraph case: "It is not entirely clear whether *Daubert* requires as a prerequisite to admissibility that the proponent establish the validity of the specific application of a scientific technique."<sup>76</sup> The court further

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<sup>74</sup> The Eighth Circuit later withdrew the first opinion and substituted a new opinion. The court's position on this issue, however, does not appear to have changed. The court wrote:

We believe that the reliability inquiry set forth in *Daubert* mandates that there be a preliminary showing that the expert properly performed a reliable methodology in arriving at his opinion. . . . [*Daubert*] suggests that the inquiry extends beyond simply the reliability of the principles or methodologies in the abstract. In order to determine whether scientific testimony is reliable, the court must conclude that the testimony was derived from the application of a reliable methodology or principle in the particular case.

*United States v. Martinez*, 1993 U.S. App. LEXIS 31026, \*21-22 (8th Cir. 1993), cert. denied, 114 S. Ct. 734 (1994).

<sup>75</sup> *United States v. Galbreth*, 908 F. Supp. 877 (D.N.M. 1995).

<sup>76</sup> *Id.* at 880-81.

remarked: "[A]fter reviewing the case law addressing this issue in the context of other forensic laboratory techniques and after careful consideration of the testimony presented at the hearing regarding the polygraph technique, the Court holds that in the context of polygraph evidence, such scrutiny is imperative to a faithful application of *Daubert*."<sup>77</sup> Accordingly, the court went on to rule "that in addition to establishing the scientific validity of the polygraph technique in the abstract, the proponent of the proposed testimony must also prove that the specific examination was conducted properly by a competent examiner."<sup>78</sup>

Texas has also followed this approach: "To be considered reliable, evidence of a scientific theory must satisfy the following three criteria: (a) the underlying theory must be valid; (b) the technique applying the theory must be valid; and (c) the technique must have been properly applied on the occasion in question."<sup>79</sup> In addition, Texas has required the proponent of novel scientific evidence to establish its reliability by clear and convincing evidence.<sup>80</sup>

### *Daubert's "Relaxed" Standard*

A related issue concerns the extent to which *Daubert* lowers the barriers to admissibility. At the time *Daubert* was decided in 1993, many commentators interpreted the Court's opinion as replacing the

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<sup>77</sup> *Id.* at 881.

<sup>78</sup> *Id.* at 882.

<sup>79</sup> *Campbell v. State*, 910 S.W.2d 475, 478 (Tex. Crim. App. 1995) (en banc) (citing *Kelly v. State*, 824 S.W.2d 568, 573 (Tex. Crim. App. 1992)).

<sup>80</sup> *Id.*

*Frye* general acceptance standard with a more liberal standard of admissibility. Passages in the opinion support this view. For example, the Court commented:

Given the Rules' permissive backdrop and their inclusion of a specific rule on expert testimony that does not mention "general acceptance," the assertion that the Rules somehow assimilated *Frye* is unconvincing. *Frye* made "general acceptance" the exclusive test for admitting expert scientific testimony. That austere standard, absent from and incompatible with the Federal Rules of Evidence, should not be applied in federal trials.<sup>81</sup>

Some later cases embraced this position. For example, in *United States v. Bonds*,<sup>82</sup> the Sixth Circuit ruled: "We find that the DNA testimony easily meets the more liberal test set out by the Supreme Court in *Daubert*."<sup>83</sup> Similarly, the Second Circuit has written: "[B]y loosening the strictures on scientific evidence set by *Frye*, *Daubert* reinforces the idea that there should be a presumption of admissibility."<sup>84</sup> The polygraph cases illustrate this development. The Fifth Circuit has

observed that "the rationale underlying this circuit's per se rule against admitting polygraph evidence did not survive *Daubert*."<sup>85</sup> The court went on to state:

[W]e do not now hold that polygraph examinations are scientifically valid or that they will always assist the trier of fact. We merely remove the obstacle of the per se rule against admissibility, which was based on antiquated concepts about the technical ability of the polygraph and legal precepts [the *Frye* rule] that have been expressly overruled by the Supreme Court.<sup>86</sup>

There is, however, an alternative interpretation of *Daubert*. Admittedly, *Daubert* overruled *Frye* and adopted a different standard of admissibility—but not necessarily a less stringent one. *Daubert* required the trial judge to make an independent assessment of reliability. The Court wrote:

[I]n order to qualify as "scientific knowledge," an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—i.e., "good grounds," based on what is known. In short, the requirement that an expert's testimony pertain to "scientific knowledge" establishes a standard of evidentiary reliability.<sup>87</sup>

In addition, the trial court's admissibility determination "entails a preliminary assessment of whether

<sup>81</sup> 509 U.S. at 589.

<sup>82</sup> *United States v. Bonds*, 12 F.3d 540 (6th Cir. 1993).

<sup>83</sup> *Id.* at 568. See also *United States v. Kwong*, 69 F.3d 663, 668–69 (2d Cir. 1995) ("The Federal Rules of Evidence, although concededly more liberal than the *Frye* test, still require a determination that the proffered scientific evidence is both relevant and reliable.").

<sup>84</sup> *Borawick v. Shay*, 68 F.3d 597, 610 (2d Cir. 1995), cert. denied, 116 S. Ct. 1869 (1996).

<sup>85</sup> *United States v. Posado*, 57 F.3d 428, 429 (5th Cir. 1995).

<sup>86</sup> *Id.* at 434.

<sup>87</sup> *Daubert* 509 U.S. at 590.

the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue."<sup>88</sup>

*General Electric Co. v. Joiner*,<sup>89</sup> the United States Supreme Court's only decision interpreting *Daubert*, provides some further elaboration. Joiner alleged that exposure to PCBs had caused his cancer, but the trial court had excluded the plaintiff's expert testimony on causation as unsupported speculation. The Supreme Court was asked to determine the standard of appellate review. The Court adopted an abuse-of-discretion standard for reviewing a trial court's admissibility decision under *Daubert*. In one passage, the Court wrote: "[W]hile the Federal Rules of Evidence allow district courts to admit a somewhat broader range of scientific testimony than would have been admissible under *Frye*, they leave in place the 'gatekeeper' role of the trial judge in screening such evidence."<sup>90</sup> Again, the ambiguity of *Daubert* is repeated; a "broader range" of testimony is admissible, but the trial court's gatekeeping function is also emphasized. Moreover, the trial court in *Joiner* had excluded the plaintiff's expert testimony, i.e., applying a rather demanding admissibility standard.

In addition, the Supreme Court elaborated on a sentence in *Daubert* that had proved troublesome. In *Daubert* the Court had written that the "focus, or course, must be solely on principles and methodology, not on the conclusions that they generate."<sup>91</sup> The plaintiff argued that the

district court had erred because it had disagreed with the conclusions (not the methods) that the experts had drawn from the scientific studies. The Court responded to this argument by noting that:

[C]onclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.<sup>92</sup>

Here, again, the district court had not applied a lax standard; it had scrutinized the underlying scientific basis (i.e., animal and epidemiological studies) of the experts' opinions. As the Supreme Court noted, the animal studies were "dissimilar" to the facts presented in this litigation and the epidemiological studies "were not a sufficient basis for the experts' opinions."<sup>93</sup> In sum, *Joiner* does not seem to resolve the "relaxed" standard issue.

The view that *Daubert* does not adopt a lax standard finds support in recent cases dealing with questioned document and hair comparisons.

### Questioned Documents

In *United States v. Starzecpyzel*<sup>94</sup> a federal district court concluded

<sup>88</sup> *Id.* at 592-93.

<sup>89</sup> *General Electric Co. v. Joiner*, 118 S. Ct. 512 (1997).

<sup>90</sup> *Id.* at 517.

<sup>91</sup> *Daubert*, 509 U.S. at 595.

<sup>92</sup> *Joiner*, 118 S. Ct. at 519.

<sup>93</sup> *Id.* at 518.

<sup>94</sup> *United States v. Starzecpyzel*, 880 F. Supp. 1027, 1038 (S.D.N.Y. 1995).

that "the testimony at the *Daubert* hearing firmly established that forensic document examination, despite the existence of a certification program, professional journals and other trappings of science, cannot, after *Daubert*, be regarded as 'scientific . . . knowledge.'" In addition, "while scientific principles may relate to aspects of handwriting analysis, they have little or nothing to do with the day-to-day tasks performed by [Forensic Document Examiners] . . . [T]his attenuated relationship does not transform the FDE into a scientist."<sup>95</sup>

The court ruled that *Daubert* applied only to expert testimony that is "scientific" within the meaning of Federal Rule 702. But Rule 702 also permits the admission of expert testimony based on "technical" or "other specialized knowledge," and in the court's view, *Daubert* did not apply to nonscientific experts falling within these categories. The court went on to hold, however, that the Rule 702 requirements limiting expert testimony to that which assists the trier of fact and is proffered by a qualified expert must nevertheless be satisfied: "[T]his court concludes that adequate guidance can be found within Rule 702 to conduct a meaningful inquiry into the reliability of the expertise claimed by FDEs."<sup>96</sup> After the court found the testimony to be sufficiently reliable, it considered the risk of unfair prejudice. Because of FDE's use of terms such as "laboratory" and references to authorities with titles that may contain the words "science" or "scientific," there was a risk that jurors

may bestow upon FDE's the aura of the infallibility of scientists. Moreover, use of a nine-level scale of probability to express an opinion regarding genuineness appeared, in the court's view, to be misleadingly precise. Such overly fine distinctions are inappropriate in forensic document examination where it is conceded that conclusions are drawn, in large part, on subjective criteria.<sup>97</sup>

These problems do not preclude admission because several procedures can attenuate these risks. The first is a jury instruction stating that "FDEs offer practical rather than scientific expertise."<sup>98</sup> Second, the court may restrict testimony relating to the existence of the nine-level scale. Finally, the defense is entitled "to attack the reliability of forensic document examination, . . . to attack the expertise of each testifying FDE, [and] to introduce the testimony of their own FDE."<sup>99</sup>

Later cases affirmed this view. In *United States v. Velasquez*,<sup>100</sup> the Third Circuit ruled that the trial court "erred as a matter of law in denying the defense the opportunity to criticize the standards employed in that field of expertise." The expert would

<sup>97</sup> *Id.* at 1048.

<sup>98</sup> *Id.* at 1049. The court attached a draft jury instruction to the end of the opinion. *Id.* at 1050-51.

<sup>99</sup> *Id.* at 1050.

<sup>100</sup> *United States v. Velasquez*, 64 F.3d 844, 848 (3d Cir. 1995). See also *United States v. Ruth*, 42 M.J. 730, 732 (Army Ct. App. 1995) (expert handwriting testimony admissible under Rule 702 as "technical, and other specialized knowledge" even if it does not satisfy *Daubert*) (appointment of defense expert denied) *aff'd*, 46 M.J. 1 (C.A.A.F. 1997).

<sup>95</sup> *Id.* at 1041.

<sup>96</sup> *Id.* at 1043.

have testified that "handwriting analysis is not a valid field of scientific expertise because it lacks standards to guide experts in weighing the match or non-match of particular handwriting characteristics."<sup>101</sup> In *United States v. Jones*,<sup>102</sup> the Sixth Circuit wrote: "In short, expert handwriting analysis is a field of expertise under the Federal Rules of Evidence. This decision, however, does not guarantee the reliability or admissibility of this type of testimony in a particular case."

### Hair Comparisons

In *Williamson v. Reynolds*,<sup>103</sup> a federal habeas corpus case, an expert testified that hair samples were "microscopically consistent." However, the "expert did not explain which of the 'approximately' 25 characteristics were consistent, any standards for determining whether the samples were consistent, how many persons could be expected to share this same combination of characteristics, or how he arrived at his conclusions." Moreover, "[t]his court has been unsuccessful in its attempts to locate *any* indication that expert hair comparison testimony meets *any* of the requirements of *Daubert*."<sup>104</sup> The court further observed: "Although the hair expert may have followed procedures ac-

cepted in the community of hair experts, the human hair comparison results in this case were, nonetheless, scientifically unreliable."<sup>105</sup> Finally, the prosecutor exacerbated the problem by stating in the closing argument, "[T]here's a match." The state court also misinterpreted the evidence, writing that the "hair evidence placed [Petitioner] at the decedent's apartment." The "prosecutor's mischaracterization of the hair evidence misled the jury. . . ."<sup>106</sup>

The Tenth Circuit reversed on the ground that due process, not *Daubert*, was the standard in habeas cases.<sup>107</sup>

Subsequently, an Indiana appellate court wrote: "[T]he State mistakenly believed that a *Daubert* foundation was only required for novel scientific techniques, and thus did not attempt to lay the requisite foundation of evidentiary reliability [for hair comparison evidence]."<sup>108</sup>

### Conclusion

In sum, it is too early to predict the long-range impact of *Daubert*. As *Daubert* moves into its fifth year, the courts are still struggling to define its scope. Moreover, the state courts are in the process of deciding whether the *Daubert* standard should replace *Frye*.

<sup>105</sup> Id. at 1558.

<sup>106</sup> Id. at 1557. But see McCarty v. State, 904 P.2d 110, 125 (Okla. Crim. App. 1995).

<sup>107</sup> *Williamson v. Ward*, 110 F.3d 1508, (10th Cir. 1997).

<sup>108</sup> *McGrew v. State*, 673 N.E.2d 787, 802 (Ind. App. 1996).

<sup>101</sup> 64 F.3d at 846.

<sup>102</sup> *United States v. Jones*, 107 F.3d 1147, 1160 (6th Cir. 1997).

<sup>103</sup> *Williamson v. Reynolds*, 904 F. Supp. 1529, 1558 (E.D. Okla. 1995).

<sup>104</sup> Id. at 1557.