

## INDECENT EXPOSURE: GENES ARE MORE THAN A BRAND NAME LABEL IN THE DNA DATABASE DEBATE

By: Jessica D. Gabel\*

“[T]his is perhaps the most important criminal procedure case that this court has heard in decades . . . [l]ots of murders, lots of rapes that can be solved using this new technology that involves a very minimal intrusion on personal privacy.”<sup>1</sup> Few can argue with the message that DNA saves lives,<sup>2</sup> and that message is used time and again to justify the continued bloat of DNA databases. Saving lives and solving cases are the intended outcomes of the creation of DNA databases, but even with such laudable goals there are unintended—yet predictable—consequences.<sup>3</sup> In 1986, Donald Reynolds and Billy Wardell were convicted of raping a student in Illinois.<sup>4</sup> They spent eleven years in prison before being exonerated based on newly analyzed DNA evidence recovered from the crime scene.<sup>5</sup> Although they were released from prison and cleared of any wrongdoing, both Reynolds and Wardell may be labeled sex offenders for the rest of their lives.<sup>6</sup> Prior to the new code section addressing expungement, effective January 1, 2013, Illinois law required that all DNA profiles collected from sex offenders “shall be maintained in a single database

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1. Justice Samuel Alito. Transcript of Oral Argument *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12-207 13).
2. *See DNA Saves*, KATIESLAW.ORG, <http://katieslaw.org> (last visited Jan. 17, 2013) (advocating for DNA collection at the time of processing for arrestees in order to solve crimes faster).
3. Jonathan Kimmelman, *Risking Ethical Insolvency: A Survey of Trends in Criminal DNA Databanking*, 28 J.L. MED. & ETHICS 209, 211, 214 (2000); Bonnie Taylor, *Storing DNA Samples of Non-Convicted Persons & the Debate over DNA Database Expansion*, 20 T.M. COOLEY L. REV. 509, 512, 515 (2003).
4. *See* Michelle Hibbert, *State and Federal DNA Database Laws Examined*, PBS.ORG, <http://www.pbs.org/wgbh/pages/frontline/shows/case/revolution/databases.html> (last visited Jan. 22, 2013).
5. *Id.* “[A] DNA artifact recovered from the crime scene was analyzed in a Maryland lab, and it proved that the semen was neither Reynold’s nor Wardell’s.” *Id.*
6. *Id.*

and may not be subject to expungement.”<sup>7</sup> The new expungement provision does not claim to be retroactive, so it is unlikely that it would be helpful for Reynolds and Wardell. Thus, it appears that “their [DNA] profiles do not necessarily have to be purged from the system.”<sup>8</sup>

Despite the previous policies of Illinois and other states that do not explicitly require expungement at all, many states require both the expungement of the profile and the destruction of the corresponding DNA sample collected from wrongfully convicted offenders.<sup>9</sup> The Maryland DNA collection statute, for example, requires both the DNA sample and profile to be expunged once the defendant’s conviction has been overturned; however, the statute requires that identifying information be expunged from “every data base into which it has been entered, including local, State, and federal data bases.”<sup>10</sup> Poor drafting of these laws, however, may lead to problems down the road. For example, the expungement provisions of some state statutes require that samples be expunged from the state DNA databanks.<sup>11</sup> Because many state databanks link to the federal database, this wording leaves open a loophole that could allow the DNA profile to remain in either the national or the local system.<sup>12</sup> Further, the laws of Maine, Massachusetts, Montana, and Wyoming require only expungement of the DNA record from the database; they do not require the destruction of the DNA samples themselves.<sup>13</sup>

Of course, the tempting rationalization to make is that these glitches in the system are acceptable for the greater good. This is not to say that DNA databases are not useful. Indeed, DNA database hits have been instrumental in linking criminals to prior unsolved crimes

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7. *Id.* (citing 730 ILL. COMP. STAT. ANN. 5/5-4-3(f) (West 1997 & Supp. 1999)). The new code section allows for expungement, but only where “that pardon document specifically states that the reason for the pardon is the actual innocence of an individual.” 730 ILL. COMP. STAT. ANN. 5/5-4-3(f-1) (West 2007 & Supp. 2012).

8. Hibbert, *supra* note 4.

9. *Id.*; see also, e.g., *infra* note 10.

10. MD. CODE ANN., PUB. SAFETY § 2-511(c) (LexisNexis 2011).

11. See, e.g., DEL. CODE ANN. tit. 29, § 4713(i); HAW. REV. STAT. § 844D-71(a); LA. REV. STAT. ANN. § 15:614; NEB. REV. STAT. § 29-4109; S.D. CODIFIED LAWS § 23-5A-29. Although Maryland considered adopting this “statewide” language, the current code section requires expungement of the DNA record from all databases—including local and federal databases—that contain the record once a conviction is reversed on grounds of actual innocence. MD. CODE ANN., PUB. SAFETY § 2-511(c) (LexisNexis 2011).

12. Hibbert, *supra* note 4.

13. ME. REV. STAT. tit. 25, § 1577(4) (2007); MASS. GEN. LAWS ANN. ch. 22E, § 15 (West 2010); MONT. CODE ANN. § 44-6-107 (2011); WYO. STAT. ANN. § 7-19-405 (2011); Hibbert, *supra* note 4.

and bringing closure to many victims and families. For example, New York police uncovered a serial rapist in July 2012, after a DNA sample in the Federal Bureau of Investigation's Combined DNA Index System (CODIS) matched evidence from a twenty-five-year-old rape case.<sup>14</sup> William Joseph Trice was convicted in 2010 for raping an Annapolis, Maryland woman in 1988.<sup>15</sup> After police received information indicating that DNA profiles from two of their cold cases matched a profile in CODIS, they reviewed evidence from the 1988 Annapolis rape case.<sup>16</sup> A fingerprint recovered from the scene was matched to Trice, whose prints were in the latent fingerprint database.<sup>17</sup> Trice was tried and convicted of the Annapolis rape in January 2010, and was also linked to the December 1988 rape of a 42-year-old woman.<sup>18</sup> Further, as recently as July 2012, Trice was linked to the 1987 rape of yet another woman, and State's Attorney Frank Weathersbee is "encouraging jurisdictions in the surrounding area with unsolved rapes from the mid to late 1980s to review the evidence and determine whether a DNA profile can be run for a CODIS match."<sup>19</sup>

One would be hard pressed to argue with such success. However, is being wrongly labeled a sex offender for life and having one's DNA forever on file, susceptible to database trawls, an acceptable consequence of solving crimes and closing cases? The criminal justice system has, by and large, answered this question affirmatively.<sup>20</sup> It is part of the "game of consequences"<sup>21</sup> upon which the system feasts. While that question deserves more discussion, it is only one of many issues—too many to address in this article—that are omnipresent in the DNA database discussion.

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14. Tamika Smith, *DNA Evidence Solves Third Cold Rape Case*, ANNAPOLIS PATCH (July 24, 2012), <http://annapolis.patch.com/articles/dna-evidence-solves-third-cold-rape-case>.

15. *Id.*

16. *Id.*

17. *Id.*

18. *Id.* "Trice committed suicide by hanging himself in his jail cell six days after his conviction." *Id.*

19. *Id.*

20. See, e.g., FLA. STAT. ANN. § 943.325 (West Supp. 2013); KY. REV. STAT. ANN. § 17.175(1) (West 2006); MD. CODE ANN., PUB. SAFETY § 2-504 (LexisNexis 2011); N.C. GEN. STAT. § 15A-266.3 (2011); S.C. CODE ANN. § 23-3-610 (2007).

21. ROBERT LOUIS STEVENSON, *Old Mortality*, in MEMORIES AND PORTRAITS ch. 3 (1912), available at [http://ebooks.adelaide.edu.au/s/stevenson/robert\\_louis/s848mp/index.html](http://ebooks.adelaide.edu.au/s/stevenson/robert_louis/s848mp/index.html) (last updated Nov. 12, 2012, 7:25 PM).

I. DNA DATABASES: THE EMPEROR'S NEW KLUGES<sup>22</sup>

In the family tree of criminal investigations, DNA is no longer the awkward, misunderstood cousin to fingerprints. Rather, DNA has moved to the forefront of identification, and is often associated with the term “gold standard.”<sup>23</sup> Still in its infancy stage in the 1990s, the use of DNA in criminal cases has exploded over the past twenty years.<sup>24</sup> No longer reserved for sexual assault and homicide cases, DNA has found a foothold in even lowly property crime investigations.<sup>25</sup> Because of its power for precision and accuracy in the identification of suspects, DNA quickly became the focal point of a broad-scale offender database, capable of linking suspects to the previously unsolved crimes they committed.<sup>26</sup>

To be sure, it would be hard to either discount or deny the obvious benefits that have accrued with the proliferation of DNA databases. CODIS went live in 1998, and is now the epicenter of many criminal investigations on the local, state, and national levels.<sup>27</sup> The advent of DNA databases is not a surprising one. With the expansion of DNA

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22. A kluge is computer slang for “a software or hardware configuration that, while inelegant, inefficient, clumsy, or patched together, succeeds in solving a specific problem or performing a particular task.” *Kluge*, DICTIONARY.COM, <http://dictionary.reference.com/browse/kluge?s=t> (last visited Jan. 22, 2013).

23. E.g., Paul C. Giannelli, Daubert and Forensic Science: *The Pitfalls of Law Enforcement Control of Scientific Research*, 2011 U. ILL. L. REV. 53, 58 (2011).

24. See Karen J. Maschke, *DNA and Law Enforcement*, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS, 45, 45–46 (Mary Crowley ed., 2008), available at <http://www.thehastingscenter.org/publications/briefingbook/Default.aspx>.

25. See, e.g., Joseph Blozis, *Using DNA to Fight Property Crime*, EVIDENCE TECH MAG., [http://www.evidencemagazine.com/index.php?option=com\\_content&task=view&id=1031](http://www.evidencemagazine.com/index.php?option=com_content&task=view&id=1031) (last visited Feb. 20, 2013). In an effort to address staffing problems that have created a huge evidence backlog, the City of Oakland Police department has significantly decreased the number of fingerprints it takes from crime scenes and has begun to rely much more heavily on DNA profiles to solve crimes, though their DNA backlog is also significant. See Jesse Douglas Allen-Taylor, *City Seeks Solutions to Crime Investigations Backlog*, POST NEWSPAPER GROUP (Aug. 14, 2012), <http://www.postnewsgroup.com/publishedcontent/2012/08/14/city-seeks-solutions-to-crime-investigations-backlog/>.

26. Maschke, *supra* note 24, at 45.

27. CODIS is the acronym for the “Combined DNA Index System” and is the generic term used to describe the FBI’s program of support for criminal justice DNA databases as well as the software used to run these databases. *Frequently Asked Questions (FAQs) on the CODIS Program and the National DNA Index System*, FBI, <http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis-and-ndis-fact-sheet> (last visited Jan. 22, 2013). The National DNA Index System (NDIS) is one part of CODIS containing the DNA profiles contributed by federal, state, and local participating forensic laboratories. *Id.*

evidence in criminal cases, the writing was on the wall: the criminal justice system needed to warehouse and recall the DNA profiles of offenders and profiles from unsolved cases.<sup>28</sup>

CODIS stockpiles DNA profile records entered by local, state, and federal law enforcement agencies.<sup>29</sup> Constructed upon a set of thirteen randomly selected genetic markers, “CODIS draws from two indices: DNA profiles of individuals (mostly convicted offenders) and the other containing unidentified DNA from crime scenes.”<sup>30</sup> As it pertains to federal offenders, the DNA Act, and its later amendments, requires collection of DNA samples from those convicted of, among other things, any felony or crime of violence, certain sexual offenses, and conspiracy to commit those crimes.<sup>31</sup> In 2005, the DNA Fingerprint Act of 2005 expanded the pool of “offenders” to include DNA samples from federal arrestees.<sup>32</sup>

Not to be left in the dust, all fifty states now have similar provisions that establish DNA databases and mandate collection of samples from offenders, but the list of suspects is anything but usual.<sup>33</sup> While databases were initially intended to store the profiles of sex offenders and other violent criminals—and some states do restrict the offender index to those individuals—state DNA databases have swelled to include those convicted of misdemeanor crimes.<sup>34</sup> While the list of collectible offenses has multiplied, states also have begun to follow the federal practice of collecting samples from

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28. See Jessica D. Gabel, *Probable Cause from Probable Bonds: A Genetic Tattle Tale Based on Familial DNA*, 21 HASTINGS WOMEN’S L.J. 3, 13 (2010) (explaining that CODIS was created to centralize and coordinate the myriad national, state, and local DNA databases that had begun to emerge in an effort to “foster the exchange and comparison of forensic DNA evidence from violent crime investigations” and that the “DNA Identification Act (‘DNA Act’) authorized the FBI to create the National DNA Index System (‘NDIS’) in 1994”).

29. *Id.*

30. *Id.* at 14.

31. 42 U.S.C. § 14135a(a)(1)(b), (d) (2006). The majority of DNA profiles stored in the national database are those of convicted felons who have served time for crimes such as assault and battery, rape, murder, and robbery, *CODIS-NDIS Statistics*, FBI, <http://www.fbi.gov/about-us/lab/biometric-analysis/codis/ndis-statistics> (last visited Feb. 6, 2013), but the DNA Act now provides for DNA collection from individuals on probation, parole, and supervised release for federal offenses. 42 U.S.C. § 14135a(a)(2) (2006).

32. DNA Fingerprint Act of 2005, Pub. L. No. 109-162, sec. 1004, § 14135a, 119 Stat. 2960, 3085 (2006) (amended 42 U.S.C. § 14135a).

33. Sarah B. Berson, *Debating DNA Collection*, NAT’L INST. OF JUST. J., Nov. 2009, at 9, 10, available at <https://www.ncjrs.gov/pdffiles1/nij/228381.pdf>.

34. *Id.*

arrestees.<sup>35</sup> Currently, twenty-eight states and the federal government actively collect DNA samples from arrestees and add them to the offender index.<sup>36</sup> Should the charges be dismissed or the government otherwise fail to obtain a conviction, the DNA profile (and the sample from which it came) may be left in a legal vacuum.<sup>37</sup>

The majority of the states that permit arrestee collection put the onus on the individual to affirmatively seek destruction of the sample and expungement of the profile.<sup>38</sup> But if that profile has already been uploaded into CODIS and added to the national database, then it will remain there indefinitely, regardless of what happens at the state level.<sup>39</sup> The profile may also remain in a local database if there is no provision for removal from all DNA repositories. In contrast to the prevailing trend of placing the burden on the arrestee to request expungement, Maryland is one of only a handful of states that affirmatively requires the state to destroy the sample and eliminate the profile from the state database.<sup>40</sup> Maryland law includes the corresponding duty to eliminate the profile if it has found its way into the national database maintained by the FBI.<sup>41</sup> With the passage of Maryland HB 292 and removal of the sunset provision, section 2-511(c) does now appear to require removal of the profile from local, state, and federal databases.<sup>42</sup>

Still, with the ambitious and nearly-unfettered expansion of DNA databases, it is perhaps not surprising that it raises privacy concerns, and relatedly, Fourth Amendment concerns.<sup>43</sup> This article, however, is not about the Fourth Amendment. Nor is it about privacy. This article focuses on an issue that, in my view, is all too often given short shrift in the DNA database debate: the collection of DNA is about more than just putting genetic material into a barcode format.

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35. *Id.* at 9–11.

36. *See* U.S. DEP'T OF JUSTICE, *DNA Sample Collection from Arrestees*, NAT'L INST. OF JUST. (Dec. 7, 2012), <http://nij.gov/topics/forensics/evidence/dna/collection-from-arrestees.htm>.

37. *See* Berson, *supra* note 33, at 11.

38. *Id.*

39. *See id.* (noting independent federal requirements for expungement); *DNA Sample Collection from Arrestees*, *supra* note 36.

40. MD. CODE ANN., PUB. SAFETY § 2-511(a) (LexisNexis 2011).

41. MD. CODE ANN., PUB. SAFETY § 2-511(c) (LexisNexis 2011). *See* Berson, *supra* note 33, at 11 (noting that under the federal statute a person must affirmatively request expungement); Michelle Hibbert, *DNA Databanks: Law Enforcement's Greatest Surveillance Tool?*, 34 WAKE FOREST L. REV. 767, 810 (1999).

42. MD. CODE ANN., PUB. SAFETY § 2-511(c) (LexisNexis 2011).

43. *E.g.*, Berson, *supra* note 33, at 11–13.

Courts, time and again, liken DNA profiles to fingerprints<sup>44</sup> or license plates,<sup>45</sup> but the information gleaned from a sample is so much more. As we continue the expansion of DNA collection in this country to include more offenders and arrestees, and quite possibly those outside of the criminal justice system, we should consider the broader implications of warehousing our genetic material.

## II. A FALLACY IN THE ANALOGY: DNA IS MORE THAN A FINGERPRINT

Infallibility. DNA was perhaps preordained to receive this label. Unlike any other type of forensic analysis that preceded it, DNA finally approached the unrealized Holy Grail in prosecutions: certainty.<sup>46</sup> From its inception, the true believers have proclaimed DNA analysis to be the criminal justice equivalent of the second coming. The courts have grasped this rhetoric with the gusto of a cult-like following.<sup>47</sup> The public perception of DNA is no different. After all, DNA has the power to free the innocent and to condemn the guilty. Popular culture hits such as *CSI* and *Law & Order* tell us that the smallest sample—a drop of sweat inside a baseball cap or saliva on chewing gum—will bring the wrongdoer to justice.<sup>48</sup>

With that insatiable desire for certainty, our unwavering faith in DNA has made us blind to both the shortcomings of DNA evidence and the true nature of what DNA is.<sup>49</sup> In effect, we have been desensitized to the use of our genetic material as a crime-fighting

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44. See, e.g., *United States v. Mitchell*, 652 F.3d 387, 409–10 (3d Cir. 2011) (collecting cases), *cert. denied*, 132 S. Ct. 1741 (2012).

45. See, e.g., *United States v. Beverly*, 369 F.3d 516, 531 (6th Cir. 2004) (“Finding Beverly’s [DNA] at the crime scene is essentially equivalent to finding that the last two digits of a license plate of a car owned by defendant matched the last two numbers of a license plate of a getaway car.”).

46. See William C. Thompson, *The Potential for Error in Forensic DNA Testing*, GENEWATCH, NOV.–DEC. 2008, 5, 5, available at <http://www.councilforresponsiblegenetics.org/pageDocuments/AJWLK7M1AV.pdf>.

47. See *Mitchell*, 652 F.3d at 410 (asserting “that a DNA profile is used solely as an accurate, unique, identifying marker—in other words, as fingerprints for the twenty-first century”); *State v. Raines*, 381 Md. 1, 25, 857 A.2d 19, 25 (2004) (finding that “[t]he DNA profile thus serves the purpose of increasing the efficiency and accuracy in identifying individuals within a certain class of convicted criminals” and thus, “[t]he purpose is akin to that of a fingerprint”).

48. See N.J. Schweitzer & Michael J. Saks, *The CSI Effect: Popular Fiction About Forensic Science Affects the Public’s Expectations About Real Forensic Science*, 47 JURIMETRICS J. 357, 363 (2007) (reporting differences among regular viewers of television programs focusing on forensic science and non-viewers).

49. See Thompson, *supra* note 46, at 5–6.

tool. Notions of infallibility breed acquiescence, and it has fueled and facilitated the development of DNA databases.<sup>50</sup>

Given DNA's rock-star status, it is not surprising that its infallibility has become an almost unassailable assumption.<sup>51</sup> While I have severe reservations over the perceived infallibility of the DNA "truth machine," I want to suspend that particular argument for the purposes of this article and instead focus on the prevailing notion among courts that DNA is somehow analogous to fingerprints in terms of the information gathered and the "inconvenience" visited upon suspects.<sup>52</sup> This issue is generally housed in the ongoing (and perhaps evolving) notions of Fourth Amendment jurisprudence.

#### A. *That Pesky Fourth Amendment*

I do not pretend to be a Fourth Amendment scholar. In fact, I perhaps embody some of the "Luddite approach" to Fourth Amendment interpretation that the Ninth Circuit scowled at in *Haskell*,<sup>53</sup> and that the dissent trumpeted in *King v. State*.<sup>54</sup> Nonetheless, to fully appreciate the DNA-fingerprint analogy, some consideration must be paid to the Fourth Amendment (just not the next forty pages).

The Fourth Amendment to the U.S. Constitution protects individuals from those searches and seizures that are "unreasonable."<sup>55</sup> Much of the debate surrounding the constitutionality of DNA databases focuses on the acquisition of the samples that comprise the database itself.<sup>56</sup> These samples are obtained and often analyzed by law enforcement officers, thus raising Fourth Amendment concerns.<sup>57</sup> Specifically, many of those opposed

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50. *Id.* at 5.

51. See Schweitzer & Saks, *supra* note 48, at 357–58. The subjective nature of DNA analysis creates a risk for "false matches and wrongful convictions." Brief of 14 Scholars of Forensic Evidence as Amici Curiae Supporting Respondent at 25, *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12–207), 2013 WL 476046.

52. See, e.g., *Mitchell*, 652 F.3d at 410–11 (concluding that a DNA profile is akin to a simple fingerprint, which is a minimally intrusive method of identification).

53. *Haskell v. Harris*, 669 F.3d 1049, 1063 (9th Cir. 2012), *reh'g en banc granted*, 686 F.3d 1121 (9th Cir. 2012).

54. *King v. State*, 425 Md. 550, 611–12, 42 A.3d 549, 586 (2012) (Barbera, J., dissenting), *cert granted sub nom.* *Maryland v. King*, 133 S. Ct. 594 (2012).

55. U.S. CONST. amend. IV.

56. See *DNA and the Fourth Amendment*, N.Y. TIMES, Aug. 5, 2012, [http://www.nytimes.com/2012/08/06/opinion/dna-and-the-fourth-amendment.html?\\_r=0](http://www.nytimes.com/2012/08/06/opinion/dna-and-the-fourth-amendment.html?_r=0).

57. See *Mitchell*, 652 F.3d at 406–13 (discussing the privacy interests implicated when DNA is extracted from an individual).



to the practice of obtaining samples from arrestees prior to conviction rely on the judicially created right of privacy, grounded in the language of the Fourth Amendment.<sup>58</sup> It provides that “[t]he right of the people to be secure in their *persons*, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated.”<sup>59</sup>

Early Fourth Amendment jurisprudence required an actual physical invasion into one of the enumerated categories in the Amendment in order to find a search occurred.<sup>60</sup> But the 1967 case of *Katz v. United States* changed that standard when the Court held that recording conversations that took place inside a phone booth constituted a search.<sup>61</sup> Justice Harlan’s concurring opinion laid out a two-prong test to determine whether a search has occurred for Fourth Amendment purposes.<sup>62</sup> First, the court must ask whether the defendant subjectively had an actual expectation of privacy.<sup>63</sup> Second, the court must ask whether “society is prepared to recognize [that expectation] as ‘reasonable.’”<sup>64</sup>

The second prong has been the most problematic, particularly in the face of ever-evolving technology.<sup>65</sup> As technology advances and the line between public and private places blurs, societal recognition of an expectation of privacy as reasonable becomes more and more

58. See, e.g., *DNA and the Fourth Amendment*, *supra* note 56 (explaining that proponents of the practice argue that it is minimally intrusive, while opponents argue it can only be performed with a warrant and is thus a violation of an arrestee’s Fourth Amendment privacy rights).

59. U.S. CONST. amend. IV (emphasis added).

60. See *Silverman v. United States*, 365 U.S. 505, 509 (1961) (finding a Fourth Amendment violation when a spike-mike placed by agents made contact with a heating duct in the wall of the defendant’s row house because the touching constituted a physical intrusion into the defendant’s home); *Goldman v. United States*, 316 U.S. 129, 135 (1942), *overruled by Katz v. United States*, 389 U.S. 347 (1967) (refusing to find a Fourth Amendment violation because there was no physical invasion when agents used a microphone, placed into adjoining walls, to overhear defendant’s conversations in his office); *Olmstead v. United States*, 277 U.S. 438, 466 (1928), *overruled by Katz*, 389 U.S. 347 (finding that wiretapping was not covered by the Fourth Amendment because it did not involve a physical intrusion into the defendant’s home, property, or person).

61. *Katz*, 389 U.S. 347.

62. *Id.* at 361 (Harlan, J., concurring).

63. *Id.*

64. *Id.*

65. See *Kyllo v. United States*, 533 U.S. 27, 34–35 (2001) (concluding that use of a thermal imaging device to detect heat radiating from a house is a “search” in part because “the technology in question is not in general public use”); *California v. Ciraolo*, 476 U.S. 207, 209, 213–14 (1986) (holding that an expectation of privacy in a home’s backyard is unreasonable as it can be observed from an aircraft).

difficult to discern.<sup>66</sup> For example, the Supreme Court recently decided a case involving law enforcement's warrantless use of GPS tracking devices.<sup>67</sup> In *United States v. Jones*, the defendant was convicted of drug trafficking based in part on evidence obtained from a GPS tracking device FBI agents attached to his vehicle.<sup>68</sup> The Court held that attaching the device to the defendant's car amounted to a search, triggering Fourth Amendment protections, and further, because the FBI agents did not have a warrant at the time the device was attached, the defendant's Fourth Amendment rights had been violated.<sup>69</sup> Five Justices on the Court focused on the physical intrusion upon the defendant's property.<sup>70</sup>

It is easy to analogize DNA to *Jones*. Indeed, DNA constitutes the very essence of an individual and it is difficult to imagine a more intimate physical intrusion upon one's person. Even under the pre-*Katz* standard, taking a DNA sample without consent from a defendant would obviously constitute a search.<sup>71</sup> Yet states and even the federal government continue to pass and enforce laws mandating that DNA samples be taken from the arrestees of certain crimes.<sup>72</sup> The argument often made is that the defendant has a subjective expectation of privacy concerning his genetic material, but that expectation is not one society is prepared to accept as reasonable.<sup>73</sup> In fact, this is the very argument the government made in *Jones*—that the defendant did not have a reasonable expectation of privacy while traversing the public roads.<sup>74</sup> That argument failed, largely because

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66. *Kyllo*, 533 U.S. at 34–35; *Ciraolo*, 476 U.S. at 213–14.

67. *United States v. Jones*, 132 S. Ct. 945, 948 (2012).

68. *Id.* at 948–49.

69. *Id.* at 945–54.

70. *Id.* at 949.

71. See *Schmerber v. California*, 384 U.S. 757, 767 (1966) (concluding that drawing blood from the body is a “search” because it is a physical intrusion).

72. E.g., CAL. PENAL CODE §§ 296, 296.1 (West 2008); see also *DNA Sample Collection from Arrestees*, NAT’L INST. OF JUST., <http://nij.gov/topics/forensics/evidence/dna/collection-from-arrestees.htm> (last visited Feb. 18, 2013). Some states, such as California, require that DNA samples be obtained from arrestees charged with any felony, while other states, such as Michigan, limit the triggering offenses to violent crimes and sex crimes. Compare CAL. PENAL CODE §§ 296, 296.1, *invalidated by* *People v. Buza*, 129 Cal. Rptr. 3d 753, 755 (Cal. Dist. Ct. App. 2011), *modified* Aug. 31, 2011, *cert. granted and vacated*, 292 P.3d 854 (Cal. 2011), and CAL. PENAL CODE § 299 (West 2012), with MICH. COMP. LAWS ANN. § 750.520m (West 2004 & Supp. 2012).

73. See *Williamson v. State*, 413 Md. 521, 529–30 (2010) (referring to the judge’s statement in a suppression hearing that society certainly would not accept as reasonable the defendant’s stated expectation of privacy in his genetic material).

74. *Jones*, 132 S.Ct. at 950.

the agents in that case did not have a valid warrant when they installed the device on Jones's car.<sup>75</sup>

Similarly, most of the time officers do not have a warrant to obtain a DNA sample from an arrestee, yet courts have continued to uphold laws mandating that DNA samples be taken from certain arrestees.<sup>76</sup> While some argue that the police have the probable cause necessary to make the arrest in the first place and that should carry the day, that initial probable cause does not extend to the second use of the sample once it enters the database and the subsequent comparison to samples entered from cold cases.<sup>77</sup> As discussed above, this article does not seek to hash out the Fourth Amendment arguments, rather it seeks to explore the implicit balancing test occurring in courts today: the comparison of the government's interest in solving cold cases versus the interest of arrestees in keeping their genetic profiles private.

In *Jones*, the Court concluded that the government's interest in using GPS technology to track a known drug trafficker was not sufficient to permit the physical intrusion on his property—his vehicle—without Fourth Amendment scrutiny.<sup>78</sup> Following the Court's reasoning in *Jones*, it is difficult to justify allowing the mandatory collection of DNA samples from certain arrestees. Proponents of the practice claim that DNA is used—like fingerprints—as a means of identification.<sup>79</sup> That comparison is inaccurate and dangerous.<sup>80</sup> Proponents further point to the ability to solve previously unsolvable crimes involving rape and murder.<sup>81</sup> But should the gravity of the crime in question play any role in the Court's constitutional analysis? It did not in *Jones*. Jones and his accomplices were charged with possession with the intent to

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75. *Id.* at 947, 952.

76. *See Haskell v. Harris*, 669 F.3d 1049, 1050–51 (9th Cir. 2012), *reh'g en banc granted*, 686 F.3d 1121 (9th Cir. 2012) (holding that California's DNA Act requiring law enforcement officers to collect DNA from all adults arrested for felonies does not violate the Fourth Amendment).

77. *See United States v. Davis*, 602 F. Supp. 2d 658, 674 (D. Md. 2009), *aff'd*, 690 F.3d 226 (4th Cir. 2012) (citing a defense expert who explained the difference between cold hits and probable cause).

78. *Jones*, 132 S. Ct. at 947, 952, 954.

79. *See* discussion *supra* note 44 and accompanying text.

80. *See* discussion *infra* Part II.B–D.

81. *See, e.g., Kate Allt, DNA Technology Helps Solve 38-Year-Old Cold Case, HEARTLAND CONNECTION* (Nov. 14, 2012, 3:45 PM), <http://www.heartlandconnection.com/news/story.aspx?id=825423#.UPtyGR1EQXc> (chronicling the arrest of a murder suspect after evidence from the crime was re-examined).

distribute more than five kilograms of cocaine after the GPS evidence linked him to a house where a stash consisting of \$850,000 in cash, ninety-seven grams of cocaine, and one kilogram of cocaine base were discovered.<sup>82</sup> Jones himself was sentenced to life in prison after his conviction.<sup>83</sup> Although the crime Jones was convicted of was very serious, its gravity did not appear to play any role in the Court's holding that his Fourth Amendment rights had been violated by the warrantless search.<sup>84</sup>

As indicated by the disparate treatment of GPS cases like *Jones* and challenges to laws mandating the procurement of DNA samples from arrestees, there is an implicit balancing test occurring in courts.<sup>85</sup> The analogy of DNA to fingerprints is the fiction that allows this disparate treatment to continue.<sup>86</sup> It appears to be driven by the belief that the government's interest in solving cold cases with DNA evidence trumps individual privacy rights.<sup>87</sup> This is the often overlooked argument this article seeks to address and dispel.

### B. The Print Edition

"[Once] a suspect is arrested upon probable cause, his identification becomes a matter of legitimate state interest."<sup>88</sup> The rationale behind this view is the fact that the identification of suspects is "relevant not only to solving the crime for which the suspect is arrested, but also for maintaining a permanent record to solve other past and future crimes."<sup>89</sup> This same reasoning has extended from fingerprints to the collection of DNA upon arrest.<sup>90</sup> The justification for this routinely

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82. *Jones*, 132 S. Ct. at 948–49.

83. *Id.* at 949.

84. *See id.* at 949–956 (explaining that the court's analysis does not make mention of the gravity of Jones' conviction).

85. *Compare id.* at 947, 949, 952 (holding that the government's interest in tracking a drug trafficker was not enough to justify the government's trespass on the defendant's vehicle to install a GPS), *with* *Haskell v. Harris*, 669 F.3d 1049, 1050–51 (9th Cir. 2012), *reh'g en banc granted*, 686 F.3d 1121 (9th Cir. 2012) (upholding California's mandatory DNA collection law).

86. *See infra* Part II.B.

87. *See* *Nicholas v. Goord*, 430 F.3d 652, 671 (2d Cir. 2005); *Jones v. Murray*, 962 F.2d 302, 306 (4th Cir. 1992).

88. *Jones*, 962 F.2d at 306.

89. *Id.*; *see also* *Maryland v. King*, 133 S. Ct. 1958, 1972 (2013); *Johnson v. Commonwealth*, 529 S.E.2d 769, 779 (Va. 2000).

90. *See, e.g.*, H.R. REP. NO. 106-900, pt. 1, at 10 (2000). The House Report justified the need to expedite analysis of DNA samples because a "backlog" of samples resulted in "killers, rapists, and other dangerous offenders who might be successfully identified through DNA . . . to engage in further crimes against the public." *Id.* The Report also noted that (at least in theory) efficient collection and processing would ensure fewer

lies in the non-invasive “booking” procedures followed for most arrests, which already includes fingerprinting;<sup>91</sup> thus, swiping the interior of the mouth with a buccal swab does not add much in terms of invasion and inconvenience.<sup>92</sup>

Absent a few outliers, the majority trend in cases reviewing the taking of DNA samples at arrest views the activity and the information gathered to be analogous to fingerprinting.<sup>93</sup> For example: the Second Circuit held “[t]he collection and maintenance of DNA information, while effected through relatively more intrusive procedures such as blood draws or buccal cheek swabs, in our view plays the same role as fingerprinting.”<sup>94</sup> The Third Circuit added in photographs for fun: “The governmental justification for [DNA] identification, therefore, relies on no argument different in kind from that traditionally advanced for taking fingerprints and photographs, but with additional force because of the potentially greater precision of DNA sampling and matching methods.”<sup>95</sup> The Ninth Circuit concluded that “the gathering of DNA information requires the drawing of blood rather than inking and rolling a person’s fingertips does not elevate the intrusion upon the plaintiffs’ Fourth Amendment interests to a level beyond minimal.”<sup>96</sup>

State courts have followed suit,<sup>97</sup> and while Maryland is a notable exception to the tired and rubber-stamped “DNA is analogous to

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wrongful convictions. *Id.* (“Promptly identifying the actual perpetrator of a crime through DNA matching exonerates any other persons who might wrongfully be suspected, accused, or convicted of the crime.”).

91. *See, e.g., Nicholas*, 430 F.3d at 671.

92. *See id.*

93. *See infra* notes 94–96 and accompanying text.

94. *Nicholas*, 430 F.3d at 671.

95. *United States v. Sczubelek*, 402 F.3d 175, 185–86 (3d Cir. 2005) (quoting *Jones v. Murray*, 962 F.2d 302, 307 (4th Cir. 1992)).

96. *Rise v. Oregon*, 59 F.3d 1556, 1560 (9th Cir. 1995).

97. *See, e.g., State v. O’Hagen*, 914 A.2d 267, 280 (N.J. 2007) (“[W]e harbor no doubt that the taking of a buccal cheek swab is a very minor physical intrusion upon the person. . . . [T]hat intrusion is no more intrusive than the fingerprint procedure and the taking of one’s photograph that a person must already undergo as part of the normal arrest process.”); *State v. Brown*, 157 P.3d 301, 303 (Or. Ct. App. 2007) (stating, “because [using a swab to take a DNA sample from the mucous membrane of an arrestee’s cheek] is akin to the fingerprinting of a person in custody, we conclude that the seizure of the defendant’s DNA did not constitute an unreasonable seizure under the constitution”).

fingerprints” argument,<sup>98</sup> most courts seem quick to merely balance the defendant’s interest in privacy against the state’s interest in achieving greater results in criminal investigations.<sup>99</sup> Unfortunately, that conveniently traditional Fourth Amendment analysis is a somewhat contrived and easy mark for the courts to target. Whether out of brevity, myopia, or reluctance, the analysis of the privacy component generally fails to reach what I think is the heart of the matter: the information gathered.<sup>100</sup>

This is not to say that the question of obtaining DNA samples from arrestees should skip the Fourth Amendment analysis. Without a doubt, this is a Fourth Amendment question and requires that lens for proper scrutiny.<sup>101</sup> Indeed, most cases focus on two things: (1) the level of intrusion in obtaining a DNA sample; and (2) the purpose of obtaining that information.<sup>102</sup> On the question of intrusion, I recognize that a buccal swab on the inside of the cheek is a relatively minor intrusion. It is, as the Maryland Court of Appeals noted, less physically invasive than drawing blood.<sup>103</sup> Moreover, I agree with the dissent in *King v. State* that the “subcutaneous removal of blood from a person’s veins presents only a marginal intrusion into that person’s privacy interest, *a fortiori*, the insertion of a cotton swab into a person’s mouth is less of an intrusion and fairly characterized as *de minimis*.”<sup>104</sup> As to the purpose of the DNA collection, courts

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98. See *King v. State*, 425 Md. 550, 569–71, 576, 42 A.3d 549, 584–86, 595 (2012) (analyzing the existing case law and declining to equate DNA with fingerprints), *cert granted sub nom.* *Maryland v. King*, 133 S. Ct. 594 (2012).

99. E.g., *Haskell v. Brown*, 677 F. Supp. 2d 1187, 1196–1200 (N.D. Cal. 2009), *aff’d sub nom.* *Haskell v. Harris*, 669 F.3d 1049 (9th Cir. 2012).

100. See *infra* notes 108–109 and accompanying text; *infra* Part II.D. Certainly, this same argument could be made as it pertains to obtaining DNA samples from convicted offenders, but given the wealth of opinions that note the reduced privacy protections afforded to the convicted, this paper will not discuss that issue.

101. See *King*, 425 Md. at 562, 594, 42 A.3d at 556, 575 (applying Fourth Amendment analysis to determine whether obtaining DNA samples from arrestees is permissible).

102. See *id.* at 577–79, 584–85, 589–92, 42 A.3d at 565–66, 569–70, 573–75. A dissent in one case also focused on the presumption of innocence related to taking the DNA of arrestees. *Mario W. v. Kaipio*, 265 P.3d 389, 404 (Ariz. Ct. App. 2011) (Norris, J., dissenting in part), *vacated*, 281 P.3d 476 (Ariz. 2012). The dissenting judge concluded that the State failed to meet its burden to provide justification for abrogating the juveniles’ expectation of privacy. *Id.*

103. *State v. Raines*, 383 Md. 1, 4, 857 A.2d 19, 22 (2004); see also *Schmerber v. California*, 384 U.S. 757, 771–72 (1966).

104. *King*, 425 Md. at 607; 42 A.3d at 583; see also *United States v. Mitchell*, 652 F.3d 387, 389, 407 (3d Cir. 2011) (Barbera, J., dissenting) (noting, in a case upholding the constitutionality of a federal statute that authorizes DNA collection from arrestees,

seem to fall into two camps. If the court determines that the primary purpose is identification (i.e., confirm identity or link the suspect to the instant crime) then it seems to pass Fourth Amendment analysis.<sup>105</sup> If, however, a court determines the purpose is investigation (linking the suspect to some other crime for which there is no probable cause), then the collection may fail the Fourth Amendment analysis.<sup>106</sup>

Of course the intrusion and purpose considerations are certainly necessary to the Fourth Amendment calculus,<sup>107</sup> but they should not be determinative. Courts should dig deeper into the privacy prong and stop pretending that DNA is not any different than fingerprints. That analogy is merely a convenient illusion that fails to appreciate the wealth of information that can be gleaned from DNA samples. Moreover, while courts quite aptly point to the fact that the segments of DNA relied upon for forensic profiles are considered to be non-coding junk,<sup>108</sup> that argument conveniently sidesteps both the reality of technological advancements and the fact that many states keep the actual biological sample and not just the resulting profile from the DNA, in effect holding hostage that treasure trove of information.<sup>109</sup>

### C. *King of the Hill*

In *Maryland v. King*, the United States Supreme Court concluded that the portion of Maryland's statute authorizing the state to collect DNA samples from arrestees was constitutional under the Fourth Amendment.<sup>110</sup> The Court ultimately determined that the buccal cheek swab of an arrestee, like "fingerprinting and photographing," is "a legitimate police booking procedure that is reasonable under the

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that "the intrusion occasioned by the act of collecting the DNA sample is minimal and does not weigh significantly in [the arrestee's] favor").

105. See *King*, 425 Md. at 570, 572–73, 42 A.3d at 561–63.

106. See *id.*

107. *United States v. Knights*, 534 U.S. 112, 119 (2001) (quoting *Wyoming v. Houghton*, 526 U.S. 295, 300 (1999)).

108. See *King*, 425 Md. at 579, 583, 42 A.3d at 566, 569 (2011).

109. *Id.* at 583, 595, 42 A.3d at 569, 576; see *supra* note 13 and accompanying text.

110. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013). In contrast, the Maryland Court of Appeals determined that law enforcement had no need for DNA to link King to the crime for which he was arrested. *King*, 425 Md. at 556, 42 A.3d at 553. Consequently, because fingerprints and photographs were sufficient to identify King, the state lacked probable cause to compel a DNA sample for this arrest. *Id.* Accordingly, the court found the statute unconstitutional as applied to the facts of the case. *Id.* The court noted "some trepidation as to the facial constitutionality" of the statute but declined to go so far as to find it facially unconstitutional. *Id.*

Fourth Amendment.”<sup>111</sup> This was a complete 180-degree departure from the opinion below, which took great care to summarize the Fourth Amendment landscape in obtaining DNA samples from arrestees<sup>112</sup> and acknowledged that it would be in the minority of courts by finding the collections unconstitutional.<sup>113</sup> Notably, the Maryland Court of Appeals rejected the fingerprint–DNA analogy that the Supreme Court majority would later wholeheartedly embrace.<sup>114</sup> Couched in the privacy analysis, the *King* Court agreed that DNA is more than a determination of identity.<sup>115</sup>

Rather than finding that the DNA sample taken from arrestees contains “highly sensitive information coded in their genes,”<sup>116</sup> the Court labeled DNA as primarily a method of identifying arrestees.<sup>117</sup> While courts quibble over identification versus investigation, they touch upon some of the more significant, but often misunderstood, issues surrounding the collection of DNA. The misnomer “DNA fingerprinting”<sup>118</sup> contributed to the notion that the state only collects these samples as a means to identify. But as one court noted, “[t]he collection of a DNA sample . . . does not ‘identify’ an [arrestee or pre-trial detainee] any more than a search of his home does—it merely collects more and more information about that [arrestee or pre-trial detainee] that can be used to investigate unsolved past or future crimes.”<sup>119</sup> This is an incredibly valid point, but the use of collected DNA samples goes beyond the *Minority Report* aspect of solving past and future crimes.<sup>120</sup>

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111. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013).

112. *King*, 425 Md. at 562–65, 42 A.3d at 556–58.

113. *Id.* at 573–93, 42 A.3d at 563–75.

114. *Compare King*, 425 Md. at 562–65, 42 A.3d at 556–58, *with Maryland v. King*, 133 S. Ct. 1958, 1980 (2013).

115. *King*, 425 Md. at 594–96, 42 A.3d at 576–77.

116. *United States v. Mitchell*, 652 F.3d 387, 421 (3d Cir. 2011) (Rendell, J., dissenting).

117. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013).

118. Sir Alec Jeffreys is credited as the “inventor” of so-called “DNA fingerprinting.” Giles Newton, *Discovering DNA Fingerprinting*, HUM. GENOME (Apr. 2, 2004), [http://genome.wellcome.ac.uk/doc\\_wtd020877.html](http://genome.wellcome.ac.uk/doc_wtd020877.html).

119. *Mitchell*, 652 F.3d at 423 (Rendell, J., dissenting) (quoting *United States v. Kincade*, 379 F.3d 813, 857 n.16 (9th Cir. 2004) (Reinhardt, J., dissenting)).

120. The *Mitchell* dissent also acknowledged (and the *King* court echoed) that the presence of an automatic expungement provision bolstered the conclusion that arrestees do have a larger privacy interest:

If the Government’s real interest were in maintaining records of arrestees’ identities, there would be no need to expunge those records upon an acquittal or failure to file charges against the arrestee. Indeed, this statutory provision serves as an admission that the fact of conviction, not of mere arrest, justifies a finding



In effect, the fingerprint analogy is tenuous at best and fully inapposite at worst. Indeed, the *King* court culled through the various opinions to find the hallmarks of that platitude. The only problem is that many of the opinions that voice concern over the larger practice and collective good of obtaining DNA samples seem to be dissenting opinions (with a smattering of a few minority-majority opinions).<sup>121</sup> One judge compared the process to “the Government seiz[ing] personal medical information about you but . . . only us[ing] the subset of that information that serves to identify you.”<sup>122</sup> The *Sczubelek* court observed that collecting DNA “requires production of evidence below the body surface which is not subject to public view,”<sup>123</sup> while the Maryland Court of Appeals in *King* observed that fingerprints are “accessible readily on the surface of the skin.”<sup>124</sup>

Yet another dissent noted that a “fingerprint is an impression left by the depositing of oil upon contact between a surface and the fission ridges of the fingers,” while DNA “stores and reveals massive amounts of personal, private data about an individual.”<sup>125</sup> It appears—perhaps only to allay their own concerns—that courts time and again accept that DNA sampling is merely part of “routine booking procedures.”<sup>126</sup> Even majority opinions that hold a tight grip on the fingerprint–DNA analogy acknowledge that there is more than meets the eye.<sup>127</sup> For example, the Virginia Supreme Court stated that a DNA sample is more revealing, but ultimately concluded, as so many other courts have, that it “is no different in character than acquiring fingerprints upon arrest.”<sup>128</sup>

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that an individual has a diminished expectation of privacy in his DNA.

*Id.* at 423 (Rendell, J., dissenting); *King*, 425 Md. at 581, 42 A.3d at 568.

121. See *Mitchell*, 652 F.3d at 416 (Rendell, J., dissenting); *United States v. Sczubelek*, 402 F.3d 175, 189 (3d Cir. 2005) (McKee, J., dissenting); *United States v. Kincade*, 379 F.3d 813, 843 (9th Cir. 2004) (Reinhardt, J., dissenting).

122. *Mitchell*, 652 F.3d at 424.

123. *Sczubelek*, 402 F.3d 175, 197–98 (McKee, J., dissenting) (quoting *In re Mills*, 686 F.2d 135, 139 (3d Cir. 1982)).

124. *King*, 425 Md. at 582, 42 A.3d at 568. (citing *Mitchell*, 652 F.3d at 424–25 (Rendell, J., dissenting)).

125. *Mario W. v. Kaipio*, 265 P.3d 389, 407 (Ariz. Ct. App. 2011) (Norris, J., dissenting) (quoting *Mitchell*, 365 F.3d at 221; *Kincade*, 379 F.3d at 842 n.3 (Gould, J., concurring)) (internal quotation marks omitted), *vacated*, 281 P.3d 476 (Ariz. 2012).

126. See *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013); *Mitchell*, 652 F.3d at 413; *Anderson v. Commonwealth*, 650 S.E.2d 702, 705 (Va. 2007).

127. See generally *Anderson*, 653 S.E.2d at 705.

128. *Id.*

Mirroring that conclusion, the *King* Court openly embraced the analogy between fingerprints and DNA samples.<sup>129</sup> The dissent, however, vigorously rejects this analogy by highlighting the major distinctions between fingerprint and DNA analysis.<sup>130</sup> It does (and should) matter that a “person’s entire genetic makeup and history is forcibly seized and maintained in a government file, subject only to the law’s direction that it not be improperly used.”<sup>131</sup> To put it bluntly, what lies beneath matters.

#### D. *A Hunk of Junk*

The majority in *King* embraces the fingerprint–DNA analogy propagated by other courts.<sup>132</sup> Courts often note that only non-identifying “junk DNA” is used in the analysis and development of forensic profiles.<sup>133</sup> It is true that the thirteen loci were chosen “in response to congressional concern over privacy protections, because they are considered ‘non-coding’ [segments of] DNA” and do not reveal any diagnostic, characteristic, or other “private information.”<sup>134</sup> The resulting DNA profile used in databases is absent of any identifying information, including fingerprints, criminal history, or

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129. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013). The Court goes so far as to describe DNA identification as “an advanced technique superior to fingerprinting in many ways,” noting that “DNA is a markedly more accurate form of identifying arrestees.” *Id.* at 1976 (“A suspect who has changed his facial features to evade photographic identification or even one who has undertaken the more arduous task of altering his fingerprints cannot escape the revealing power of his DNA.”).

130. *Maryland v. King*, 133 S. Ct. 1958, 1987 (2013) (Scalia, J., dissenting). Justice Scalia notes three major distinctions between DNA and fingerprints: (1) DNA analysis takes months to complete in comparison to the mere half hour needed to analyze fingerprints; (2) DNA databases contain no personal identifying information, whereas fingerprint databases contain detailed identification information; and (3) DNA samples are compared against crime scene evidence to help solve crimes, while fingerprints are not compared against the database of known prints. *Id.* The Maryland Court of Appeals in *King* seemed persuaded that DNA “remains distinct from a fingerprint” since “[t]he information derived from a fingerprint is related only to physical characteristics,” while a DNA sample “contains within it unarguably much more than a person’s identity.” See *King*, 425 Md. at 596–96, 42 A.3d at 576–77. And while the Maryland DNA Collection Act “restricts the DNA profile to identifying information only”—as do similar laws in other states—the Maryland Court of Appeals in *King* is right to “not turn a blind eye to the vast genetic treasure map that remains in the DNA sample retained by the State.” *Id.* at 586, 42 A.3d at 577.

131. *King*, 425 Md. at 596, 42 A.3d at 577 (quoting *State v. Raines*, 383 Md. 1, 50, 857 A.2d 19, 48–49 (2004) (Wilner, J., concurring)).

132. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013).

133. *King*, 425 Md. at 567–68 & n.17, 42 A.3d at 560 & n.17 (internal quotation marks omitted).

134. *Id.* at 567–68, 42 A.3d at 560.

photographs.<sup>135</sup> And while this seems to sanitize the process, making it more palatable, that biological sample generally remains in the custody of the state because further analysis will be needed when and if there is a match.<sup>136</sup>

While we may be able to sleep better at night telling ourselves that it is just “junk,” that assumption may be eroding quickly.<sup>137</sup> Despite being colloquially labeled “junk,” geneticists continue to argue that even non-coding junk DNA is active and useful.<sup>138</sup> Technology does not wait for the legal system to catch up with it. From DNA to GPS, “the boon that new technology will provide to law enforcement, is an engraved invitation to future expansion.”<sup>139</sup> As for junk DNA, the Maryland Court of Appeals in *King* left us with the ominous statement that there is “considerable current debate as to whether these ‘non-coding’ or ‘junk’ DNA provide no predictive genetic information.”<sup>140</sup>

This is not merely conjecture of things to come. Recently, by virtue of a federally funded project (there is some irony to that), scientists discovered that our genetic material

is packed with at least four million gene switches that reside in bits of DNA that once were dismissed as “junk” but that turn out to play critical roles in controlling how cells, organs and other tissues behave.<sup>141</sup>

This advancement has “enormous implications” on both the medical and criminal justice fronts.<sup>142</sup> If the “junk” DNA controls our genes, then it provides an “annotated road map” and now reveals far more than the innocuous short tandem repeats (STRs) we thought

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135. *Id.* at 568, 42 A.3d at 560.

136. *See id.*

137. *Id.* at 568 n.17, 42 A.3d at 560 n.17.

138. Brief of Genetics, Genomics and Forensic Science Researchers as Amici Curiae in Support of Neither Party at 25–26, *Maryland v. King*, 133 S. Ct. 594 (2012) (No. 12–207).

139. *Mario W. v. Kaipio*, 265 P.3d 389, 410 (Ariz. Ct. App. 2011) (Norris, J., dissenting) (quoting *United States v. Kincade*, 379 F.3d 813, 873 (9th Cir. 2004) (Kozinski, J., dissenting)), *vacated*, 281 P.3d 476 (Ariz. 2012).

140. *King*, 425 Md. at 568 n.17, 42 A.3d at 560 n.17 (citing Simon A. Cole, *Is the “Junk” DNA Designation Bunk?*, 102 NW. U. L. REV. COLLOQUY 54, 54 (2007), available at <http://www.law.northwestern.edu/lawreview/colloquy/2007/23/>, in support of the continued scholarly debate on the matter of “junk” DNA).

141. Gina Kolata, *Study Discovers Road Map of DNA: A Key to Biology*, N.Y. TIMES, Sept. 6, 2012, at A1.

142. *Id.*; see also Cole, *supra* note 140, at 54–56.

we were using.<sup>143</sup> One researcher labeled it as a “Google Maps” that can be a “stunning resource.”<sup>144</sup>

While this is truly a breakthrough, other research has hinted at the importance of junk DNA.<sup>145</sup> British scientists noted in a study a few years ago that “the standard DNA profile contains a subtle signature which can be linked to a person’s susceptibility to Type 1 diabetes.”<sup>146</sup> Alec Jeffreys, the godfather of DNA fingerprinting,<sup>147</sup> and part of the British research team, noted that “further troubling links between DNA fingerprints and disease will emerge as scientists probe the completed draft of the human genome.”<sup>148</sup> If it is true that “[h]uman DNA is ‘a lot more active than we expected, and there are a lot more things happening than we expected,’”<sup>149</sup> then perhaps we should reconsider using the “junk” feature of select DNA as an argument in support of the continued expansion of DNA databases.

Even with these advances, courts seem reticent to consider the possibility that the DNA profiles currently warehoused in databases around the country contain more information than we bargained for.<sup>150</sup> After all, proponents of databases sold us a bill of goods that included the assurance these database profiles “need be no more informative than an ordinary fingerprint.”<sup>151</sup> Courts have repeatedly relied on the representations that the “molecular sequences at DNA loci . . . are not indicative of an individual’s personal traits or

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143. Kolata, *supra* note 141, at A3. The length variations of STRs ultimately determine the significance of the genetic information conveyed. Brief of Genetics, Genomics and Forensic Science Researchers as Amici Curiae in Support of Neither Party at 29–30, *Maryland v. King*, 133 S. Ct. 594 (2012) (No. 12–207) (“One must ask whether the length variations of the particular STRs actually convey meaningful information, and they seem to contain less trait-related information than a photograph of an arrestee.”).

144. *Id.* (quoting Dr. Eric Lander).

145. *Id.* at A1; see also Sumitra Pithawala et al., *Junk DNA: An Evolutionary Trash or Nature’s Best Bequest?*, 5 I.U.P. J. GENETICS & EVOLUTION 55, 55–56, 59–63 (2012).

146. Candice Roman-Santos, *Concerns Associated with Expanding DNA Databases*, 2 HASTINGS SCI. & TECH L.J. 267, 291–92 (2010).

147. See *supra* note 118.

148. Roman-Santos, *supra* note 146, at 291–92.

149. Kolata, *supra* note 141, at A3 (quoting Ewan Birney).

150. See *King v. State*, 425 Md. 550, 570–71, 42 A.3d 549, 561, *cert. granted sub nom. Maryland v. King* 133 S. Ct. 594 (2012); Roman-Santos, *supra* note 146, at 284–85.

151. See *King*, 425 Md. at 609, 42 A.3d at 585 (Barbera, J., dissenting) (quoting *State v. Raines*, 383 Md. 1, 45, 857 A.2d 19, 45–47 (2004) (Raker, J., concurring)).

propensities.”<sup>152</sup> But the profile is not “like a social security number . . . assigned by chance, not by the federal government.”<sup>153</sup>

It would be more honest to say that we simply do not know whether the procedures by which DNA samples are tested will inevitably “disclose intimate genetic information.”<sup>154</sup> Given the progression of science and the new territories of the human genome we continue to uncover, those loci may ultimately reveal certain genetic traits or predispositions.<sup>155</sup> Even without probing into the function of junk DNA, we have begun to data mine existing databases to search for racial commonalities and frequencies within the confines of the thirteen CODIS loci.<sup>156</sup> Consequently, as science progresses, so, too, should our understanding of what exactly it is we are taking when we extract DNA from arrestees. DNA is not a fingerprint. It never has been, and it never will be.<sup>157</sup>

### *III. DNA Policy in Maryland: The Good, the Bad, and the Ugly*

According to the Maryland Governor’s Office of Crime Control and Prevention website, there are currently 106,721 CODIS samples in Maryland’s database.<sup>158</sup> Of those, 1,514 samples were added during the first five months of 2013.<sup>159</sup> To date, there have been 2,880 hits resulting from the Maryland CODIS databank.<sup>160</sup> Notwithstanding the Maryland Court of Appeal’s decision in *King*, Maryland was able to obtain a stay of the impact of the case, and it continues to collect and include arrestee samples in its CODIS database.<sup>161</sup> Since Maryland began collecting DNA from arrestees in

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152. *Id.*

153. *Raines*, 383 Md. at 45, 857 A.2d at 45–46 (quoting D.H. Kaye & Michael E. Smith, *DNA Identification Databases: Legality, Legitimacy, and the Case for Population-Wide Coverage*, 2003 WIS. L. REV. 413, 431(2003)).

154. *King*, 425 Md. at 608, 42 A.3d at 584.

155. See Roman-Santos, *supra* note 146, at 292 (quoting Sir Alex Jeffreys).

156. See, e.g., Bruce Budowle et al., *Population Data on the Thirteen CODIS Core Short Tandem Repeat Loci in African Americans, U.S. Caucasians, Hispanics, Bahamians, Jamaicans, and Trinidadians*, 44 FORENSIC SCI. 1277, 1277 (1999), available at [library-resources.cqu.edu.au/JFS/PDF/vol\\_44/iss\\_6/JFS44634.pdf](http://library-resources.cqu.edu.au/JFS/PDF/vol_44/iss_6/JFS44634.pdf).

157. My quibble with the fingerprint-DNA analogy should not be confused with, nor does it touch upon, the issues surrounding the actual analysis and interpretation of DNA evidence. The problems with that analysis and interpretation are better raised in a separate article.

158. *DNA Statistics*, GOVERNOR’S OFF. CRIME CONTROL & PREVENTION, <http://www.goccp.maryland.gov/dna/statistics.php> (last updated May 28, 2013).

159. *Id.*

160. *Id.*

161. *Maryland v. King*, 133 S. Ct. 1, 3 (2012); see also *DNA Statistics*, *supra* note 158.

2009, there have been 245 charged offender hits that resulted in seventy-nine arrests.<sup>162</sup> Yet, with the specter of *King* lurking, Maryland has contemplated some significant changes to its DNA database laws.<sup>163</sup>

*A. The Good? Changes in Maryland's DNA Database Provisions*

At first blush, Maryland's DNA database provisions seem to be very protective of privacy (if you set aside the fact that its policy is to collect DNA from a wide array of offenders).<sup>164</sup> Section 2-504(a)(3)(ii) currently provides for notice to individuals charged with a violent crime or burglary that their records may be expunged in accordance with section 2-511.<sup>165</sup> In pertinent part, section 2-511(a) provides:

- (1) Except as provided in paragraph (2) of this subsection, any DNA samples and records generated as part of a criminal investigation or prosecution shall be destroyed or expunged *automatically* from the State DNA data base<sup>166</sup> if:
  - (i) a criminal action begun against the individual relating to the crime does not result in a conviction of the individual[.]<sup>167</sup>

Section 2-511 further provides that the DNA record must be expunged from any database that it was uploaded to, including local, state and federal databases.<sup>168</sup> Thus, Maryland appears to be on the forefront of putting the onus on the State to destroy the sample and expunge the DNA profiles of persons who are ultimately not convicted.<sup>169</sup> This is in sharp contrast to the vast majority of other

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162. *DNA Statistics*, *supra* note 158.

163. Compare MD. CODE ANN., PUB. SAFETY § 2-504 (LexisNexis 2011) with revised § 2-504 (effective Jan. 1, 2014).

164. *Issue Papers: 2013 Legislative Session*, MD. DEP'T LEGIS. SERVS., 180 (2012); *Maryland DNA Legislation*, GOVERNOR'S OFF. CRIME CONTROL & PREVENTION, <http://www.goccp.maryland.gov/dna/legislation.php> (last updated Jan. 12, 2011).

165. PUB. SAFETY § 2-504(a)(3)(ii).

166. There are, however, local DNA databanks, and many automatic expungement provisions do not extend to those DNA databanks. Jessica D. Gabel and Stephen Mercer, *Shadow Dwellers: The Under-regulated World of Local DNA Databanks*, 89 N.Y.U. L. REV. (forthcoming 2014).

167. *Id.* § 2-511(a)(1)(i) (emphasis added).

168. *Id.* § 2-511(c) ("Any DNA record expunged in accordance with this section shall be expunged from every data base into which it has been entered, including local, State, and federal data bases.").

169. Julie Samuels et al., *Collecting DNA from Arrestees: Implementation Lessons*, NAT'L INST. JUST. J. June 2012, at 18, 23.

states that have some sort of purge mechanism, but require a formal request that the profile be expunged from the system.<sup>170</sup>

A closer look at the legislative history surrounding the Maryland statute, however, gives us a glimpse of what could have been. Section 2-511 (and other provisions of the Maryland DNA database law) originally had a sunset date of December 31, 2013.<sup>171</sup> If that sunset provision had not been repealed, the automatic purge obligation that I applauded would have disappeared.<sup>172</sup> Starting on January 1, 2014:

An individual whose DNA record or profile is included in the statewide DNA data base system and whose DNA sample is stored in the statewide DNA repository *may request that information be expunged* on the grounds that the conviction that resulted in the inclusion meets the expungement criteria specified in § 10-105 or § 10-106 of the Criminal Procedure Article.<sup>173</sup>

Under this new provision, the state would no longer have had an obligation to either destroy the sample or expunge the resulting DNA profile from the database.<sup>174</sup> Moreover, the scope of the purge would have only applied to the state database and not any other database to which the “DNA record, DNA sample, or other identifiable information” may have been added.<sup>175</sup> By ultimately rejecting these proposed changes, Maryland remains a more defense friendly pioneer by keeping both the automatic expungement requirement and preventing the sample, profile and *other identifiable information* from lingering in other databases.<sup>176</sup> Had these proposed changes come to fruition it might have been the appropriate time to say “shame on Maryland,” but it would only have been following the lead of its sister states.

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170. *Id.*; e.g., LA. REV. STAT. ANN. § 15:614(A) (2012) (permitting “a person whose DNA record or profile has been included in the data base or data bank” to “request that his record or profile be removed”).

171. Act of May 13, 2008, § 4, 2008 Md. Laws 337.

172. Compare PUB. SAFETY § 2-511(a), with § 2-511(a) (LexisNexis 2003).

173. § 2-511 (LexisNexis 2003) (emphasis added).

174. Compare § 2-511(a), with § 2-511(a) (LexisNexis 2003).

175. § 2-511(c) (LexisNexis 2003).

176. Compare § 2-511, with § 2-511 (LexisNexis 2003).

*B. The Bad: Family Matters*

Maryland also seemed poised to be on the forefront of ethical considerations with its wholesale prohibition on familial DNA searches. Section 2-506(d) specifically prohibits the “search of the statewide DNA data base for the purpose of identification of an offender in connection with a crime for which the offender may be a biological relative of the individual from whom the DNA sample” was taken.<sup>177</sup> Familial searching is a database process by which investigators move past looking for a perfect match between samples and instead seek out partial matches between crime scene DNA profiles and the offender/arrestee DNA index.<sup>178</sup> By looking for the imperfect match, the search may identify in the database a relative of the target suspect (sometimes referred to as the “pivot”), who is not in the index.<sup>179</sup> An interview with the pivot may then provide enough information to ultimately lead investigators to the target.<sup>180</sup>

While some states—California<sup>181</sup> and Colorado<sup>182</sup>—have active familial search policies in place, Maryland specifically declined to participate in the practice.<sup>183</sup> In a previous article, I speculated that the reason for Maryland’s ban on familial searches was more likely

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177. § 2-506. For a discussion of Maryland’s no familial search policy, see generally Gabel, *supra* note 28, at 22. Section 2-506 only references the statewide DNA data base, leaving no “restrictions on the ways local police can use their own DNA databases.” Ian Duncan, *A Push for DNA Collection Changes*, BALT. SUN, Mar. 2, 2013, at 2A. Although section 2-506(d) proclaims to prohibit familial searching, the “statute leaves open one common alternative approach, which is to allow reporting of *inadvertent* partial matches.” Brief of 14 Scholars of Forensic Evidence as Amici Curiae Supporting Respondent at 37, *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12–207), 2013 WL 476046.

178. *Familial Searching*, FBI, <http://www.fbi.gov/about-us/lab/biometric-analysis/codis/familial-searching> (last visited Feb. 5, 2013). New developments in DNA technology and techniques, like familial searching, “have been implemented without express legislative permission or judicial oversight.” Brief of 14 Scholars of Forensic Evidence as Amici Curiae Supporting Respondent at 40, *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12–207), 2013 WL 476046.

179. Erica Haimes, *Social and Ethical Issues in the Use of Familial Searching in Forensic Investigations: Insights from Family and Kinship Studies*, 34 J.L. MED. & ETHICS 263, 269 (2006).

180. *Id.* at 263.

181. CAL. DEP’T OF JUSTICE, DIV. OF LAW ENFORCEMENT, INFORMATION BULLETIN: DNA PARTIAL MATCH (CRIME SCENE DNA PROFILE TO OFFENDER) POLICY, (Apr. 25, 2008), available at [http://ag.ca.gov/cms\\_attachments/press/pdfs/n1548\\_08-bfs-01.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf).

182. COLO. BUREAU OF INVESTIGATION, DNA FAMILIAL RESEARCH POLICY, (Oct. 22, 2009), available at [http://www.denverda.org/DNA\\_Documents/Policies/CO%20fs%20policy.pdf](http://www.denverda.org/DNA_Documents/Policies/CO%20fs%20policy.pdf).

183. MD. CODE ANN., PUB. SAFETY § 2-506(d) (LexisNexis 2011).



the product of “political pressure than constitutional misgivings or scientific uncertainty.”<sup>184</sup> I predicted—despite ethical misgivings—that familial searching practices were unavoidable “crime fighting tools of the future . . . here to stay in some form or another.”<sup>185</sup> It seems that Maryland seriously considered surrendering to the addictive lure of familial DNA searches.

The proposed new section 2-506 apparently lost subsection (d), which prohibited familial searching.<sup>186</sup> It does not take a quixotic leap to see that the absence of the exclusion would permit the practice by virtue of its silence on the subject.<sup>187</sup> It would also mean that Maryland would be able to perform familial searches without the restrictions that other states have put in place.<sup>188</sup> For example, California requires a certain number of alleles in common before any additional investigation can be done.<sup>189</sup> Removing the familial search limitation would have enabled Maryland to run unbridled database trawls, but Maryland lawmakers ultimately rejected this proposed change by removing the statute’s sunset provision.<sup>190</sup> The ability to hunt for relatives raises serious concerns about the privacy of and protections afforded to individuals who are not suspects but who may be related to someone in the database.<sup>191</sup>

Familial searches, however, represent yet another extension of the initial purpose of DNA databases. At a minimum, if Maryland plans to conduct familial searches in its database, it should have specific provisions regarding how such searches are to be conducted. Moreover, there are larger considerations at issue such as the fact that databases “were meant to identify *the* perpetrator who left the

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184. Gabel, *supra* note 28, at 43.

185. *Id.*

186. Compare PUB. SAFETY § 2-506, with revised § 2-506. (effective Jan. 1, 2014).

187. See § 2-506 (effective Jan. 1, 2014).

188. Compare § 2-506 (effective Jan. 1, 2014) (abrogating Maryland’s restriction of familial DNA searches), with DNA PARTIAL MATCH POLICY, *supra* note 181 (California’s familial DNA search policy), and DNA FAMILIAL RESEARCH POLICY, *supra* note 182 (Colorado’s familial DNA search policy).

189. DNA PARTIAL MATCH POLICY, *supra* note 181 (“When a partial match occurs that has at least 15 shared STR alleles with an offender, DOJ will contact the local laboratory’s CODIS administrator to confirm that the case is not yet solved. If the case is still active, the case investigator should be notified of the partial match by the local CODIS laboratory and the process defined in the policy will be followed upon request.”).

190. See PUB. SAFETY § 2-506 (effective Jan. 1, 2014); 2013 Md. Laws 431.

191. Haimes, *supra* note 179, at 269–71.

sample, not the family members of the perpetrator.”<sup>192</sup> We cannot ignore that genomic research demonstrates that humans are “99.9 percent identical at the DNA level, irrespective of gender, race or ethnicity.”<sup>193</sup> Given that, at a molecular level we will only find more genetic links and more commonalities rather than the differences that DNA databases are supposedly built upon.<sup>194</sup> If employed in a haphazard approach, familial searches may ultimately ensnare innocent people and hamper criminal investigations.

### C. *The Ugly: Research without Borders*

Some of the rather bombastic reasoning telling us that DNA databases are safe, effective, and present no intrusion into the lives of the average person is false.<sup>195</sup> After all, so the false logic goes, only criminals (or criminals-in-the-making) are caught within the snares of the database.<sup>196</sup> The proliferation of databases, however, is not limited to use in criminal investigations.<sup>197</sup> Genetic data is also compiled and maintained for medical research.<sup>198</sup> In fact, Maryland mingles the two. The Maryland public safety code sanctions the use of DNA information for “research” and maintenance of a “population data base.”<sup>199</sup> In addition to the crime-related provisions, the statute

192. Gabel, *supra* note 28, at 49 (emphasis omitted). With DNA warehoused in databanks with little to no judicial involvement, law enforcement officers “use genetic material to draw conclusions about the DNA profiles of offenders’ relatives.” Brief of 14 Scholars of Forensic Evidence as Amici Curiae Supporting Respondent at 36, *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12–207), 2013 WL 476046.

193. Michael Hadjiargyrou, Letter to the Editor, *Our Shared DNA*, N.Y. TIMES, June 23, 2012, at A18. The author, a molecular biologist, opined that “we are all brothers and sisters . . . the more we look into our genealogy.” *Id.*

194. *See id.*

195. Tania Simoncelli & Barry Steinhardt, *California’s Proposition 69: A Dangerous Precedent for Criminal DNA Databases*, 33 J.L. MED. & ETHICS 279, 283–84 (2005).

196. *See* Samuels et al., *supra* note 169, at 19. Some forensic evidence professors suggest that procuring DNA samples from arrestees is not necessary to “exonerate the innocent,” because often the true perpetrator would be listed in a convicted offender DNA database, thus removing the need for arrestee DNA samples. Brief of 14 Scholars of Forensic Evidence as Amici Curiae Supporting Respondent at 21–23, *Maryland v. King*, 133 S. Ct. 1 (2012) (No. 12–207), 2013 WL 476046.

197. Mary McCarthy, *Am I My Brother’s Keeper?: Familial DNA Searches in the Twenty-First Century*, 86 NOTRE DAME L. REV. 381, 410 (2011).

198. E.g., Yael Bregman-Eschet, *Genetic Databases and Biobanks: Who Controls Our Genetic Privacy*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 2 (2006–2007).

199. MD. CODE ANN., PUB. SAFETY §§ 2-505(a)(5)(i), 2-509(b) (LexisNexis 2011). Moreover, there is concern that crime victim data may also be included in the population data base. *See* § 2-501(i)(3) (providing that a DNA sample encompasses “body fluid or tissue” that is “submitted to the statewide data base system for testing as part of a criminal investigation”). Crime victims then run the risk of being twice

also permits the state to utilize genetic samples “for research and administrative purposes.”<sup>200</sup> The illustrative research-related uses include “development of a population data base after personal identifying information is removed.”<sup>201</sup> The provisions addressing the population database also mandate removal of all personal information prior to entering the data.<sup>202</sup> There is mounting evidence, however, that simply deleting identifying information is insufficient to protect privacy.<sup>203</sup>

In a widely-reported study, investigators were able to identify both individual donors and their families from “anonymous” genetic data.<sup>204</sup> Alarming, the authors found “that data release, even of a few markers, from one person can spread through deep genealogical ties.”<sup>205</sup> Even a small data-leak could ultimately identify people who lacked any social ties to the donor.<sup>206</sup> Although perhaps the most disconcerting, this study is not the first to demonstrate the vulnerability of genetic information.<sup>207</sup> These findings suggest that maintaining the anonymity of genetic information may be impossible. Moreover, the authors speculate that privacy breaches will become both easier and more common.<sup>208</sup>

As a consequence of the extracurricular activities sponsored by Maryland’s DNA law,<sup>209</sup> Maryland seems to be following other states and the federal government down the path of “mission creep.”<sup>210</sup> The difficulties in protecting private individuals’ information raise a number of vexing problems. Individuals with particular gene

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victimized. First, in the initial incident, and again should their information be compromised.

200. *See id.* § 2-505(a)(5).

201. *Id.* § 2-505(a)(5)(i).

202. *Id.* § 2-509(b).

203. *See* Veronique Lacapra, *Anonymity in Genetic Research Can Be Fleeting*, NPR (Jan. 17, 2013, 3:47 PM), <http://www.npr.org/blogs/health/2013/01/17/169609144/anonymity-in-genetic-research-can-be-fleeting>.

204. Melissa Gymrek et al., *Identifying Personal Genomes by Surname Inference*, 339 Sci. 321, 324 (2013); Lacapra, *supra* note 203.

205. Gymrek et al., *supra* note 204, at 324.

206. *Id.*

207. *Id.* at 321. The researchers here did not repeat the exact method used, but they noted that the resources were all publicly available.

208. Lacapra, *supra* note 203.

209. MD. CODE ANN., PUB. SAFETY § 2-505(a) (LexisNexis 2011).

210. *See* David Schultz, *It’s Legal for Some Insurers to Discriminate Based on Genes*, NPR (Jan. 17, 2013, 6:04 PM), <http://www.npr.org/blogs/health/2013/01/17/169634045/some-types-of-insurance-can-discriminate-based-on-genes>.

sequences may face discrimination.<sup>211</sup> This type of discrimination could occur in a number of forms. For example, companies may refuse to issue life insurance, disability insurance, or long-term care policies to individuals based upon particular genes.<sup>212</sup> Yet research suggests that genetic variations noted in DNA databases are not likely to help diagnose or predict diseases.<sup>213</sup> In addition to insurance risks, there is the grave danger of misuse of this information to wrongfully and indelibly stigmatize individuals as criminals. Imagine a Huxleyan nightmare in which science is purportedly able to determine the propensity for crime or violence through certain genetic markers. Forget judge and jury, instead pseudoscience will determine the fate of individuals—possibly for the duration of their lives. Given the near-religious embrace of DNA, this is not a far-fetched concern.<sup>214</sup>

#### IV. ALL DNA IS IDENTIFYING, BUT NOT ALL IDENTIFICATION IS AS HARMLESS AS FINGERPRINTING: CAUTION FOR THE FUTURE

Before we started expanding the use of DNA databases, we should have considered three things: (1) would expansion increase investigative outcomes; (2) are those outcomes worth the consequences; and (3) is the advancement of DNA technology fixed?

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211. *See id.*

212. *Id.* There is a federal law prohibiting health insurance companies from discriminating based on genetic data. Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, sec. 101(a), § 1182(b), 122 Stat. 881, 883 (2008)). The provision is limited solely to health insurance. *See id.*

213. Brief of Genetics, Genomics and Forensic Science Researchers as Amici Curiae in Support of Neither Party at 20–21, *Maryland v. King*, 133 S. Ct. 594 (2012) (No. 12–207) (“[C]o-inheritance of a marker and genetic disease tells researchers that a gene mutation causing the disease lies near the STR marker. But the STR marker in no way ‘causes’ the disease.”). Currently, no published research supports the use of database records of genetic variations as a means of disease diagnosis or prediction, because there is no beneficial link between CODIS alleles and genetic traits. *Id.* at 23–25.

214. WILLIAM C. THOMPSON, *THE POTENTIAL FOR ERROR IN FORENSIC DNA TESTING (AND HOW THAT COMPLICATES THE USE OF DNA DATABASES FOR CRIMINAL IDENTIFICATION)* 2 (2008) available at <http://www.councilforresponsiblegenetics.org/pageDocuments/H4T5EOYUZI.pdf>. Indeed, there is recent and on-going precedent for such a practice. The so-called “psychopath test” is often dispositive as to matters of parole and influential as to sentencing. Alix Spiegel, *Can a Test Really Tell Who’s a Psychopath?*, NPR (May 26, 2011, 2:24 PM), <http://www.npr.org/2011/05/26/136619689/can-a-test-really-tell-whos-a-psychopath>. The test has even influenced whether the death penalty is administered. *Id.* This use of the test remains pervasive—even though the test’s creator has expressed concern over the practice. Ira Glass, *The Psychopath Test*, CHI. PUB. MEDIA (May 27, 2011) (interviewing the test’s creator Bob Hare).

While the first may have been a no-brainer, it seems that we have not given any real thought to the other two. It seems likely that with the Supreme Court's decision this year, DNA databases and the populations housed within them will continue to explode in numbers.<sup>215</sup> As citizens, DNA and the concept of turning it over freely has become as routine as giving private information over to the likes of Facebook, LinkedIn, and other social media outlets.<sup>216</sup> We are indifferent to the number of situations that call for the submission of genetic material to medical providers, businesses selling at-home genetic tests, ancestry websites, and other public and private institutions. The reality is that troves of our genetic data are "persistent and widely shared" and incredibly difficult for us later to "access, to verify, or to correct."<sup>217</sup>

It should not surprise us, then, that the criminal justice system wants to collect DNA from an ever-increasing spectrum of people who come into contact with it.<sup>218</sup> The notion of privacy and the presumption of innocence are now blurred figures in this landscape. These concerns do not pertain to simply the collection of DNA profiles and samples, but also to the other information that may be kept.<sup>219</sup> While criminal investigations and medical research previously operated in different genetic spheres, those spheres are starting to converge. When DNA is collected on arrest and uploaded into the database, it is not simply translated into an identity-free criminal bar code.<sup>220</sup> Ultimately, that digitized profile must link to a name, to a location, and possibly to a criminal record.<sup>221</sup> Other records may also be available, especially for released offenders because police must be able to track that person down if there is a hit in the database later.<sup>222</sup> Ultimately, we may find that when police do

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215. *United States v. Sczubelek*, 402 F.3d 175, 203–04 (3d Cir. 2005) (McKee, J., dissenting).

216. *Cf. United States v. Kincade*, 379 F.3d 813, 848–49 (9th Cir. 2004) (Reinhardt, J., dissenting).

217. U.S. CONGRESS, OFFICE OF TECH. ASSESSMENT, OTA-CIT-366, CRIMINAL JUSTICE, NEW TECHNOLOGIES AND THE CONSTITUTION 9 (1988).

218. *See Kincade*, 379 F.3d at 872–73.

219. *See, e.g., J. Clay Smith, Jr., The Precarious Implications of DNA Profiling*, 55 U. PITT. L. REV. 865, 886–87 (1994).

220. *See Erin Murphy, The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence*, 95 CALIF. L. REV. 721, 752 (2007).

221. *Kincade*, 379 F.3d at 819–20, 838 (Reinhardt, J., dissenting).

222. *Id.*

contact a database offender they may also be able to tell that person his or her predisposition to kidney disease.<sup>223</sup>

In the wake of the *King* case, the fingerprint–DNA analogy has overstayed its welcome. Nonetheless, it seems that it is not slated for retirement any time soon despite enduring concerns about the expansion of DNA collection.<sup>224</sup> If the extension of DNA databases is in fact inevitable, then it should likewise be foreseeable that DNA technology may advance and outpace the restrictions once thought sufficient to keep databases sufficiently void of identifying information. As for now, it seems we would rather be content to operate databases at the margins of technology and tolerate a certain margin of error when things go awry.<sup>225</sup> The criminal justice system hungers for the ability to solve crime and convict the guilty. Databases certainly feed that insatiable beast, but we need to respect that DNA is not the tame dormouse we once thought it to be.

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223. *Id.* at 850.

224. *Maryland v. King*, 133 S. Ct. 1958, 1989 (2013) (Scalia, J., dissenting) (“Today’s judgment will, to be sure, have the beneficial effect of solving more crimes; then again, so would the taking of DNA samples from anyone who flies on an airplane . . . [b]ut I doubt that the proud men who wrote the charter of our liberties would have been so eager to open their mouths for royal inspection.”).

225. D.H. Kaye, *The Constitutionality of DNA Sampling on Arrest*, 10 CORNELL J.L. & PUB. POL’Y 455, 507 (2001).