

Lessons from the “DNA Wars”

by William C. Thompson

The Double Helix and the Law of Evidence, by David H. Kaye.
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352 pages. \$45.

DNA testing is generally viewed as the gold standard of forensic science. In 2009, the National Research Council (NRC) released a report that found serious deficiencies in many forensic science disciplines. According to the report, the testimony that forensic scientists routinely present about matches between fingerprints, toolmarks, shoeprints, bite marks, shell casings, and the like rests on inadequate scientific foundations. But the report specifically exempted DNA testing from this criticism. Indeed, the report pointed to the substantial body of scientific research that validates DNA testing as an example of what other forensic disciplines lack.

Despite its strengths, DNA evidence faced serious challenges when it was first introduced in criminal trials. The lengthy dispute over its admissibility is recounted in David Kaye’s magisterial new book, *The Double Helix and the Law of Evidence*. Kaye explains that DNA evidence enjoyed a brief honeymoon period when it was first introduced in the late 1980s, but quickly came under intense scrutiny. In the early 1990s a number of courts ruled DNA testing inadmissible under the *Frye* standard, citing scientific controversy

over the adequacy of its scientific foundations. These rulings generated a legal and scientific brouhaha that was so heated it has been called the “DNA wars.” Although proponents of DNA evidence eventually prevailed, and DNA tests have generally been admissible since the mid-1990s, the legal battles over DNA admissibility raise a host of interesting questions for contemporary lawyers and legal scholars.

For example, why was there so much controversy about DNA evidence when other forms of forensic evidence, that are less well validated, have been admitted routinely for decades? Was this just an example of incompetent judicial “gatekeeping”? Were judges so confused by bogus scientific criticism that they slammed the gate on the best forensic science, while leaving the gate wide open to weaker methods? Kaye doesn’t think so. His detailed analysis of the scientific controversy suggests a different answer: DNA is a strong discipline today in part *because* courts reviewed it rigorously at the outset. The discipline underwent a trial-by-fire that exposed genuine problems and forced proponents to correct weaknesses.

Ugly and divisive

By Kaye’s account, the admissibility “wars” were ugly and divisive. Courtroom battles aroused passion, confusion, and rhetorical excess on all sides. Proponents of the evidence rushed the new tests to courts before all the methodological kinks had been worked out and, importantly, before scientific research had been completed that would allow rigorous

assessment of the statistical rarity of the DNA patterns detected by the tests. But DNA evidence was so revolutionary, and so powerful, that it attracted a great deal of attention. And because it was spawned by academic molecular biology, there was a ready reserve of academic experts who could evaluate it and find weaknesses.

Lawyers Barry Scheck and Peter Neufeld, of Innocence Project fame, played a prominent role in the early admissibility challenges. They managed to recruit prominent academic scientists to review the DNA evidence in an early case called *People v. Castro* (1989). The defense experts did not like what they saw; during a pretrial admissibility hearing, they managed to convince some of the prosecution experts to sign a joint statement declaring that the DNA evidence proffered by the prosecution was “not reliable enough” for the courtroom. Not surprisingly, the judge found the DNA evidence inadmissible.

This dramatic, highly publicized event alerted lawyers nationwide to potential weaknesses in DNA evidence and led to admissibility hearings in a number of jurisdictions where defense lawyers presented testimony by scientific critics and prosecutors presented prominent experts of their own to defend the new methods. The courtroom clashes polarized the competing scientific factions as the debate spilled from the courtroom into scientific journals. At times the dispute devolved into name-calling, nasty personal spats, claims about distortion of the peer-review process, and complaints about threats and intimidation. It generated hyperbolic (and sometimes inaccurate) press coverage. But DNA testing practitioners rose to the challenge. Just as military technology progresses rapidly in wartime, forensic DNA testing progressed quickly during the DNA wars. Research funding flowed, important foundational studies were belatedly conducted and published, techniques were improved.

The National Academy of Sci-

ences, our nation’s highest scientific body, was drawn into the DNA wars, but its initial effort to resolve matters, through a report issued in 1992, only added fuel to the legal dispute. In a particularly interesting section of the book, Kaye describes the highly politicized atmosphere in which the Academy operated and the efforts of various parties to influence the Academy and to put their own spin on its findings. Scientific objectivity clearly becomes illusive, if not illusory, in such circumstances.

A well-told tale

This is a fascinating tale and David Kaye tells it well. For the past two decades, Kaye, a faculty member at Arizona State University College of Law, and recently at Pennsylvania State Law School, has been our nation’s most prominent commentator on genetic evidence and on the use (and misuse) of statistics in the courtroom. He has a unique ability to explain the nuances of scientific and statistical disputes in succinct, non-technical language.

Parts of this book draw heavily on Kaye’s previously published law review commentaries, but the whole is far greater than the sum of these parts. The book progresses chronologically, beginning with early antecedents to DNA evidence, such as the Landsteiner blood grouping tests developed in the early 20th century, and ending with the development and adoption in the late 1990s of the automated STR (short tandem repeat) tests that are the current state of the DNA testing art for testing semen, blood, and other bodily fluids. The book also covers the recent development of mitochondrial DNA analysis, which allows testing of hair, teeth, and bone.

The sweeping historical focus reveals how early clashes over the admissibility of serology tests, and various forms of statistical evidence, presaged later conflicts over DNA and shaped the way litigants approached those conflicts, and shows how the same underlying issues emerged in slightly different forms, with each new generation of

technology. The seemingly inconsistent legal rulings during this era are easier to understand when one views the “DNA war” as a running series of skirmishes between competing factions over a set of scientific issues that evolved as new scientific studies emerged and new techniques were adopted.

Although the book covers a lot of ground, it is not a comprehensive treatment of DNA evidence, or even of the “DNA Wars.” Kaye focuses tightly on issues that affected (or potentially might have affected) the general admissibility of DNA tests. He has little to say about issues the courts generally treated as matters of weight rather than admissibility, or as matters that affected the admissibility of the DNA evidence in a particular case, but not DNA evidence in general. Thus, readers will need to look elsewhere to learn about problems with DNA evidence that have arisen (and occasionally continue to arise) from poor laboratory practices, misapplication of statistical methods, careless collection and handling of specimens, cross-contamination of samples, and other foul-ups.

Kaye also neglects some important procedural aspects of the battles over DNA admissibility, such as disputes over the right of criminal defendants (and their experts) to have access through discovery to laboratory protocols, databases, and validation studies. These broader questions receive more discussion in two other recent books on DNA’s debut in the legal system: *Genetic Witness: Science Law and Controversy in the Making of DNA Profiling* (Rutgers University Press, 2007), by science historian Jay Aronson; and *Truth Machine: The Contentious History of DNA Fingerprinting* (University of Chicago Press, 2008), by science and technology studies scholars Michael Lynch, Simon Cole, Ruth McNally, and Kathleen Jordan.

Focus on admissibility

Kaye’s tight focus on admissibility is both the strength and weakness of the book. It helps him tell a more

detailed, nuanced, and coherent story of the admissibility battles than any other authors have managed, but it leads to oddly unbalanced treatment of some famous cases. *People v. Castro*, for example, is notable for exposing such sensationally shoddy laboratory practices that the trial judge later characterized the DNA evidence as “junk.” But Kaye offers little explanation of these problems, which concerned such matters as the interpretation of the test results, the standards for declaring a match, and whether the statistical methods had been applied correctly to the evidence in the case. He focuses instead on one issue that became central to later admissibility rulings: the concerns of some of the defense experts about deficiencies in the validation of the statistical method.

Kaye’s treatment of the O.J. Simpson case is similar. As one of the lawyers who represented Simpson in his criminal trial, I read Kaye’s account with special interest. He devotes extensive attention to a pre-trial brief that I co-authored that challenged the admissibility of DNA evidence under California’s *Kelly-Frye* standard of admissibility, and declares the Simpson case the “high water mark” of legal challenges to the admissibility of DNA evidence. The pretrial maneuvering over the admissibility of DNA evidence in the Simpson case figures prominently in three different chapters of Kaye’s book, and his account is accurate and insightful. While I disagree with him on some fine points of law, I was profoundly impressed with his concise explanation of the scientific issues and his nuanced discussion of how the lawyers, expert witnesses, and judge muddled their way through those issues in court. For those interested in the struggles of lawyers to deal with scientific evidence, this material is golden.

As it turned out, however, the Simpson case wasn’t really about the *admissibility* of DNA evidence, but about its accuracy and weight. Shortly before the trial began, Simpson’s lawyers withdrew their objec-

tions to the admissibility of DNA evidence, and withdrew the defense brief that Kaye critiques so thoroughly. Although the government's DNA evidence made it into court, Simpson's defense team was able to attack it successfully in front of the jury. Kaye says almost nothing about how the DNA evidence fared once it was admitted in Simpson's trial. (Anyone interested in my take on that matter may find it at 67 *Colo.L.Rev.* 827 (1996).

Essential reading

Despite the gaps in his account, I think Kaye has produced an extraordinarily well-written and important book. It will be essential reading for judges and legal scholars seeking a deep understanding of the scientific disputes, and the events inside and outside the courtroom, that constituted the "DNA Wars." By shaping our understanding of this important event in our legal history, this volume will influence how legal scholars, judges, and lawyers approach the admissibility of scientific evidence in the future.

The most striking lesson may be the importance of admissibility rulings for science itself. The early rejection of DNA evidence by a handful of judges created a sense of crisis in the law enforcement and forensic science communities that led to rapid and successful efforts to remedy scientific deficiencies—at least those deficiencies that were viewed as sufficiently fundamental to affect the general admissibility of DNA evidence. It seems doubtful that similar improvements would have occurred had judges been less vigilant and more permissive about admissibility. In this light, it is interesting to reconsider the 2009 NRC report on forensic science. According to that report, judges in criminal cases have applied the *Frye* and *Daubert* standards in an excessively permissive manner that has allowed questionable forensic evidence to reach juries. Perhaps a few judicial rulings rejecting such evidence would prompt the sort of rapid scientific improvement that helped DNA

evidence achieve the gold standard status it enjoys today. ❧

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