

Is DNA evidence enough? An interview with David Kaye

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David H. Kaye, distinguished professor of law and Weiss family faculty scholar.

(PhysOrg.com) -- Law professor David H. Kaye shares his insights into how the the use of DNA evidence has impacted our legal system. While its use has far-reaching implications, Kaye points out that "DNA is only a tool.

David H. Kaye is distinguished professor of law and Weiss family faculty scholar in Penn State's Dickinson School of Law, and a member of the graduate faculty of the University's [forensic science](#) program. He is an internationally recognized legal expert on DNA and other forms of scientific evidence and the author of "The [Double Helix](#) and the Law of Evidence," released earlier this year by Harvard University Press.

Why should the ordinary citizen be interested in how DNA is used in court?

The public has a vital interest in the [criminal justice system](#). I've tried to illuminate the extent to which we can find truth in that system, because the subtleties of DNA evidence are not well understood outside of a small group of people. The popular perception is that DNA speaks the truth -- you're either guilty or you're innocent, there's no ambiguity. But DNA is only a tool. It gives information depending on the nature of the samples and how well the analysis is done. "Garbage in, garbage out" is one concern, and the risk of overstating the implications of the evidence is another.

Who determines the quality of that analysis? Do lawyers and judges have to be scientists, too?

They don't have to be scientists, but they do have to know enough to understand what's going on and to know whether the statements the experts are making are well founded. Lawyers need to translate lab work into a form that a judge or jury can understand. They need to understand more about statistics and probability because these quantitative aspects of science have become significant in cases with scientific testimony. It's an area that's been neglected in the law school curriculum. That's changing, but those law schools that offer even one course in scientific evidence, let alone statistics, are probably still in the minority.

Hasn't the use of DNA evidence already changed the public's perception of the criminal justice system?

It has forced a lot of people to have second thoughts about the death penalty—it led to a moratorium of the death penalty in Illinois, for example. Nationwide, more than 200 individuals long imprisoned have been exonerated as a result of DNA evidence. Discovering undeniable errors in such cases also has led to improvements in procedures for pretrial investigations and, after trial, reviews of how things went wrong.

Your book has been acclaimed as the definitive history of the use of DNA evidence. Is there a historical turning point that made DNA acceptable to the courts?

Actually there were two watershed events. The first was a case known as *People v. Castro* in a trial court in New York. The defense, with the aid of an astute molecular biologist, showed that what the DNA labs were testifying to was not always an open and shut matter—there could be mistakes. Once that happened, the defense bar became better able to raise challenges to DNA evidence, and a number of scientists presented criticisms of the reasoning of the experts for the prosecution -- particularly on the probabilities of DNA matches. The event that marked the end of this controversy in the mid-1990s was not a case. It was an article entitled "DNA Fingerprinting Dispute Laid to Rest," published in the journal *Nature* and written by two scientists who had been adversaries in court -- one being the chief DNA scientist for the FBI, the other being the main defense scientist in the *People v. Castro* case. This rapprochement gave the courts more confidence in DNA evidence, and a series of opinions soon reinforced the view that the basic method of calculating probabilities was reasonable.

What lessons does your research about the past use of DNA evidence offer for the future?

Several authors have argued that the scrutiny given DNA evidence should be a model for forensic science generally. I wouldn't go that far -- the courtroom battles over DNA continued far longer than the scientific record warranted, and the adversary nature of the legal system magnified and distorted disagreements among scientists. But the issues that came to the fore in litigation over [DNA evidence](#) are central to improving forensic science generally. Last year, a committee of the National Academy of Science -- a committee that included Professor Robert Shaler, director of Penn State's Forensic Science Program -- issued a

Congressionally mandated report on the state of forensic science in America. Had the institutional reforms that the committee recommended been in place, there might have been fewer casualties in the “DNA Wars.”

Provided by Pennsylvania State University

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