

Forensic Science: Oxymoron?

In detective novels and television series, criminals often get caught because they leave fingerprints at the scene. Well, art does imitate life; fingerprint analysis is widely used in U.S. courts and those of many other countries. But last year a funny thing happened to fingerprint evidence on the way to a conviction. Applying the standard set for the admissibility of scientific evidence by the U.S. Supreme Court in the 1993 Daubert case, Judge Louis Pollak ruled that an expert could not testify that the prints at a crime scene matched those of a suspect. Shock reverberated through the criminal justice community, until Judge Pollak induced a sigh of relief from district attorneys everywhere by saying that at least in this case, such testimony could be used after all.

The Supreme Court's Daubert standard has generated some ambiguity for the legal community, but the Court did list several criteria for qualifying expert testimony: peer review, error rate, adequate testing, regular standards and techniques, and general acceptance. Judge Pollak's initial finding was that the evidence flunked all but one. Some distinguished legal scholars think that he was right on that call and wrong on the second. The resulting controversy has reignited some old challenges to "forensic science."

It's not that fingerprint analysis is unreliable. The problem, rather, is that its reliability is unverified either by statistical models of fingerprint variation or by consistent data on error rates. Nor does the problem with forensic methods end there. The use of hair samples in identification and the analysis of bullet markings exemplify kinds of "scientific" evidence whose reliability may be exaggerated when presented to a jury. Some criminal defense attorneys have become concerned about the degree to which processing and enhancement of such images could mislead jurors who believe they are seeing undoctored originals. PhotoShop, after all, is everywhere.

Criminal justice agencies have been slow to adopt new scientific procedures and defensive about evaluation of their present ones. The acceptance of DNA evidence and the standardization of laboratory procedures for DNA analysis eventually broke through that barrier, well after there was convincing scientific proof of their reliability. But resistance has remained firm in other areas. For example, polygraph testing for security purposes in the U.S. Department of Energy was carefully evaluated by the National Academies and found to be defective. The department rejected that recommendation and went on testing anyhow. And despite repeated calls for accreditation and oversight, many government crime labs continue to lack either one.

In the United States, the National Academies have a project on Science, Technology, and the Law, in which I'm involved. That group, which had earlier looked at the implications of the Daubert decision and a variety of other issues, was urged to examine science and its uses in forensic examination. A project plan was developed and approved, and one private foundation made a verbal promise of support. The Department of Defense (DOD) and the Department of Justice were also approached for funding, since both have significant programs in this area that make use of forensic techniques. Ending a protracted exchange of correspondence with the Technical Support Working Group in DOD, representing both agencies, the project was dropped because the government insisted on rights of review that the Academies have, at least in the recent past, refused to grant a sponsor. And months after the foundation grant had been offered, it was withdrawn.

The Department of Justice, where the Federal Bureau of Investigation operates perhaps the most sophisticated crime laboratory in the country, is the home of the National Institute of Justice (NIJ). NIJ supports an annual Conference on Science and the Law, in which the American Association for the Advancement of Science and the Academies participate. In planning the agenda for these conferences, NIJ has regularly resisted including comprehensive evaluations of the science underlying forensic techniques.

One would have thought that the issues surrounding homeland security would have increased the government's desire to apply better science to the detection of criminal activity and the pursuit of perpetrators. And of course our society has a long-standing concern about protecting the rights of the accused. Both these public interests—security and justice—would be furthered by a more scientific and reliable technology for analyzing crimes. The mystery here is why the practitioners don't seem to want it!

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