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## STATE OF THE ART...NOT!

### *Forensics, six years after the NAS report*

*By Julius (Jay) Wachtel.* It's been six years since an august panel of the National Academy of Sciences (NAS) reviewed the discipline of forensics. Its distinguished members clearly didn't like what they saw. As we summarized in "[N.A.S. to C.S.I.: Shape Up!](#)" the Academy's [groundbreaking report](#), "Strengthening Forensic Science in the U.S., a Path Forward" brought into serious question a host of supposedly reliable forensic techniques, including handwriting comparison, the analysis of shoe prints and tire tracks, and the interpretation of burn patterns.

One year after handing out its slap-down the NAS issued [a follow-up report](#), "Strengthening the National Institute of Justice," criticizing America's premier criminal justice organization for lacking the "independence, appropriate leadership, funding, and operational practices that characterize much more successful federal research agencies."

NIJ responded in June 2011 with a jargon-rich "[Progress Report](#)" that bragged of substantial gains in each problem area. Three years later the Executive Office of the President (that's President of the *U.S.*) [issued its own densely-worded update](#), boasting of NIJ's many partnerships and its participation in multi-agency "working groups" that sought to develop best practices in key forensic disciplines.

Exactly what these "best practices" are remains a mystery. However, a few months ago the NIJ offered some tantalizing hints. A [thin brochure](#) grandly entitled "The Impact of Forensic Science Research and Development" and [an online post](#) from the agency's director outlined a series of initiatives that would, among other things, seek to "understand human factors, cognitive bias, and error rates in disciplines such as fingerprint analysis, firearms examinations, and handwriting comparisons" and "improve the interpretation bloodstain pattern analysis by studying factors that can contribute to dramatically different spatter patterns, such as type of fabric, velocity and impact angle."

Well, we're still waiting. As the Feds keep reorganizing, cranking out reports and forming committees to explore issues that the NAS addressed years earlier, the toll of junk science continues to increase. In "toll" we include not only those imprisoned thanks to junk science (see some fresh examples below) but victims of crimes that for lack of forensic expertise or the appropriate tools are never solved. Indeed, whatever relief is forthcoming hasn't come from NIJ but through the work of innocence projects, never-

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say-die defense lawyers and a few enlightened judges and prosecutors. Here are three recent examples:

- In February, 1980, [a townhouse fire in New York](#) took the life of a 27-year old woman and her five children. One year later three men were convicted on multiple counts of murder for setting the fire, thanks in great part to a fire marshal who testified that a “puddle shape” and other factors pointed to the use of accelerants. That, as prosecution and defense experts now agree, was bunk. (It’s now believed that the fire’s origin was accidental.) Only problem is, it took until last week for the truth to come in. Here’s the prosecutor’s apology:

“We’ve concluded that these three men were wrongfully convicted based on weak circumstantial evidence, outdated science and the testimony of a single, wholly unreliable witness who recanted before her death. Even though we cannot give these men back the decades that they spent in prison, with one tragically dying behind bars, justice requires that we, as prosecutors, do the right thing and clear their names.”

William Vasquez and Amaury Villalobos were paroled in 2012 after serving thirty-one years. Raymond Mora died in prison.

- In June, 1987, a Texas couple suspected of dealing drugs [is found dead, their throats slit](#). Suspicion focused on a man who supposedly owed the victims money. Two forensic dentists testified that an alleged bite mark on the male victim’s arm matched the suspect’s teeth to a one-in-one-million certainty. Despite testimony from multiple witnesses who placed him elsewhere at the time of the crime, the defendant was convicted.

On Monday, October 12, 2015, the Dallas County District Attorney agreed that the bite-mark evidence used to convict the accused was “junk science.” After twenty-eight years, Steven Mark Chaney was a free man. His comments were brief. “I could sit and recount all the losses. But this is a time for rejoicing.”

The judge gave Chaney and his fellow celebrants a pumpkin pie.

- Between February and July 1985 two persons were shot dead and one was wounded [in a series of violent assaults](#) in Alabama. A suspect was arrested, and his mother’s gun was tied by a ballistics “expert” to bullets recovered from the bodies. There was no other evidence. Still, the accused was convicted and sentenced to death. But questions lingered. A full *thirty years later* the state supreme court ordered that physical evidence be reexamined. That’s when

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recalcitrant prosecutors conceded that their experts could not “conclusively determine that any of the six bullets were or were not fired through the same firearm or that they were fired through the firearm recovered from the defendant’s home.”

Anthony Ray Hinton was released on April 3, 2015. Considering the circumstances, he was remarkably magnanimous. “I’ve got to forgive. I lived in hell for 30 years, so I don’t want to die and go to hell. So I’ve got to forgive. I don’t have a choice.”

Not even DNA is off the hook. In a notorious near-miss, [a California man](#) narrowly escaped near-certain conviction for a 2012 murder when it turned out that his DNA, which was found under the dead man’s fingernails, was transferred by paramedics who, hours earlier, had treated the suspect for being a passed-out drunk. (He did serve five months, but hey, it beats the chair.) And as we’ve pointed out before, serious concerns remain about the exaggeration of random-match probabilities (click [here](#)) and the imprecision caused by mixed and degraded samples (click [here](#) and [here](#).)

By all means, keep researching. But instead of the present arrangement, which leaves everything to good intentions and “coordination,” we need a respectable centralized entity (are you listening, NIJ?) to draft specific standards, practices and certification programs that govern the use of every forensic technique, from shoe impressions through DNA. Police, prosecutors and expert witnesses must be held to fixed national rules. Victims of crime and the wrongfully convicted are waiting!