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Editorial

Making forensic science scientific

Establishing national forensic science standards is crucial when evidence determines life or death.

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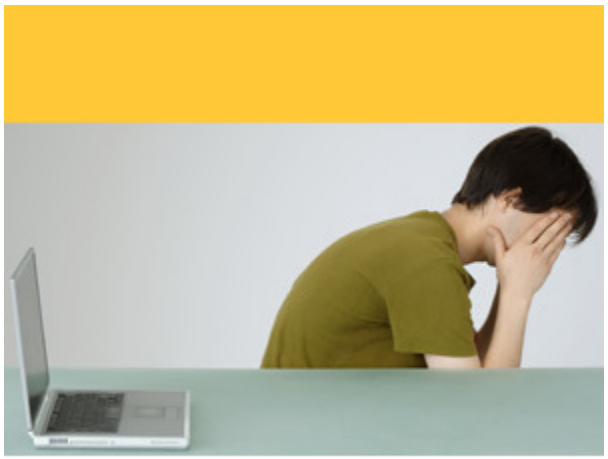

With the busiest death chamber in the nation, it was only a matter of time before Texas positioned itself to become the first state to admit that it executed a person who was wrongfully convicted. And now that day is at hand.

According to a nationally respected fire engineer, the so-called scientific evidence used to convict Cameron Todd Willingham of setting a blaze that killed his three daughters in 1995 was not scientific at all. In his scathing report to the Texas Forensic Science Commission, Craig Beyler found that the arson investigators on the case had a poor understanding of fire dynamics and based their conclusions on erroneous assumptions, sloppy research and a dash of mysticism. For example, one investigator determined that, because the house fire burned "hot and fast," an accelerant such as gasoline had been used to set it. But that theory -- still given credence in some investigatory circles -- is not factual. Gasoline fires are not significantly hotter than those started with wood, Beyler reported.

Willingham's case is heartbreaking: He lost his children to fire and his wife to divorce, spent 12 years in prison and died still protesting his innocence. But his is not an isolated case. There are thousands of Willinghams in prisons across the country. If not on death row, they are nonetheless serving decades-long or even life sentences after having been convicted on the basis of erroneous scientific conclusions made by poorly trained "experts."

In 2006, Congress charged the National Academy of Sciences with studying the application of forensic science in the U.S. judicial system. Its findings, released last year, are grim. Almost every branch of forensics but DNA testing -- hair and fiber analysis, arson investigations, comparisons of bite marks -- lacks the extensive scientific research and established standards to be used in court conclusively.

Consider: Last year, the Innocence Project, a New York-based public policy and litigation organization, helped exonerate Kennedy Brewer, a Mississippi man who had been convicted in 1992 of raping and killing a 3-year-old girl. DNA testing was not available at the time, and the primary evidence against him was that bite marks on the child's body matched his teeth. Examination of the marks by national forensics experts determined that they were not even made by a human mouth: Her body had been dumped in a pond and insects had attacked it. Subsequent DNA testing also excluded Brewer as the

rapist.

In February, the science academy issued a report calling for Congress to create a national institute of forensic science, and there is more than enough evidence that one is desperately needed. As an independent agency, not part of the Justice Department, it would be charged with conducting research, setting national standards for forensic disciplines and enforcing those standards. Right now, standards vary wildly. An expert in San Diego, for example, might testify that a fiber is similar to one found at a crime scene, while an expert in San Bernardino might testify that a match is impossible to determine.

Advances in forensics have revolutionized the judicial system, aiding both prosecutors and defense attorneys, exonerating the innocent and confirming the guilty in ways that were impossible just a generation ago. The patchwork state of forensic science should not become an excuse to shy away from its use; rather, the nation should invest in the rigorous research required to standardize techniques and application.

The Senate Judiciary Committee held hearings on the science academy's recommendations this month, and it is to be hoped that the end result is a national forensics institute. The fate of thousands hangs on the correct analysis of a thread, a hair, the fibers of a rug. We can do better by them, even if it's too late for Willingham.