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Bungled fingerprints expose problems at FBI

By David Heath
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Only a single piece of evidence linked Portland lawyer Brandon Mayfield to terrorist train bombings in Spain. Yet it was powerful evidence.

Not just one but three FBI examiners concluded that a fingerprint left on a bag of detonators linked to the March 11 attack that left 191 dead came from Mayfield. As always, they were so sure of their finding that they called it a "100 percent identification."

But the FBI's steadfast claim of a "zero error rate" in its fingerprint identifications would be shattered days later when Spanish police announced that the fingerprint came from an Algerian suspect. In a stunning reversal, the FBI admitted it was wrong and apologized to Mayfield.

The mistake has tainted the FBI's once-vaunted reputation for fingerprint work. Yet some legal and forensic experts say the blunder comes as no surprise because the bureau fails to rigorously train, test and oversee its examiners.

The FBI says it is reviewing its practices and may issue new rules for what to do when given photographs rather than the original print to analyze, as happened in the Mayfield case. The bureau also is assembling an international panel of experts to review the case. And there have been congressional inquiries in the past week.

The Mayfield mistake "is certainly not the death of fingerprints," said Pat Wertheim, a top fingerprint expert based in Arizona who has trained examiners for years. Just because someone fails to balance his checkbook, that should not shake the foundations of mathematics, he said.

However, the FBI blunder may prove to be a watershed event in fingerprint identification, prompting aggressive court challenges to a forensic science that had previously been accepted by many as infallible.

Although fingerprint identification is called a forensic science, few examiners at the FBI or elsewhere are trained scientists. There are no national standards for becoming a fingerprint examiner. You don't need a college degree. You don't need a license. You are not required to be certified.

Meaningless standards

The International Association of Identification does offer certification, but each year — in a discipline that demands perfection — about half of the professional examiners who take the test fail, according to Lyla Thompson of the certification board.

Most FBI examiners, including Terry Green, who first identified Mayfield's fingerprint as a match, aren't certified.

The FBI, which has resisted outside reviews, does have its own internal proficiency tests that examiners must take each year. In a court review of 447 tests taken from 1995 to 2001, examiners missed only three identifications — less than a 1 percent error rate.

However, this seemingly sterling record isn't proof of extraordinary expertise at the FBI because the test is so easy, said Allan Bayle, a top fingerprint expert formerly of Scotland Yard.

enlarge
Brandon Mayfield of Portland was detained but later cleared.

"If I gave my experts these tests, they'd fall about laughing," Bayle once testified.

The FBI tests its examiners using fingerprints that are much clearer and more complete than the latent prints typically lifted at crime scenes, Bayle said. Also, the prints used in the test don't change from one year to the next, so examiners could remember the answers from the year before. Finally, the test was watered down in 1998 and no longer includes prints that do not have a match, a way to see if examiners make "false positive" identifications, as happened to Mayfield.

One FBI examiner who missed an identification on the 2000 test was asked to explain himself. He wrote a four-page memo to supervisors, mocking the test for being too easy but also claiming that examiners routinely cheat on the test by discussing their answers with one another, according to sources familiar with the memo.

The examiner's complaint sparked a flurry of responses from FBI managers and quality-control personnel, who worried that his memo might have to be disclosed to defense lawyers who wanted to challenge the FBI's work in court.

"I tried to tell him that putting all of that unrelated and unsubstantiated information in his response was not prudent," an FBI quality-control worker wrote, according to court records.

"I have no problem with contacting the examiner and requesting another written statement," an unnamed manager replied. "I will tell the examiner that whatever statement I have as a record is discoverable and will be provided to attorneys, if requested."

Janine Arvizu, an expert in auditing scientific laboratories who analyzed the FBI's proficiency testing for fingerprint examiners for a court case, said she was aghast when she read these efforts to conceal the examiner's complaints.

"That was a pretty clear indication to me that the FBI's quality assurance has a long way to go," said Arvizu, formerly a scientist with the Navy and the U.S. Department of Energy.
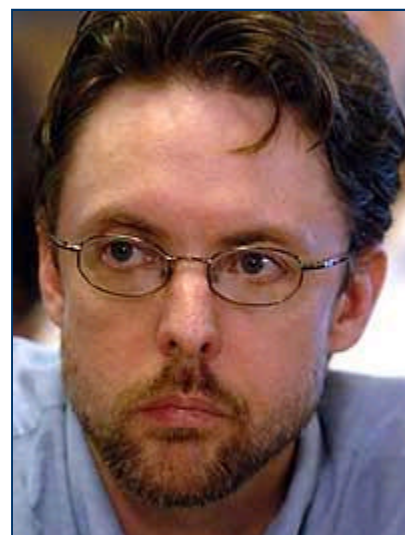
Proficiency tests are supposed to help find and fix weaknesses. But Arvizu said the tests seem to have been designed instead to make sure no FBI examiner would fail.

The FBI gives a much more difficult proficiency test, developed by an outside firm, to its fingerprint-lab supervisors. But the first time the test was given in 1995, one of the four supervisors made the biggest blunder an examiner can make: a false-positive match.

The FBI fingerprint chief, Steven Meagher, testified that an internal investigation determined that the error was a clerical mistake. But Arvizu said if that were true, the clerical error would have had to have been repeated nine times on the test.

Wertheim said the 1995 test is infamous for having a latent print that — though not a match — looked similar to a known print.

"I still think that any competent examiner shouldn't have made that erroneous identification," he said.

Fingerprints not scientific

At a time when prime-time television glamorizes forensic scientists, few may realize that fingerprint identification was developed not in scientific laboratories but by police departments. Nearly 100 years ago, courts began accepting expert testimony on fingerprints, and such evidence quickly gained a reputation for infallibility.

The evidence was so powerful that defense lawyers threw up their hands when fingerprint examiners took the stand, rarely challenging their identifications.

Yet the notion that every fingerprint is unique has never been proven scientifically. And there are no recognized standards among fingerprint examiners for what constitutes a match, such as a minimum number of uniquely identifiable points.

The only standard used by the FBI is its examiner's judgment, based on experience and training. If a latent print from a crime scene is good enough to compare to a known print on file, the examiner must say it's either an absolute exclusion or an absolute match.

"The problem in the fingerprint world — they only believe in two colors, black and white. When the examiner is subjectively confident — just subjectively, intuitively sure — they declare it to be an identification," said Michael Saks, a law professor and fellow of the Center for the Study of Law, Science and Technology at Arizona State University.

"They'd be a lot better off even if they gave a probability statement: 'I'm 99 percent sure.' "

What makes fingerprint identification tricky is that latent prints taken from a crime scene are often smeared or distorted and show, on average, only about one-fifth of the surface of a finger or thumb.

Even so, the FBI's Meagher has testified that examiners have never made a mistaken identification in court and that fingerprint analysis, done properly, has a "zero error rate."

Arvizu said, "As a scientist, it's mind-boggling to me that someone would say something so implausible. We never achieve perfection on this earth. There's a certain degree of uncertainty in

analyzing any unknown."

Other sciences, including DNA matching, calculate error rates based on scientific research. However, when the Justice Department's National Institute of Justice (NIJ) proposed a scientific study to do the same for fingerprint identification, internal NIJ records show that the FBI asked to delay the research until after a court case challenging fingerprint science.

Reliability questioned

Courts have consistently held fingerprint identification to be a valid science. However, in a decision that sent shock waves through the fingerprint community, U.S. District Judge Louis Pollak of Philadelphia ruled in January 2000 that the science behind fingerprint identification was not rigorous enough to meet the U.S. Supreme Court's standards for allowing expert, scientific testimony.

Weeks later, urged by the Justice Department to reconsider, Pollak reversed his ruling.

To try to meet the Supreme Court standards established in a 1993 case, the FBI has done some testing to demonstrate the reliability of fingerprint identification. In a pivotal Philadelphia court case last year challenging fingerprint science, the FBI collected two prints lifted from a getaway car and the prints of a suspect and sent both sets to law-enforcement agencies, asking if they could match the prints.

The agencies didn't know they were taking part in an FBI test to show the reliability of fingerprint matching. The FBI had already determined the prints matched. Yet to the bureau's embarrassment, nine of the 34 law-enforcement agencies that responded — 27 percent — made mistakes.

In that case, the crime was armed robbery. But in more high-profile cases, such as the Madrid bombings, fingerprint examiners may see their role less as objective scientists and more as crime solvers.

"When you are talking about cases like this, high-profile terrorism cases, there are other dynamics at work," said Andre Moenssens, a forensic-science expert and author of books on fingerprints. "There are pressures that are exerted on examiners that cause them to act prematurely."

In the Madrid bombing case, FBI examiner Green made the initial match but soon learned that Spanish police didn't agree. According to court records, he went to Madrid and concluded that he had examined the print in greater detail and resolved differences with Spanish police.

However, The New York Times reports that Spanish officials vehemently denied ever backing up the FBI's assessment, saying they had told American law-enforcement officials from the start that Mayfield's print didn't match.

The FBI said its examiners found more than 15 matching points between the prints, while Spanish authorities concluded there were no more than seven. But Bayle, the London fingerprint expert, said there's much more to fingerprint matching than comparing points.

Bayle, who analyzed the Madrid and Mayfield prints at the request of Mayfield's attorneys, said the FBI failed to look at the whole print, missing obvious differences.

Fail-safe or flawed?

The FBI has never conceded that the fingerprint from the crime scene wasn't Mayfield's, just that the photograph its examiners analyzed wasn't good enough to use for an identification. Bayle goes further. He said no competent examiner should have called the print from Madrid a match to Mayfield.

Images of the Madrid and Mayfield prints were posted on the personal Web site of a well-known U.S. Army fingerprint expert Friday, sparking a lively discussion among fingerprint examiners about how the FBI could have made such an obvious mistake.

The FBI says it avoids such mistakes by requiring identifications to be verified by supervisors or other examiners.

As part of this fail-safe system, Green's work in the Madrid bombing investigation was reviewed by fingerprint unit chief Michael Wieners and retired FBI examiner John Massey. Court records show that Massey was reprimanded three times early in his career for mistakes, including two false fingerprint identifications.

Ralph Norman Haber, an expert on fingerprint evidence, said the fail-safe system is flawed. Haber, who reviewed the FBI's system for court testimony, said the verifier already knows that a match has been made and often merely reviews the work of the first examiner.

Instead, the verifier should start from scratch and make an independent decision, a time-consuming process.

"Often the second verifier looks at the notes of the first verifier and doesn't do an independent verification," he said. "The whole process is sham."

The FBI's methods may now change, something Bayle believes is long overdue.

The question now, in Bayle's view, is: How many innocent people are in prison because of mistakes by the FBI's fingerprint lab?

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