

## False impressions

*Fingerprint identification isn't as definite as you might think*

By: Jim Stasiowski December 21, 2009

Back in 1991, John O'Connor sat in the federal courtroom in Kansas City, Kan., listening to what seemed damning fingerprint evidence against his client.



Critics call for more study of fingerprint analysis.

The expert witness had examined a latent print, that is, one left on the getaway motorcycle by the bank robber, and had identified 10 points of similarity between the latent and a fingerprint taken from O'Connor's client, Jeffrey Jenkins.

Ordinarily, that would be enough. Fingerprint evidence has a long history of putting people, from burglars to murderers, behind bars.

Even today, with mounting scientific challenges as to the admissibility of fingerprint examination, prosecutors confidently count on jurors not to question the value of a match presented by an expert witness. After all, nearly every piece of literature defending fingerprint evidence mentions its glorious 100 years of success in punishing evil.

But O'Connor had something many defense attorneys never even reach for: a pocketful of seeds of doubt.

The expert, accustomed to nothing more than a perfunctory cross-examination, instead got challenge after challenge – questions about his methods, suggestions about apparently conflicting evidence, and even a lighthearted jab at his wardrobe. For the trouble he went to in preparation, O'Connor won a hung jury.

Word from the jury room later filtered back to O'Connor: The jurors had reasonable doubt about the fingerprint evidence.

A rising chorus of voices is expressing similar doubt.

In "Strengthening Forensic Science in the United States: A Path Forward," a landmark report published in February, the National Academy of Sciences concluded that "subjectivity is intrinsic to" fingerprint analysis, as examiners throughout the country have different levels of training and expertise as well as different judgments as to what constitutes a match between a latent print left at a crime scene and a fingerprint taken under controlled conditions at a police station.

Even fingerprint experts are joining the chorus.

John I. Thornton, emeritus professor of forensic science at the University of California-Berkeley, has been doing fingerprint analysis since 1963. He continues today although he recently retired from teaching.

"The fingerprint community," Thornton said, "has been very derelict in not trying to develop some scientific basis" for its work.

People convicted of serious crimes have walked free when investigations or appeals turned up faulty fingerprint evidence.

Pat Wertheim, a longtime fingerprint expert and criminalist, said, "I've found more cases of evidence fabricated by police than you can ever count."

And yet, the myth of total reliability feeds on itself: Because fingerprints have, for a century, convicted people, then fingerprints must be accurate because they have convicted people.

David Grieve, the now-retired latent-print training coordinator for the Illinois State Police, has long been a critic of what he calls the "very, very uneven training" of fingerprint examiners in the United States.

"The sheriff in Nowhere, Oklahoma," Grieve said, "will take a deputy and say, 'OK, you're my fingerprint man,' and he has zero training."

### **'Fingerprints' by another name**

The technical term for the examining of fingerprints is "friction ridge analysis."

The modifier "friction" refers to the fact that if our fingers were as smooth as cellophane, we wouldn't be able to pick up objects. The friction between our fingers and what we grab keeps it in our hands.

The meaning of "ridge" is no mystery. Look closely at the palm side of your thumb. See those curves that look like the isobars on a weather map? To the fingerprint expert, they're ridges.

As the National Academy of Sciences defined it, "Friction ridge analysis is an example of what the forensic science community uses as a method for assessing 'individualization' – the conclusion that a piece of evidence (here, a pattern left by friction ridges) comes from a single unambiguous source."

In other words, if the prosecution has a clear, unsmudged, undistorted latent print, and it matches a print taken at the time of your client's arrest, you may as well start briefing him about which foods to avoid in the prison cafeteria.

But consider this: When a suspect gives fingerprints at the police station or jail, the images – called "exemplars" or "full-rolled prints" or "inked prints" – are as close to perfect as possible. The person supervising the taking of the prints is experienced, the conditions are controlled, each finger appears in near-entirety, and smudges and distortions are kept to a minimum.

By contrast, a person committing a crime usually is in a hurry. Leaving a latent print is accidental, not deliberate. Therefore, even if police discover a latent, it probably will be smudged and distorted, less than perfect, and almost certainly less than a full fingerprint.



John O'Connor

O'Connor said he remembers hearing that J. Arnot Hill, a renowned Kansas City defense attorney, would grill a fingerprint expert on the distinction between the nearly perfect print obtained when a suspect was booked and a partial print left at a crime scene.

Hill was famous for saying that the exemplar print showed 98 percent of a finger, whereas the latent might be 25 percent. "He'd say to the witness, 'You haven't seen 75 percent of the print, have you?'" O'Connor said.

The point was to create that doubt in the jury's mind, which was how O'Connor approached the fingerprint testimony in the Jeffrey Jenkins bank-robbery trial.

Beforehand, O'Connor sought out Richard Schwieterman, who had retired after years as a fingerprint examiner for the Kansas City Police Department.

Schwieterman looked at the evidence and told O'Connor the bad news: He agreed with the prosecution that the latent print matched Jenkins' exemplar print.

Uh-oh.

But O'Connor didn't stop with that answer. He said to Schwieterman, "If you were going to attack this fingerprint evidence, how would you do it?"

Schwieterman, who had testified regularly for the prosecution, responded: "I've always been dumbfounded that I've never been challenged. I can show you areas in the prints that the jury may not find to be similar."

### **Pick a number**

The argument about the number of points of similarity between a latent print and an exemplar print is the wart on the nose of the practice of fingerprint examinations.

Traditionally, law-enforcement agencies had set minimums: If an examiner finds 12 or 16 points of similarity, that's a match.

But the FBI and Scotland Yard have abandoned such standards; now, the examiner simply looks for a match, at least in theory.

In 2000, Thornton, then still a professor of forensic science at the University of California at Berkeley, was speaking in Laughlin, Nev., before a group of fingerprint examiners who were members of the International Association for Identification.

Thornton pointed out that their community had become polarized, divided between “the ridge counters” and “the group who favor a non-numerical standard” for prints to be deemed a match.

The polarization dated back to 1973, when the association, a worldwide group of fingerprint examiners, passed a resolution asserting that no specific number of similarities was necessary to declare a match. Twenty-two years later, at an association conference in Israel, the group adopted this formal wording: “No scientific basis exists for requiring that a pre-determined minimum number of friction ridge features must be present in two impressions in order to establish a positive identification.”

Thornton still counts, but he doesn’t require a specific number of similarities to declare a match.

“No one knows what that number should be,” he said recently. “How about 11? Well, if 11 is OK, then how about 10? And if 10 is OK, how about nine?”

A defense attorney should find out whether the examiner did count similarities, Thornton said, but the attorney should do so before the trial. If the examiner found similarities that number in the high teens, a defense challenge probably won’t work.

“But if there are eight points,” Thornton said, “it sounds like a print that maybe those last two [similarities] were ambiguous.”

In court, he said, if a defense attorney asks for the number of similarities, an examiner probably will say, “Oh, well, we don’t really have a set number” for an identification. Instead, most examiners will assert there is a “sufficiency” to make the identification, even though Thornton said most probably do count.

In the Jenkins case, O’Connor said he was dealing with a fingerprint examiner who asserted there were 10 points of similarity between the latent print found on the getaway motorcycle and Jenkins’ exemplar print.

At the time, many countries were insisting that a certain number of points of similarity were necessary to prove a match.

So in his cross-examination, O’Connor went down the list of countries that, at the time, required more than 10 points of similarity. In doing so, he was showing that those countries seemed to have higher standards than the federal government.

Then, he brought up the dissimilarities that Schwieterman had helped him find.

The expert had an explanation for everything, O’Connor said, but the cumulative weight of the probing questions and the expert’s need to explain must have made the jurors wonder.

O’Connor had even gone to the extent of getting hold of a handbook the FBI gave to its expert witnesses. The handbook, he said, gave tips as to how to dress, how to sit and how to act while on the stand.

“I asked, ‘Are your appearance and clothing important today? Aren’t you kind of a salesman?’”

In his closing argument, O’Connor stressed that the dissimilarities were there for the jury to see. His message: “That’s what reasonable doubt is all about.”

### **Sowing doubt**

Wertheim, who works for the Tucson crime lab of the Arizona Department of Public Safety but emphasizes he is speaking for himself and not his employer, said he sees three prime areas for defense attorneys to attack.

First, he said, questioning the origin of the print and the chain of custody is an “underutilized” approach. He recommends challenging whether the fingerprint in question came from the surface it is purported to have come from.

A second challenge that may prove fruitful: Determine whether the presence of a fingerprint at a crime scene can be explained by some legitimate or legal activity by the defendant.

In a notorious case in Columbus, Ohio, Derris Lewis was accused of the January 2008 murder of his identical twin, Darren. Part of the evidence was a latent print identified as Derris’ palm. The prosecution said the print was in blood, in Darren’s bedroom, the scene of the murder.

But Derris had previously lived in that same bedroom. Fingerprint expert David Grieve, who advised the defense, said the original conclusion that the palm print was in blood was erroneous. What the investigators first said was blood ended up being hair pomade.

In August of this year, the prosecution dropped the charges against Derris.

The third challenge: Both Wertheim and Thornton agree that when an examiner spends a long time on an identification, he or she may have a problem convincing a jury that the match is accurate.

"The examiner gets seven points [of similarity] after he worked on it for two weeks," Wertheim said. "It took that long for him to talk himself into it."

Thornton said he has heard an examiner say, "Wow, I've been looking [at the prints] for three days, and I didn't see this characteristic until now."

"That's preposterous," Thornton said. "After a while, you begin to see things you want to see."

He said sometimes he'll spend a few hours, maybe even half of a day, to reach a conclusion.

The experts agree, however, that the prosecution has a built-in advantage.

"Historically," Thornton said, "fingerprint identification has appeared to have almost unassailable validity."

As a result, Grieve said, both prosecutors and defense attorneys often are lazy when fingerprint evidence is introduced. "The average juror," Grieve said, "is going to believe it."

And even when defense attorneys attack dissimilarities in fingerprints, the expert witness usually prepares reasons: There was too much ink, or too little; there was too much pressure, or too little; there was distortion, there was movement, blah-blah-blah.

Thornton said some experts "exploit the jargon," use a lot of technical terms that impress the jurors.

Some who aggressively defend fingerprint identification, even in the face of mistakes and fabrications, say "silly things," Thornton said.

He recalls hearing one FBI expert declaring that it is a science because it is based on "making very careful observations."

"If that's the case," Thornton said, "then a vulture is a scientist."

And when the prosecution witness can be tied in knots, the defense attorney enjoys what attorney Rafael Castro-Lang of San Juan, Puerto Rico, remembers from the 2003 Joel Alejandro-Rivera case.

It was, Castro-Lang said, "the first death-penalty case in Puerto Rico in a century." His client and another man were accused of kidnapping and murder, and one of the pieces of evidence was a fingerprint.

Castro-Lang said he discovered there were 146 possible points of comparison, and the expert looked at only 86. Of those, the expert found eight similarities. Furthermore, Castro-Lang brought out the probability of bias: The examiner knew ahead of time that the exemplar fingerprints belonged to a suspect, his client.

"My argument was that it was an untrustworthy test," he said.

Although he called the fingerprint testimony "a good part of the case," he said he also was able to impeach every government witness. It was one of those "very, very rare days when everything you do comes out great," Castro-Lang said.

The verdict: Both men were acquitted on all counts.

John O'Connor wasn't that successful, but 18 years later, he looks back fondly on his achievement of casting that reasonable doubt. "It was fun," he said.

And the fun for the prosecution may be ending.

"At some point in the future," William Matthewman, a Florida defense attorney, said, "there will be more challenges made. The [prosecution expert testimony] now is entirely too subjective."

Thornton expects change: "I think the clamoring for the development of scientific bases in fingerprint identification probably will result in one being developed in the next decade or so."