Bullet

MARK HANSEN

Can We Really Say Where a Particular Bullet Came From?

RONNIE LEE BOWLING IS ON KENTUCKY'S DEATH ROW FOR TWO murders he claims he didn't commit. And one of the things that helped put him there was the testimony of an FBI laboratory examiner who said he had "matched" several bullets recovered from the bodies of the two victims to a box of unspent cartridges found in Bowling's mobile home.

There was no other physical evidence tying Bowling to the crimes—no DNA, no fingerprints, no blood, no hair or fibers, no gunshot residue.

In fact, the only direct evidence of Bowling's guilt was the FBI examiner's testimony about the matching bullets and the word of a police informant who testified that Bowling had confessed to the two murders while they were housed together in the same jail.

Bowling contends that he never even spoke to the informant, who had struck a deal with prosecutors to trade testimony in Bowling's state trial in exchange for a favorable disposition of the federal mail fraud charges then pending against him.

And now the FBI examiner's testimony in the case is being called into question by a recent study that raises serious doubts about the validity of the agency's so-called comparative bullet-lead-analysis evidence.

The study, released in February by the National Academies' National Research Council, found that while the FBI's scientific method for comparing bullets was generally sound, its examiners have sometimes overstated its importance in court and played down the likelihood of a false match.

There is no disputing the fact that trace amounts of certain elements in bullet lead can be precisely measured. The controversy centers on how the FBI has interpreted that data.

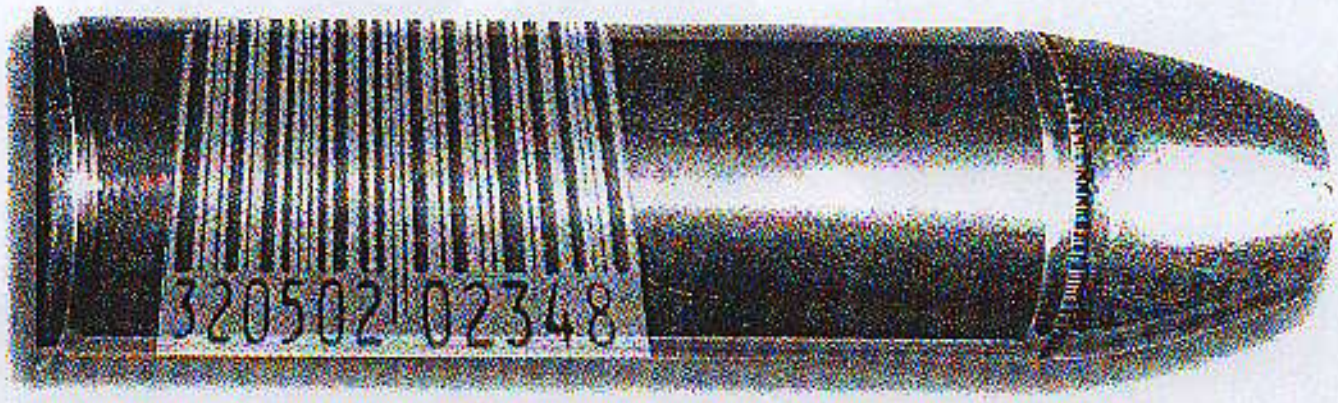
For decades, FBI examiners operated on the twin assumptions that every batch of bullet lead was compositionally uniform throughout and that no two batches were compositionally alike. So if two bullets were found to have the same concentrations of the same elements, the reasoning went, those bullets must have come from the same batch of lead.

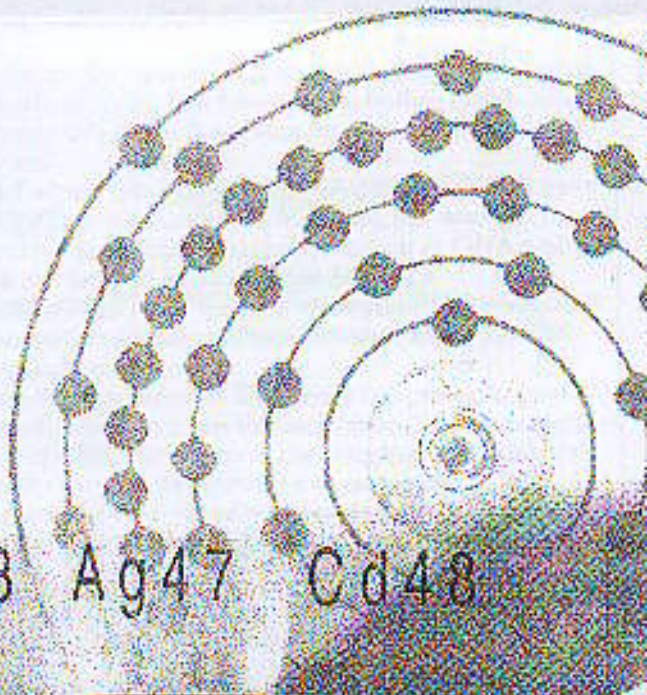
Mark Hansen is a senior writer for the ABA Journal. *His e-mail address is markhansen@staff.abanet.org.*

PHOTO ILLUSTRATION BY JANIS JACKSON; PHOTOS BY GETTY IMAGES/BILL PUGLIANO AND CORBIS/L. CLARKE

Cd

Proof





3 Sb51 Sn50 Cu29 Bi83 Ag47 Cd48

In the past few years, however, critics have begun to question those assumptions. Some researchers have found that different samples from the same batch of bullet lead can have different elemental compositions. Other research has confirmed that different batches of bullet lead can have the same elemental composition. Still other research has shown that bullets from the same box of ammunition can have different elemental compositions, some of which can be attributed to bullets from different melts and some of which can be attributed to intramelt variability.

It disturbs Susan Martin that her client, Ronnie Bowling, was convicted in part on bullet lead evidence.

"This is not a case in which the critics of a forensic practice are merely pointing to a lack of research data to validate an assumption," says University of California at Davis law school professor Edward J. Imwinkelried, who co-wrote a critical law review article about bullet lead evidence last year. "This is an even more troublesome situation in which there are available data at odds with both of those assumptions."

Retired FBI metallurgist William A. Tobin, a longtime critic of the bureau's bullet matching technique, and Imwinkelried's co-author on the law review article, says he feels vindicated by the committee's findings.

"They validated almost every single criticism I have of the practice," he says.

In its report, the council recommended a number of changes in the FBI's procedures. They include improved training and oversight, new statistical methods for analyzing bullet lead data, and a limit on how far experts should go when they testify about the possibility of a match between a crime scene bullet and a bullet traceable to a suspect.

The FBI, which has been using bullet comparison evidence since the 1960s, had asked the council for advice on how to analyze bullet lead and present the findings in court in a sound, scientific manner. To conduct the study, the NRC put together a committee of 14 experts in chemistry, metallurgy, statistics, forensic science and the law.

Kenneth O. MacFadden, the independent consultant who chaired the committee, says this finding is a key point of the whole study. Just because two bullets match does not necessarily mean they came from the same box of ammunition.

MacFadden says comparative bullet lead analysis, known as CBLA, can be a useful forensic tool, but does not have the unique specificity of techniques such as DNA typing, which can be used as stand-alone evidence.

"[CBLA] can never be used for anything other than circumstantial evidence, and an entire case can't be built around it," he says.

Case Western Reserve University law professor Paul Giannelli, who served on the committee, likens the significance of CBLA evidence to the discovery of a Nike shoe print of a certain size found at a crime scene.

If a suspect were found with the same type and size of shoe, "It would be admissible and it would be relevant, but