



# FBI

September 1988

## Law Enforcement Bulletin



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U.S. Department of Justice  
National Institute of Justice

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### Hammer Spout Impressions Physical Evidence in Suicides

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# FBI

## Law Enforcement Bulletin

United States Department of Justice  
Federal Bureau of Investigation  
Washington, DC 20535

William S. Sessions, Director

The Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by law of the Department of Justice. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget.

Published by the Office of Congressional  
and Public Affairs,  
Milt Ahlerich, Assistant Director

Editor—Thomas J. Deakin  
Managing Editor—Kathryn E. Sulewski  
Art Director—John E. Ott  
Production Manager/Reprints—  
David C. Maynard

### The Cover:

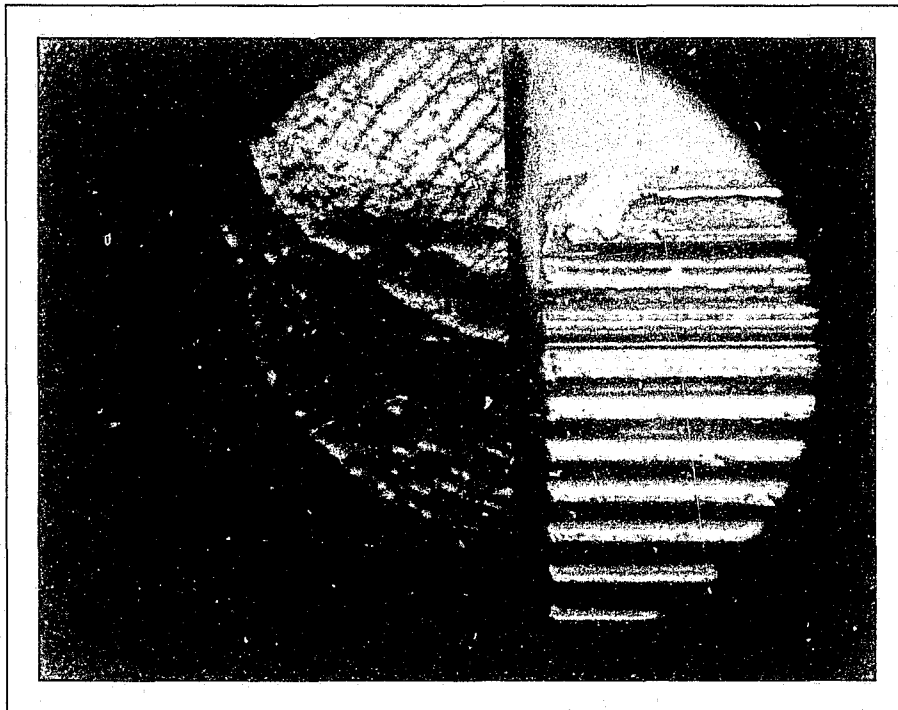
*A hammer spur impression can prove to be an important piece of physical evidence in suicide investigations. See article p. 11.*

The FBI Law Enforcement Bulletin (ISSN-0014-5688) is published monthly by the Federal Bureau of Investigation, 10th and Pennsylvania Ave., N.W., Washington, DC 20535. Second-Class postage paid at Washington, DC. Postmaster: Send address changes to Federal Bureau of Investigation, FBI Law Enforcement Bulletin, Washington, DC 20535.

# *Hammer Spur Impressions*

## *Physical Evidence in Suicides*

By  
ANDREW P. JOHNSON  
*Master Police Officer*  
*Identification Section*  
*Police Department*  
*Fairfax, VA*



*Comparison microscope photograph of a hammer spur impression and the actual hammer spur.*



Officer Johnson



Col. John E. Granfield  
Chief of Police

On June 23, 1987, a homicide investigator and a police officer from the Identification Section of the Fairfax County Police Department were dispatched to an alleged suicide in Centreville, VA. Upon arriving at the scene, they were met by a patrol officer, who was conducting the preliminary investigation. The victim was a white male, 61 years of age, who had apparently died of a self-inflicted gunshot wound to the head; the weapon was still in the decedent's right hand. The victim's daughter, who discovered the body when she returned home from work, advised the investigating officer that her father had given her no indication that he was contemplating suicide.

The decedent, found in the master bedroom, was clad in pajamas, lying on his back on the right side of the bed. There was a penetrating gunshot wound to the right side of the head; a 9mm Walther pistol was located in the deceased's right hand. The hammer was cocked, with a 9mm Winchester Western cartridge chambered. On the right thumb of the deceased was a hammer spur impression which contained class characteristics similar to the hammer spur on the 9mm Walther pistol.

The impression was photographed and cast. A comparison of the impression with the hammer spur of the 9mm Walther pistol was found only to be similar in size and shape of the contours of the weapon's hammer. Yet, it was one more piece of evidence supplied to the medical examiner to aid in determining the cause of the man's death to be a self-inflicted gunshot wound.

A suicide investigation frequently is one of the most challenging and frus-

trating tasks a police investigator can undertake. This is due to the emotional state of family members, civil law ramifications of the estate, and insurance settlements, which may be hanging in the balance.

During the past 20 years, the suicide rate has tripled among people aged 15 through 24. Suicide has become the third leading cause of death for this age group.<sup>1</sup> This fact, coupled with the economic pressures of today, increased drug usage, and the common occurrence of depression in our society, is likely to cause the suicide rate to rise each year. The resulting increase in caseloads for homicide investigators, medical examiners, and identification technicians will undoubtedly be accompanied by increased demands by insurers for positive evidence of cause of death.

When investigating a fatal gunshot incident which is a suspected suicide, it is the responsibility of the homicide investigator and identification technician to accumulate and preserve evidence essential in establishing the cause of death. This information is supplied to the medical examiner/coroner, who renders a decision as to the manner of death after weighing all the evidence, including medical, physical, circumstantial, eye witness, and toxicologic.

While examining the scene, investigators look for the usual physical evidence associated with gunshots to be present on the deceased, such as a contact entrance wound, blood spattered on the hand or hands, and gunshot residue on the hand which held the gun. An item of physical evidence often overlooked is the presence of a ham-

***"A suicide investigation frequently is one of the most challenging and frustrating tasks a police investigator can undertake."***

mer spur impression on the decedent's finger or fingers, the presence of which enhances the probability that death was caused by a self-inflicted gunshot wound. These impressions often are obliterated and subsequently overlooked when inked fingerprint impressions are taken for comparison and identification purposes.

The hammer spur impression is caused when the firearm is cocked in the single-action phase, causing the principal identifying features of the hammer, e.g., machine marks, outline of the hammer size and shape, and contours formed through wear and accidental damage, to be impressed into the skin of the finger. If blood circulation stops soon after the fatal wound is inflicted, some or all of the characteristics revealed in the impression may remain on the finger that cocked the weapon for several hours after death.

When processing hammer spur impressions, photographs should be taken prior to casting or lifting, using the basic rules of photography.<sup>2</sup> Film plane and lens should be parallel to the impression, and a scale ruler should be in the photograph.

Photographs should be taken in daylight, with and without flash, or with artificial light held at an oblique angle. The use of a flashlight to determine proper flash angle in low-light conditions can be helpful by creating shadows across the impression or as an artificial light source. Since some characteristics may be visible only when lighting is directed in a particular way, several photographs using different lighting should be taken.

A simple method to enhance the impression is to dust it lightly with black fingerprint powder. However, care should be taken not to apply too much

powder so as not to fill in the details. Rephotograph the impression after the powder is applied.

In addition to photographing the hammer spur impression, a lift may be made. This is done by using a latent print powder brush (without adding any more powder) and lightly brushing the finger upon which the impression appears. Then, by lightly placing a piece of cellophane lifting tape over the finger/impression, a lift is made to be placed on a card.

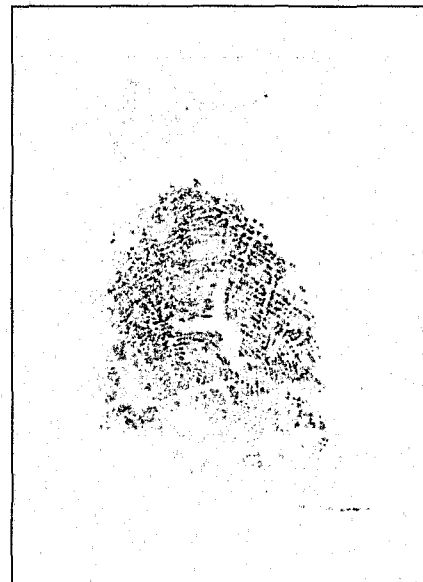
A cast rather than lift of the impression can be obtained by using Mikrosil or another brand of casting material. Mixing the casting materials to make a working stock and spooning the mixture into the impression are crucial steps. A small amount should be placed on a control surface to test consistency. If the mixture is too thin, it is necessary to wait until the material starts to



*Impression is dusted with black fingerprint powder.*

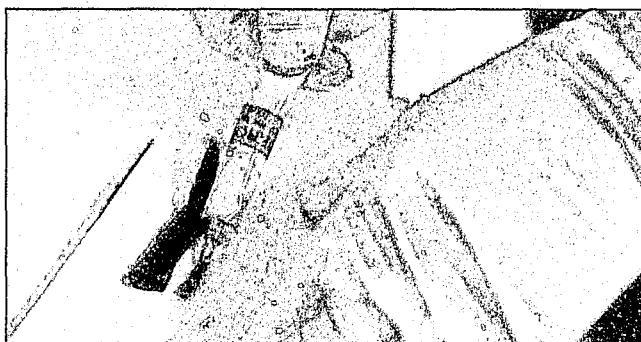
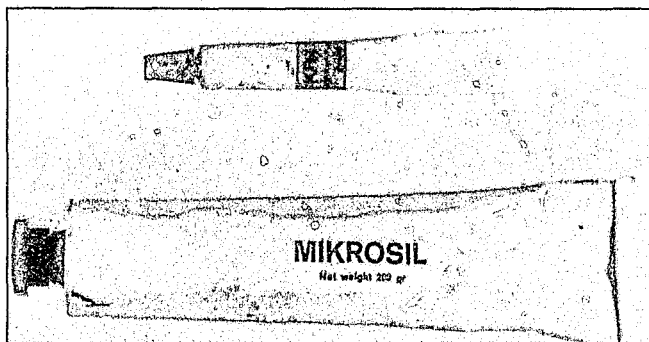


*Cellophane lifting tape is applied.*



*Tape is lifted from the impression and placed upon a card.*

***“An item of physical evidence often overlooked in suicide investigations is the presence of a hammer spur impression on the decedent’s finger or fingers. . . .”***



*Equal lengths of Mikrosil or another brand of casting material are mixed into a working stock. The casting material is then spooned directly into the impression and over the surrounding area.*

thicken. Should it be too thick, another batch should be mixed. After obtaining the right consistency, the casting material is spooned directly into the impression and over the surrounding area and allowed to cure. Only after the cast hardens should the cast be removed from the finger to be treated as an exhibit.

The weapon recovered, along with any photographs, lift(s), or a cast of the impression, should be submitted to a fire arm/toolmark examiner for an analysis. The examiner will perform the comparison of the known hammer spur

characteristics displayed in the photograph, lift, or cast, looking for matches of both class characteristics and accidental characteristics.

The Fairfax County Police Department has been experimenting with this technique for the past 5 years. While a hammer spur impression is not present in all cases of suicide by firearms, it has proven beneficial to the agency in ascertaining the cause of death in many questionable self-inflicted gunshot cases. It is hoped that the information shared here will be beneficial to other agencies.

Anyone desiring additional information on this method should contact Master Police Officer Andrew P. Johnson, Identification Officer, Fairfax County Police Department, 10600 Page Avenue, Fairfax, VA 22030 or phone (703) 246-4204.

**FBI**

**Footnotes**

<sup>1</sup>Robert J. Barry, "Teenage Suicide—An American Tragedy," *FBI Law Enforcement Bulletin*, vol. 55, No. 4, April 1986, p. 17.

<sup>2</sup>Eastman Kodak Company, *Using Photography to Preserve Evidence*, 1976 Standard Book Number 0-87985-166-X, pp. 15-20 and 29-33.