

## Bloodstain Evidence



The photograph above depicts the examination of bloodstain evidence in the investigation of a homicide in Miami, Florida, late in February, 1974. Shown on the left is Herbert L. MacDonell, who has done extensive research in the field of bloodstain evidence, and on the right, Joseph J. Musial, Supervisor of Identification & Records, Department of Police, Miami.

In a recent letter, Musial wrote that he had a nice visit with MacDonell, who was in Miami conducting a seminar on the physical significance of bloodstain evidence. Coincidentally, Musial became involved in the investigation of a homicide "which required an interpretation of the blood patterns to reconstruct the physical evidence in a logical manner in order to determine how the crime was committed." Musial goes on to say: "Knowing Herb as I do through our affiliation with the I. A. I., and being familiar with his expertise and knowledge in this particular field, I lost no time in drafting his services by literally snatching him away from his classroom and bringing him to the scene of the crime." "In his familiar manner he proceeded to

interpret and reconstruct in his inimitable way a picture of the action which must have occurred during the assault." ("The female has been struck on the head with a blunt instrument and stabbed through the throat with a butcher knife.") "The expert opinions and advice I received from MacDonell were invaluable to me in providing investigative leads which resulted in the successful solution of this crime."

Continuing, Musial writes: "My purpose in writing is to point out to those who may not be aware just one of the many values of belonging to an organization such as ours, and attending the annual conferences where one has the opportunity to make personal contacts with individuals as Herbert MacDonell."

Joseph J. Musial is presently the 3rd Vice President of I. A. I., and is the General Chairman for our 60th Annual Conference to be held on Key Biscayne, Miami, Florida, in 1975.

Herbert L. MacDonell needs no introduction to most of our members since he has been active in I. A. I. affairs for many years. For our newer members, and those not familiar with his qualifications, we make mention of a few facts. MacDonell is the Chairman of the I. A. I. Science and Practice Committee. He is Adjunct Professor of Criminalistics at Elmira College and Corning Community College in New York State and a frequent author and lecturer on this subject. He is perhaps best known as the inventor of the Magna-brush which is so widely used in identification everywhere. In 1969 MacDonell was awarded an LEAA grant for an in-depth study of the physical significance of bloodstain patterns and evidence. The report of this study is contained in a booklet entitled: "Flight Characteristics of Human Blood and Stain Patterns", which is the only authoritative work published on this subject. Copies are obtainable from the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, Washington, D. C. 20530. Under the auspices of LEAA, MacDonell has and continues to hold seminars on the physical significance of bloodstain evidence in various parts of this country. His expertise is in great demand and, as a consulting criminalist, he has given testimony in many courts all over the United States.

## *Institute on the Physical Significance of Bloodstain Evidence*

The first Institute on the Physical Significance of Bloodstain Evidence was held in Jackson, Mississippi, March 19-23, 1973, under the direction of Prof. Herbert L. MacDonell and his associate, Mrs. Lorraine Fiske Bialousz. Sponsored by the Mississippi Division of Law Enforcement Assistance, the program was coordinated by Jim Reeves of the University Extension of the University of Mississippi.

Enrollment was limited to thirty students, divided into six groups of five each to allow for considerable personal attention and to permit each student to prepare his own bloodstain standards if he wished. Experiments, however, were conducted on a group basis. A laboratory manual was provided each student so that procedure would be uniform and reports standard.(1)

MacDonell and Mrs. Bialousz first undertook a two year research project on bloodstain evidence in 1969, a program sponsored by a grant from the National Institute of Law Enforcement and Criminal Justice. The final report of this study was widely distributed by LEAA and is available from the U. S. Government Printing Office (2).

Twelve experiments comprised the laboratory portion of the study. There were entitled:

1. Volume of a drop of blood.
2. Spot size as a function of distance fallen.
3. Effect of target surface on spatter.
4. Spot shape vs. impact angle.
5. Effect of horizontal motion.
6. Splashed blood vs. distance fallen.
7. Projected blood vs. distance fallen.
8. "Cast off" bloodstains.
9. Medium velocity blood splatter.
10. High velocity blood spatter.
11. Spot size vs. horizontal projection.
12. Drying time of blood.

Results of these experiments brought a considerable measure of surprise to the students, especially when it was observed that the results of the experiments were not in accord with those expected. All of the experiments were designed to teach the students their application to crime investigation and to make clear the relationship between the cause and the effect. Some of the questions which could be answered from the study of such bloodstains are:

1. What was the distance between the blood-spattered surface and the origin of the blood when it was spattered?
2. Where was the origin of the blood?
3. What was the type and direction of impact that produced the bloodstain?
4. In what movement and in what direction were the persons and/or objects going while the blood was shed?
5. How many blows (or shots) were struck (or fired)?
6. In what position was the victim and/or the objects when the blood was shed?
7. Was the victim or the object moved after bloodshed?

**All of these may be answered by a thorough study of the bloodstain patterns.**

Since the average student had little or no exact knowledge about bloodstains at the beginning, each learned by experiment some first hand information which will enable him to make a better and more complete interpretation of bloodstains appearing at crime scenes. Blood will not always result from crimes of violence, and if it does appear it will not always be useful in the investigation. But some knowledge about bloodstains and their flight characteristics may be useful when properly applied to a crime scene investigation. Without it a proper interpretation of the evidence is impossible.

Future institutes are planned in Louisiana, Georgia, and Mississippi. The first such institute in New York State will be given at Elmira College, Elmira, N. Y., June 24-29, 1973. Although this first session is completely booked at this writing, others will be given at appropriate times. Information about the institute maybe obtained from:

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Herbert L. MacDonell and Mrs. Lorraine Fiske Bialousz examine bloodspatter.

1. MacDonell, Herbert Leon, and Lorraine Fiske Bialousz, **Laboratory Manual on the Geometric Interpretation of Human Bloodstain Evidence**, Painted Post, N. Y., Laboratory of Forensic Science, 1973.
2. MacDonell, Herbert L., **Flight Characteristics and Stain Patterns of Human Blood**, Washington, U.S. Department of Justice, Law Enforcement Assistance Administration, 1971.