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## Technical Note:

# A LASER ANGLE GAUGE FOR USE IN STRINGING BLOOD PATTERNS

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While in the process of stringing an impact pattern, I devised an apparatus to simplify and expedite the activity. By means of the addition of a laser pointer to the adjustable angle gauge, I was able determine the precise point at which to affix the string on the floor, wall, or ceiling.

## MATERIALS

The apparatus (FIGURE #1) consists of an adjustable angle gauge available at hardware and building supply stores (“Lee Valley Tools”- Protractor Square #99N04.01) and a laser pointer. The laser is attached to the moving arm of the gauge, in this trial with tape, and the accuracy was tested with a protractor. A wood block was attached to the stationary arm that lies across the surface with the blood drop. This block was used to hold the angle gauge at a 90-degree angle to the surface.

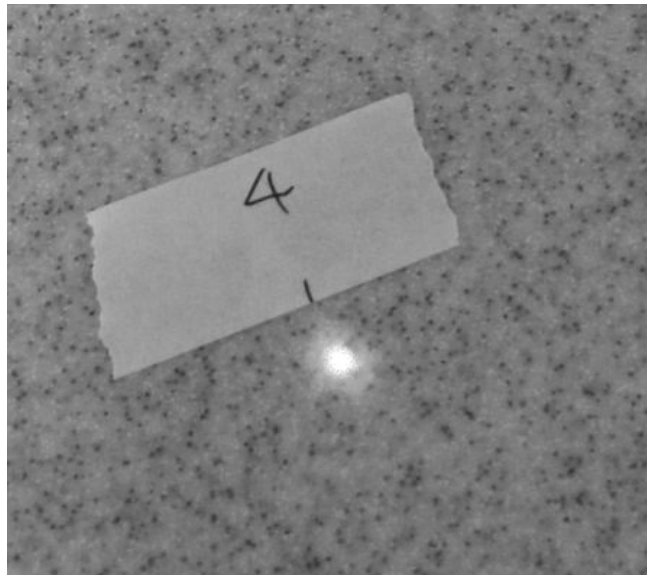
FIGURE #1



## METHOD

The laser angle gauge is used to assist in string placement with an impact pattern. The drops are selected and measured in the usual way and the impact angle determined. The selected drops are numbered consecutively and a line is drawn through them along the drop's directionality (line of flight). The angle gauge is then set to the computed impact angle and the lower arm is placed along the line of flight line drawn on the surface. The hinged junction of the two arms is centered over the blood drop. The laser is now switched on and a red dot appears in the exact position where you need to affix the opposite end of the string. I marked these positions with a piece of tape numbered with the drop number (FIGURE #2). After this was done on all the selected blood drops, it was an easy process to tape the string to the drops on the target surface and pull the string out to the positions marked with the laser. Stringing the pattern now takes considerably less time and is undoubtedly more accurate. It was easier now to string, as all the string positions were first marked (i.e., on the floor) and you could start by stringing first the positions closest to the target surface.

FIGURE #2



## VALIDATION

As an experiment, the writer used the laser angle gauge to string (2) two (of known origin) medium velocity impact patterns on a vertical (wall) surface. The same (2) two patterns were also calculated using “BackTrack” (Forensic Computing of Ottawa, Dr. A.L. Carter) software. The calculations showed that both the laser angle gauge used with stringing and the “BackTrack” software provided results that were very acceptable when compared to the known origin of the patterns.

## CONCLUSION

The Waterloo Regional Police Service uses the “BackTrack” software for stringing impact patterns and a laser angle gauge is not required. Some Bloodstain Analysts do not have access to this software and physically string their patterns, and for this procedure the laser angle gauge will be of use. The laser angle gauge would also be useful in shooting incident reconstruction for trajectory angle measurements.

A similar angle gauge is available commercially from “EVI-PAQ.” (Laser Protractor Kit, order #LPRK-1) but this will not work with blood drops that impact the surface at less than a 10-degree angle.

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CANADA

# Training Opportunities

**September 23-27, 2002**  
**Fall Bloodstain Institute**  
Corning, New York

◆  
Herbert L. MacDonell  
Bloodstain Evidence Institute  
P.O. Box 1111  
Corning, New York  
Voice: 607-962-6581  
Fax: 607-936-6936  
E-mail: forensic@localnet.com

\*\*\*\*\*

**October 2-4, 2002**  
**International Association  
of Bloodstain Pattern Analysts  
Annual Training Conference**  
Harrisburg, Pennsylvania

◆  
LeeAnn Singley  
Pennsylvania State Police  
717-705-8443  
E-mail: lsingley@state.pa.us

\*\*\*\*\*

**December 9-13, 2002**  
**Basic Bloodstain Pattern Analysis**  
By Paul Kish & Stuart James  
Appleton, Wisconsin

◆  
Daniel Feucht  
Fox Valley Technical College  
Criminal Justice Department  
1825 N. Bluemound Drive  
Appleton, WI 54912  
920-735-4725  
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\*\*\*\*\*

**December 9-13, 2002**  
**Bloodstain Pattern Analysis  
Workshop**  
Miami, Florida

◆  
Toby L. Wolson, M.S.  
Miami-Dade Police Department  
Crime Laboratory Bureau  
9105 NW 25<sup>th</sup> Street  
Miami, FL 33172  
Voice: 305-471-3041  
Fax: 305-471-3350  
E-mail: Twolson@mdpd.com

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**March 3-7, 2003**  
**Bloodstain Pattern Analysis  
Workshop**  
Miami, Florida  
(See December 9-13, 2002)

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**May 5-9, 2003**  
**Advanced Bloodstain Pattern Analysis**  
By Paul Kish & Stuart James  
Appleton, Wisconsin

◆  
(See December 9-13, 2002)

\*\*\*\*\*

**May 19-23, 2003**  
**Advanced Bloodstain Pattern Analysis  
and Expert Witness Workshop**  
Miami, Florida  
(See December 9-13, 2002)

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**December 8-12, 2003**  
**Bloodstain Pattern Analysis  
Workshop**  
Miami, Florida  
(See December 9-13, 2002)

*Training announcements for the  
December 2002 Newsletter must be  
received before November 18, 2002.*

## Editor's Message

As this edition of the NEWS is being prepared, LeAnn Singley is hard at work attending to the finishing touches for the upcoming conference in Harrisburg, Pennsylvania. A significant number of registrations have been received and we are working out the speaker schedule. Based upon the abstracts that have been submitted, the presentations should be diverse and very informative. I would encourage all of the upcoming conference presenters to prepare their presentations in manuscript form and submit them to the NEWS for possible future publication. In this way you will be able to convey your experiences and knowledge to those who were unable to attend this years conference.

If you should need additional information about the conference please go to the IABPA web page at <http://www.iabpa.org> or contact LeAnn Singley, Pennsylvania State Police (717) 705-8443 or [lsingley@state.pa.us](mailto:lsingley@state.pa.us).

Call for papers: The IABPA News needs research papers and case studies for publication in future issues. If you have been doing research in bloodstain pattern analysis or have an interesting case, please share it with all of us. Send your completed article to:

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Fax: (607) 962-2093  
E-mail: [pkish@localnet.com](mailto:pkish@localnet.com)

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## **Organizational Notices**