

Comprehensive View on Some New Methods For Enhancing and Lifting 2D Shoeprints

Impression and Pattern Evidence
Symposium 2010

- August, Florida USA

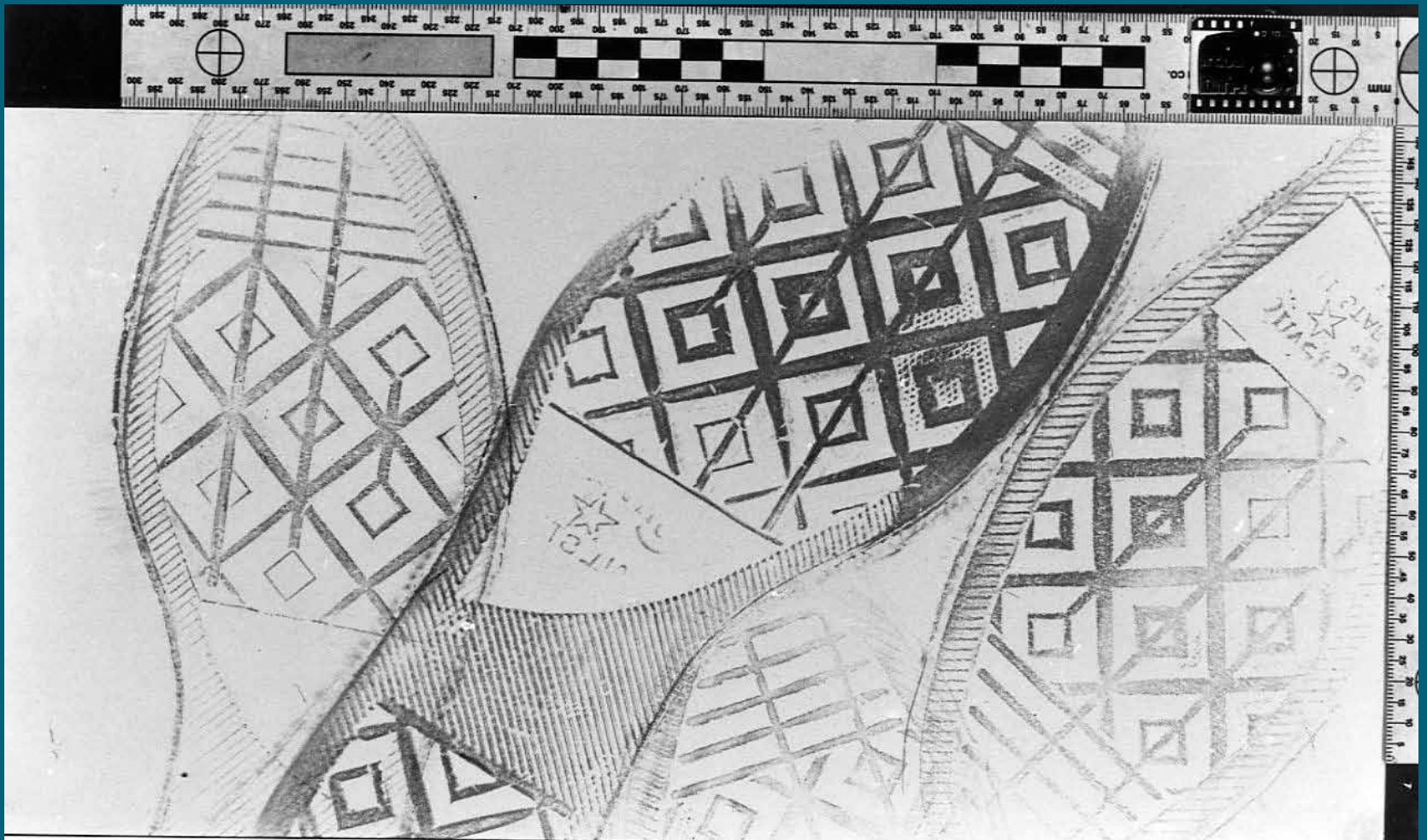
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Main Principles

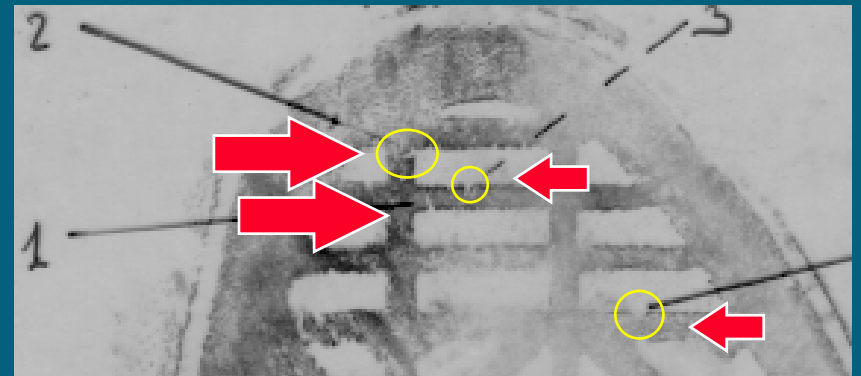
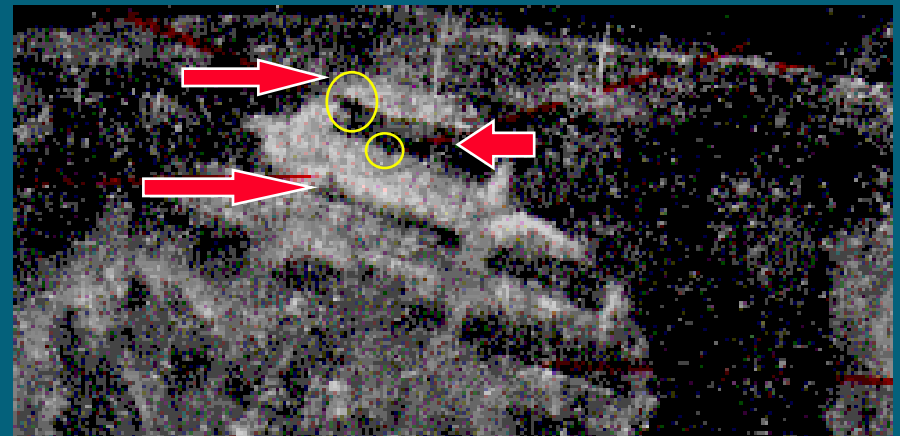
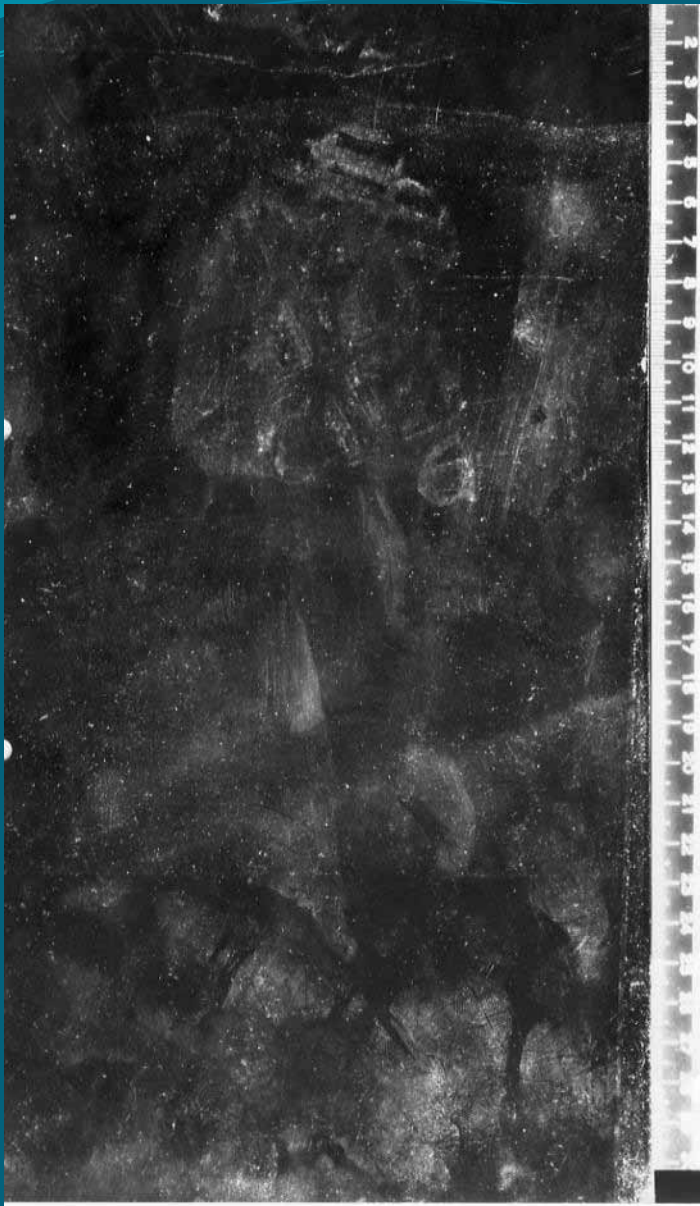
- To preserve all the evidence existing in the crime scene.
- To save time at the crime scene and do as much as possible in the lab.



The Ideal Shoeprints...



Real-life Shoeprints...

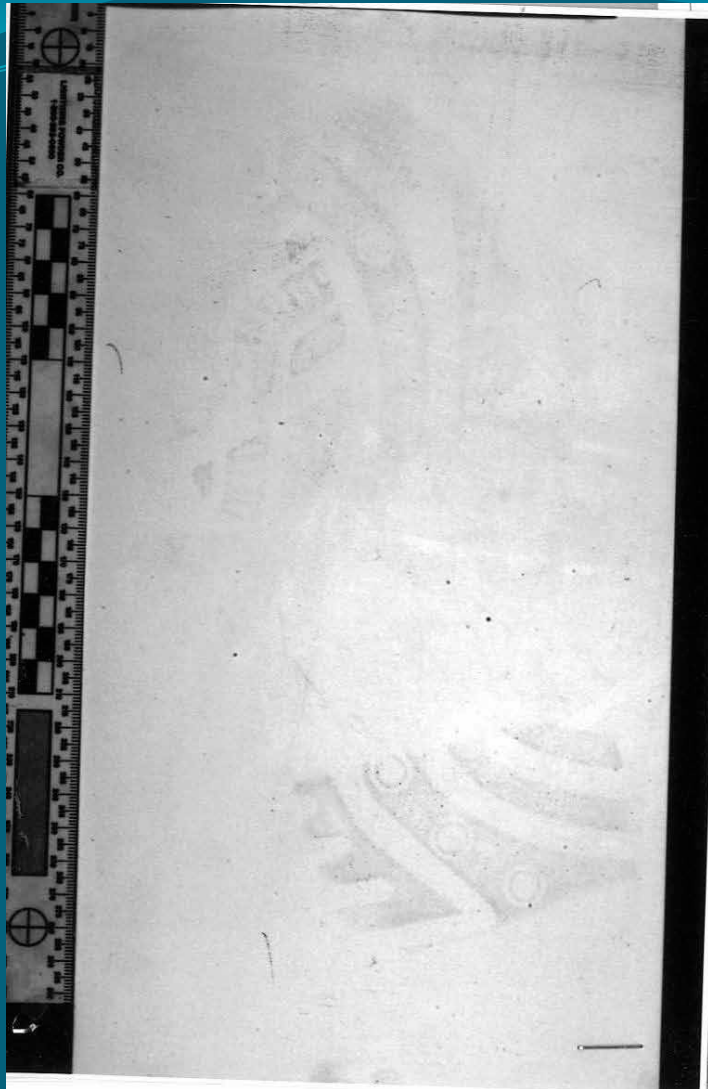


BPB – A pH Reagent For Enhancement of Dust

References:

- 1. The use of an adhesive lifter and pH indicator for the removal and enhancement of shoeprints in dust, Shor Y, Vinokurov A, Glattstein B. Journal of Forensic Sciences, Jan. 1998, Vol. 43 No1 pp. 182-184.*
- 2. pH Indicators as Chemical Reagents for the Enhancement of Footwear Marks, Glattstein B, Shor Y, Levin N, Zeichner A. Journal of Forensic Sciences, Jan. 1996, Vol. 41 No. 1 pp. 23-26.*





Before



After

Black gelatin lifter

- Using a pneumatic press.
- Cleaning the gelatin lifter.

References:

- 1. Lifting Shoeprints Using Gelatin Lifters and a Hydraulic Press, Shor Y, Tsach T, Vinokurov A, Glattstein B, Landau E, and Levin N. Journal of Forensic Sciences. Vol. 48 No. 2, March 2003.*
- 2. Removing Paper Residue from a Gelatin Lifter, Y. Shor, T. Tsach, S. Wiesner, G. Meir, J. Forensic Sci., 50(6) 2005 pp 1386-1393.*

Lifting wet prints



Gelatin lifter



Electro static lifter

Using a pneumatic press to lift prints with black gelatin lifter

The pneumatic press



Placing the gelatin lifter



The pressing process



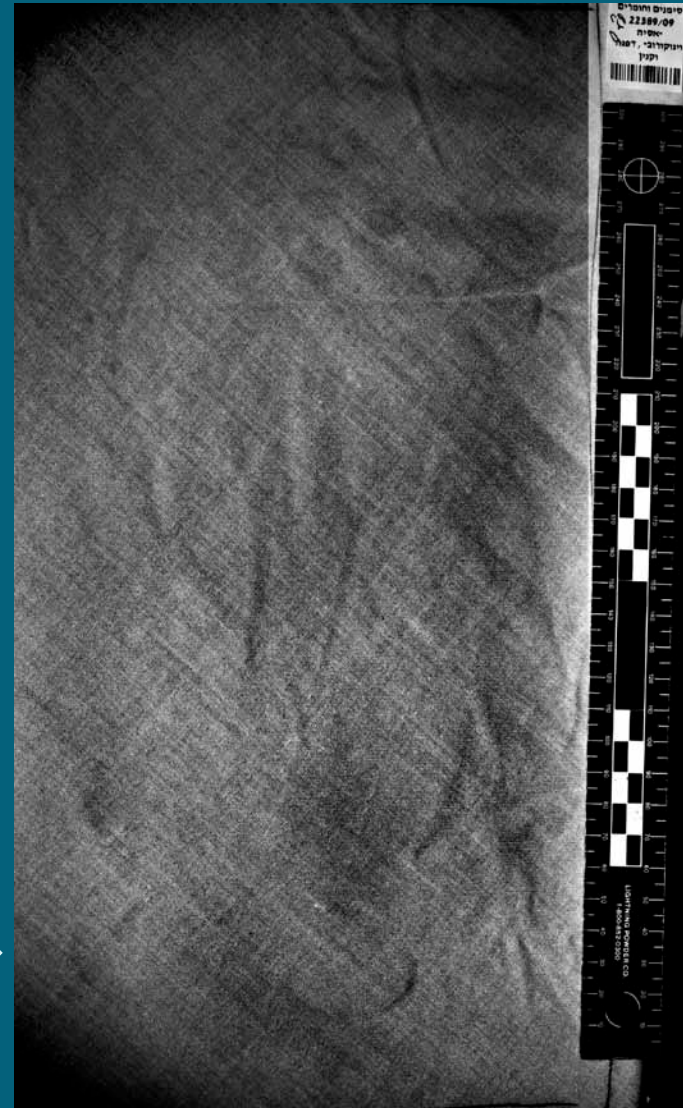
Cleaning the gelatin lifter

Cleaning the gelatin lifter



A sheet with a shoeprint on it

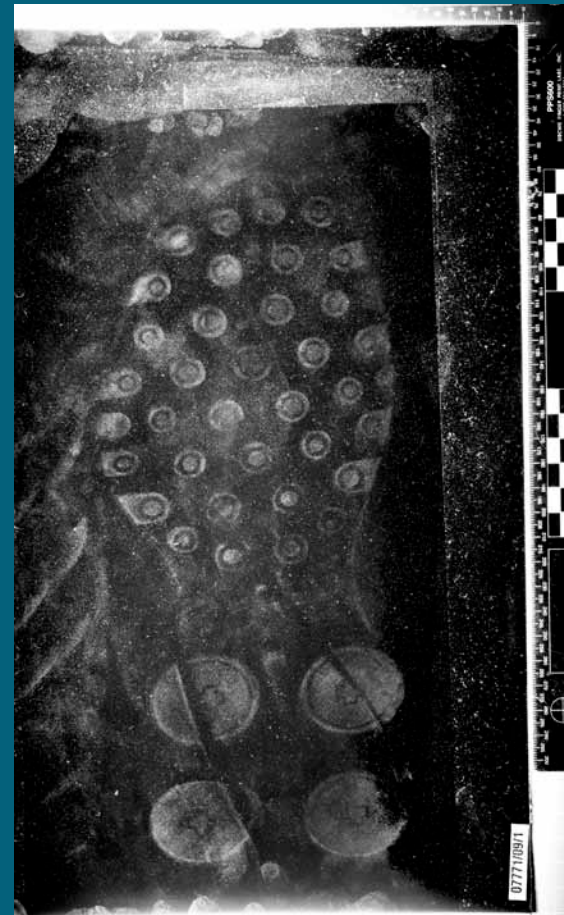
The shoeprint →



Cleaning the gelatin lifter

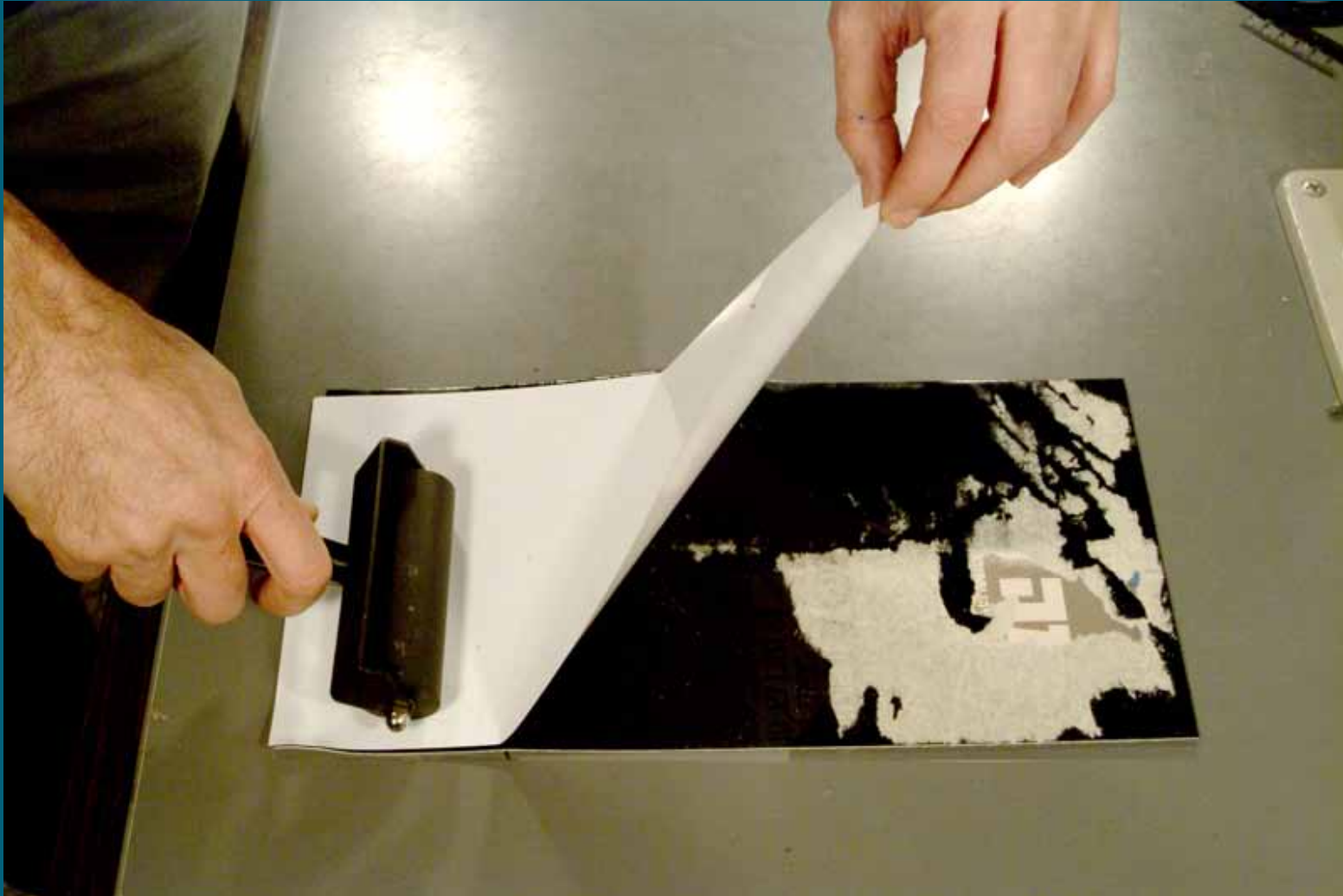


Before cleaning

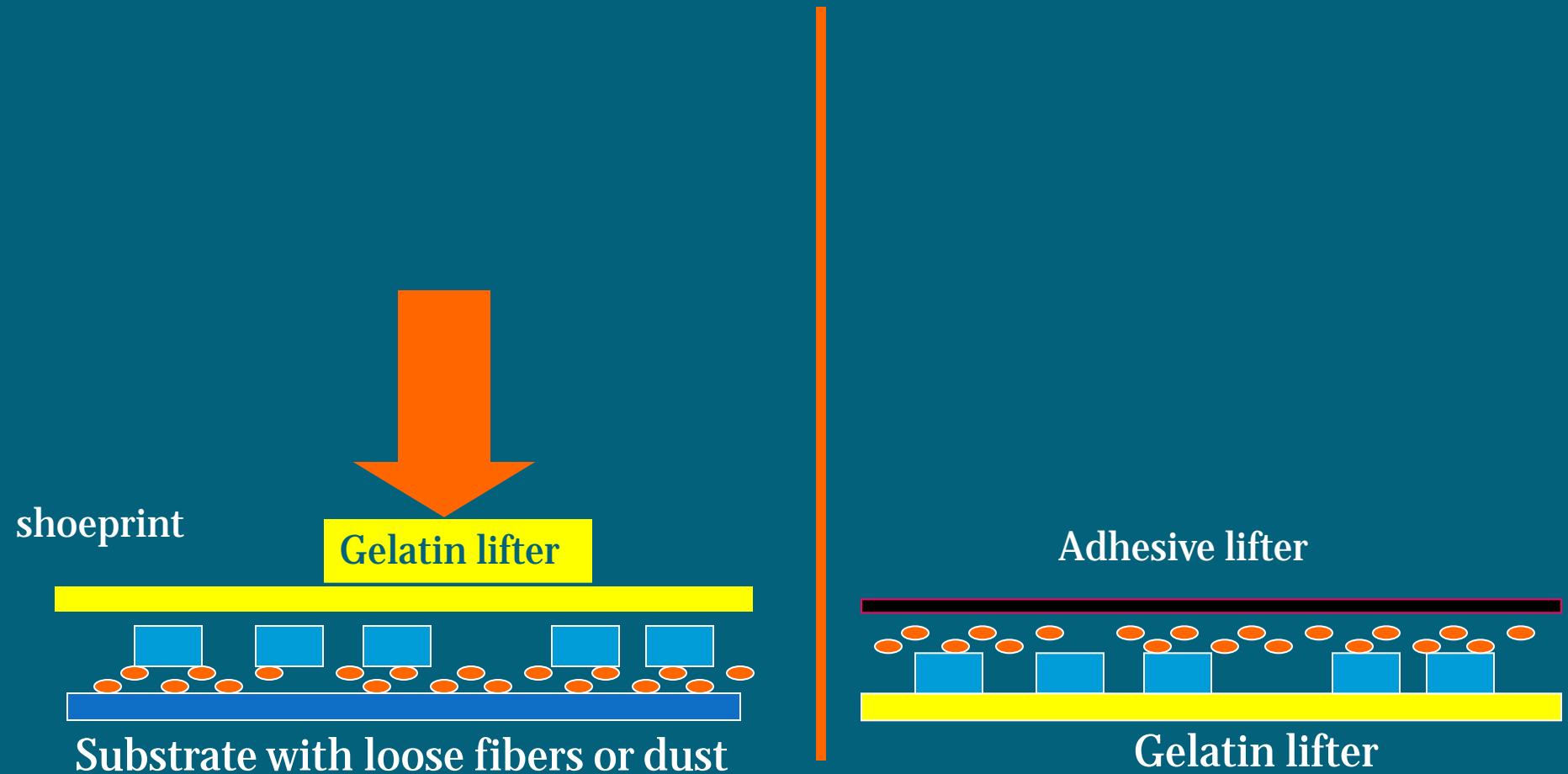


After cleaning

The Cleaning process



The lifting and cleaning processes



A: First lifter
B: Second lifter
C: Third lifter

Four stages of cleaning:

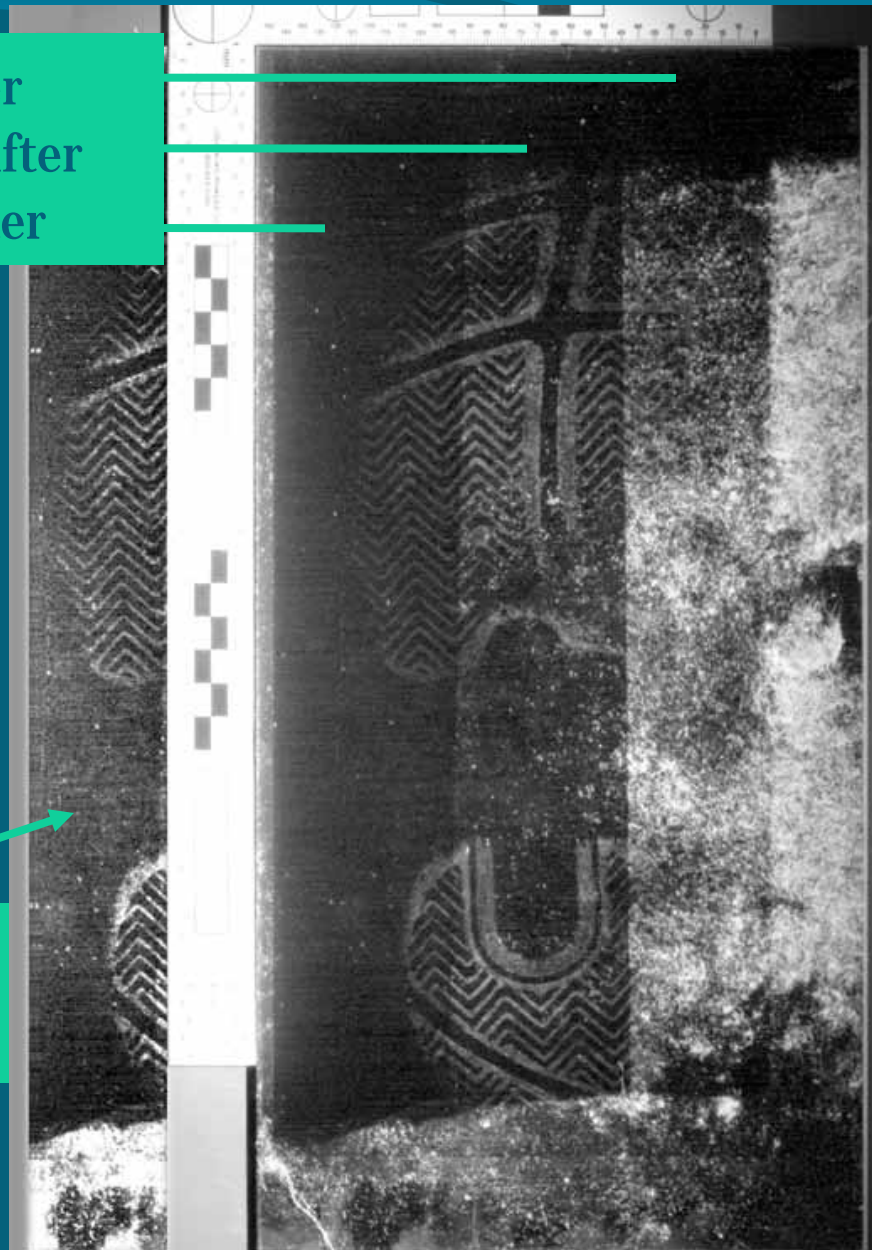
A: Original

B: After 1st Lifter

C: After 2nd Lifter

D: After 3rd Lifter
("Over shaving")

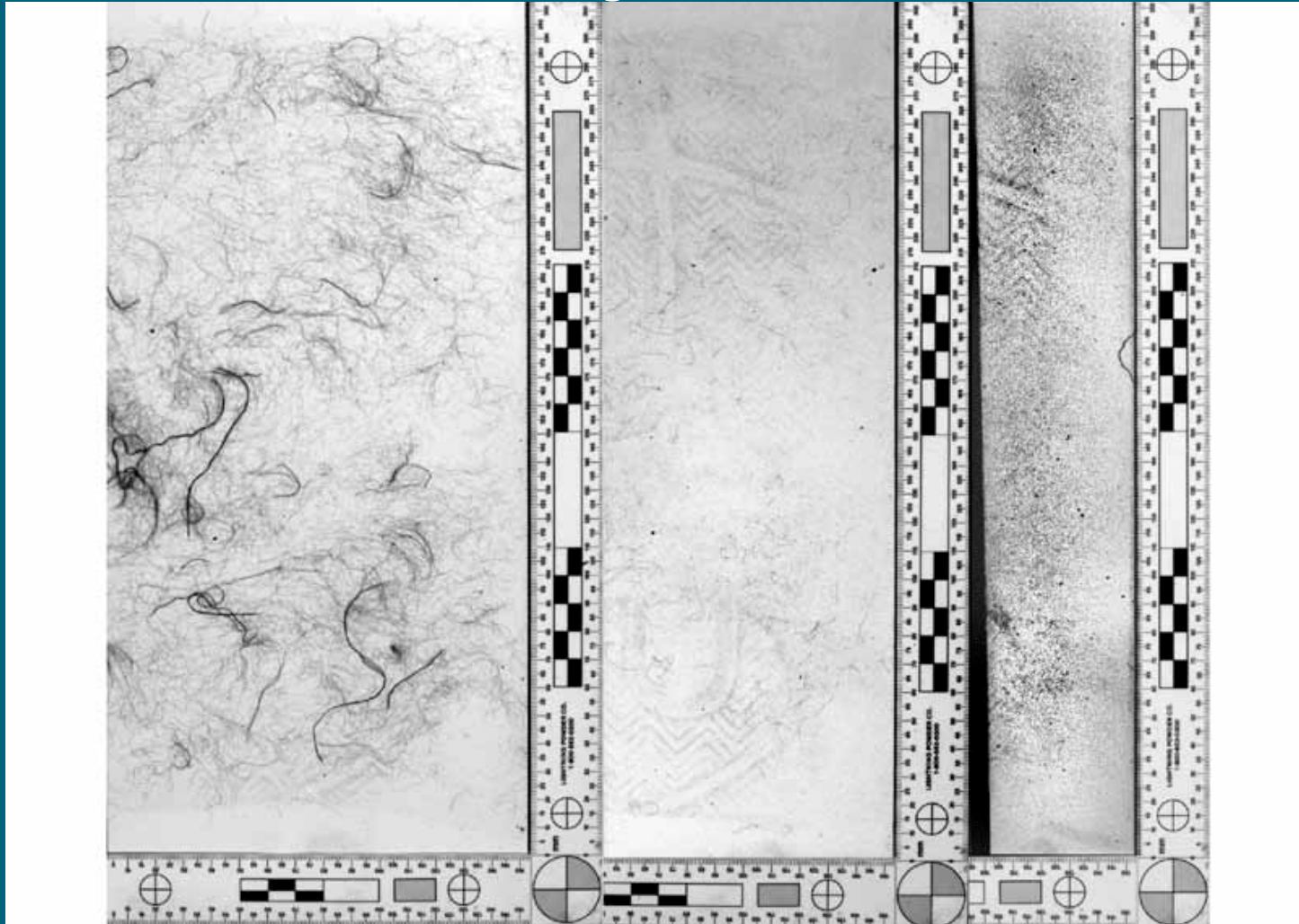
D after
image



D C B A

What happened to the shoeprint?

The cleaning adhesive lifters



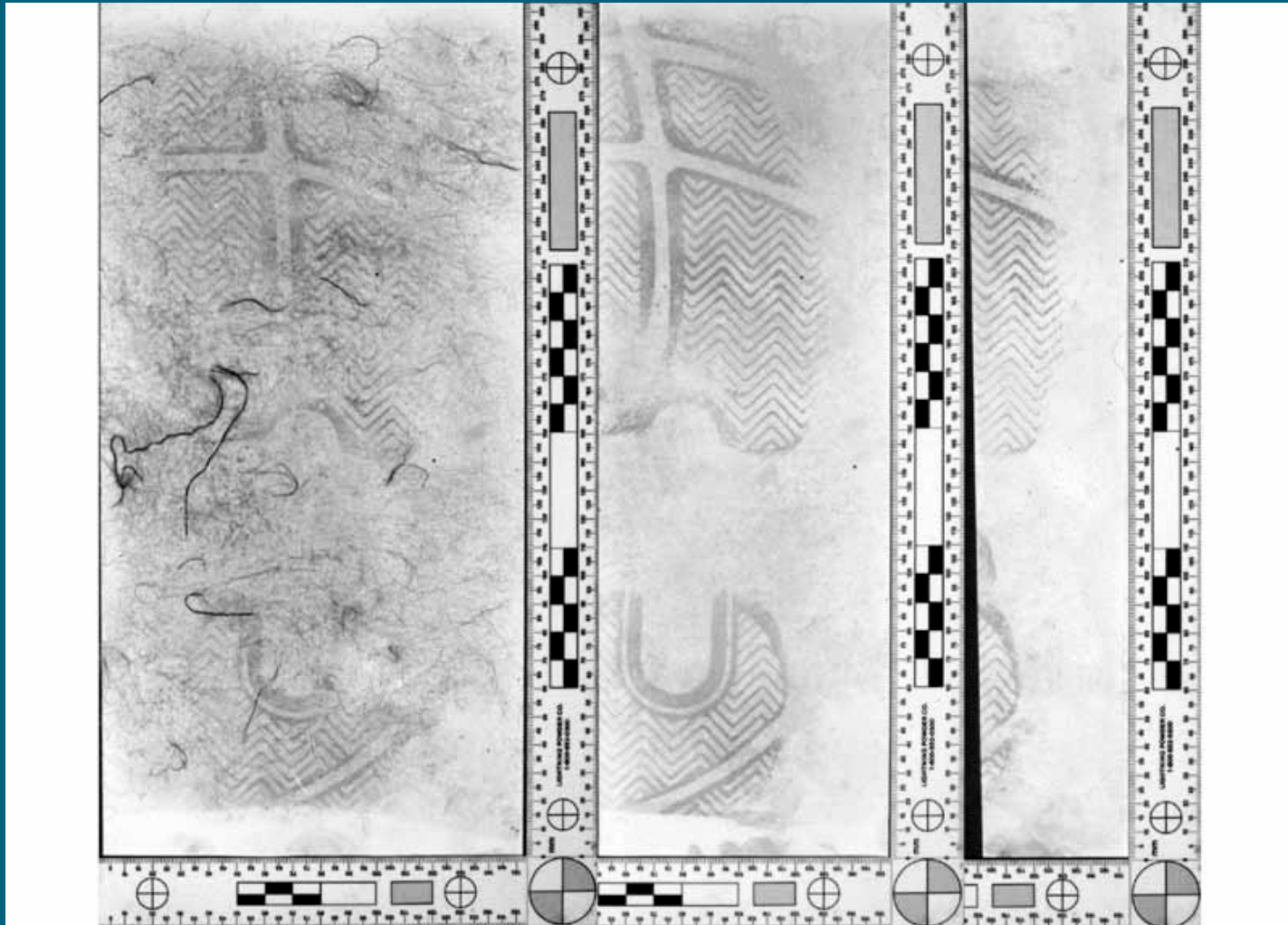
First cleansing

Second cleansing

Third cleansing

What happened to the shoeprint?

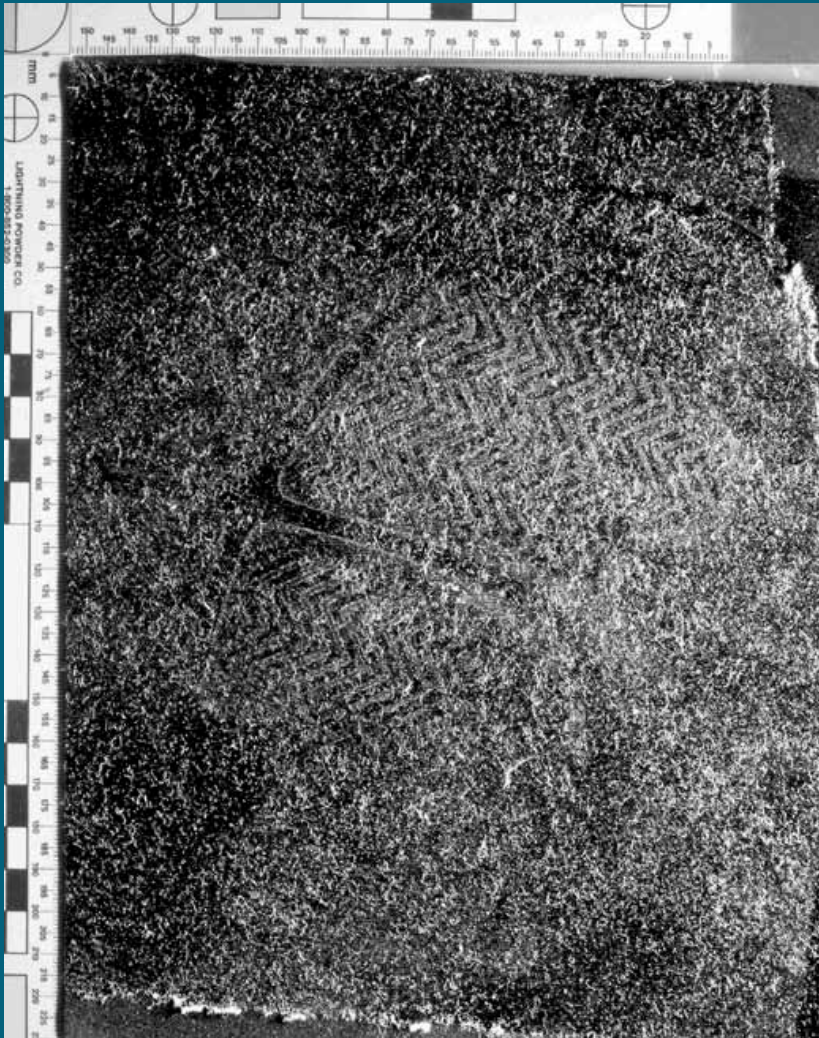
The cleaning adhesive lifters after treatment with bromo-phenol blue



First cleansing Second cleansing Third cleansing

The final result

Before



After

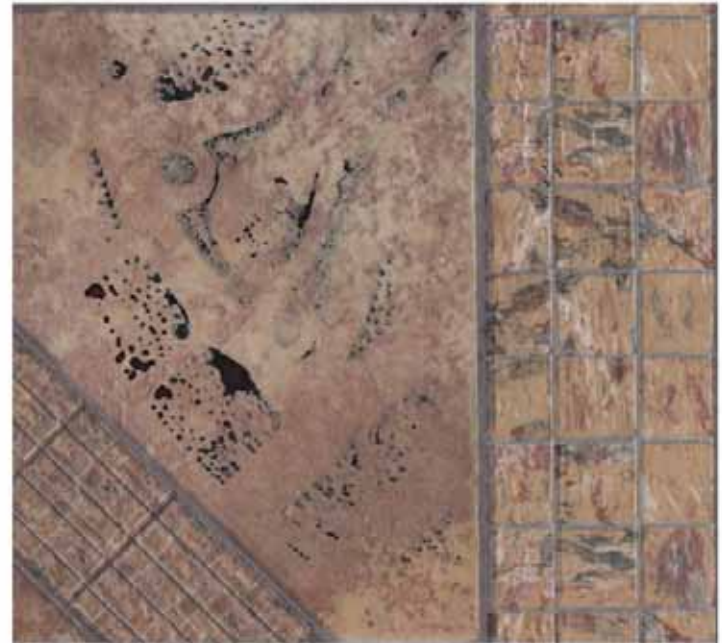


Background subtraction

Before
enhancement



After enhancement with
Amido Black





**Background after
erasing the shoeprint**

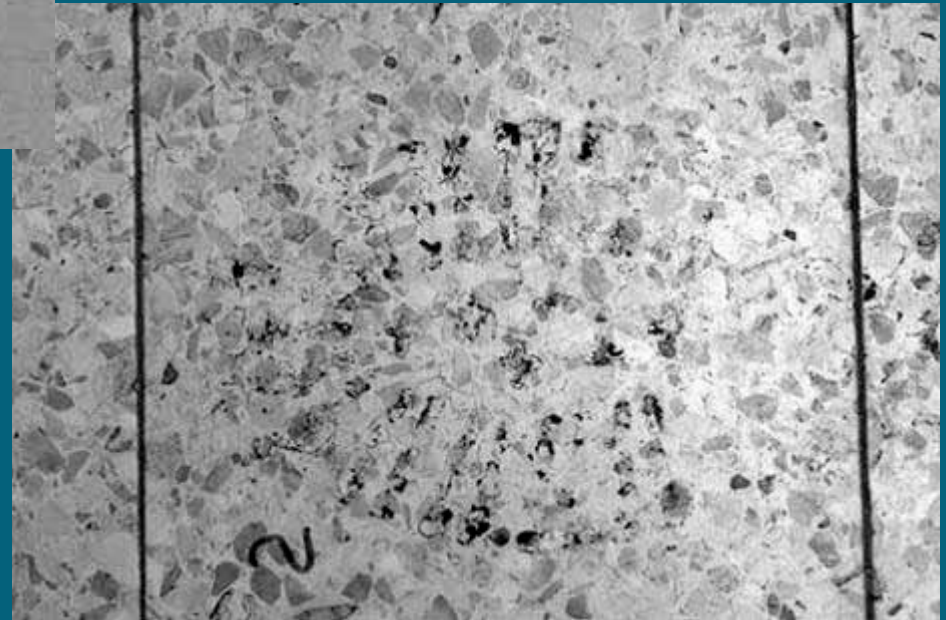


**Bloody shoeprint on
multi-colored floor**





Conventional image processing



**Background subtraction
image processing**

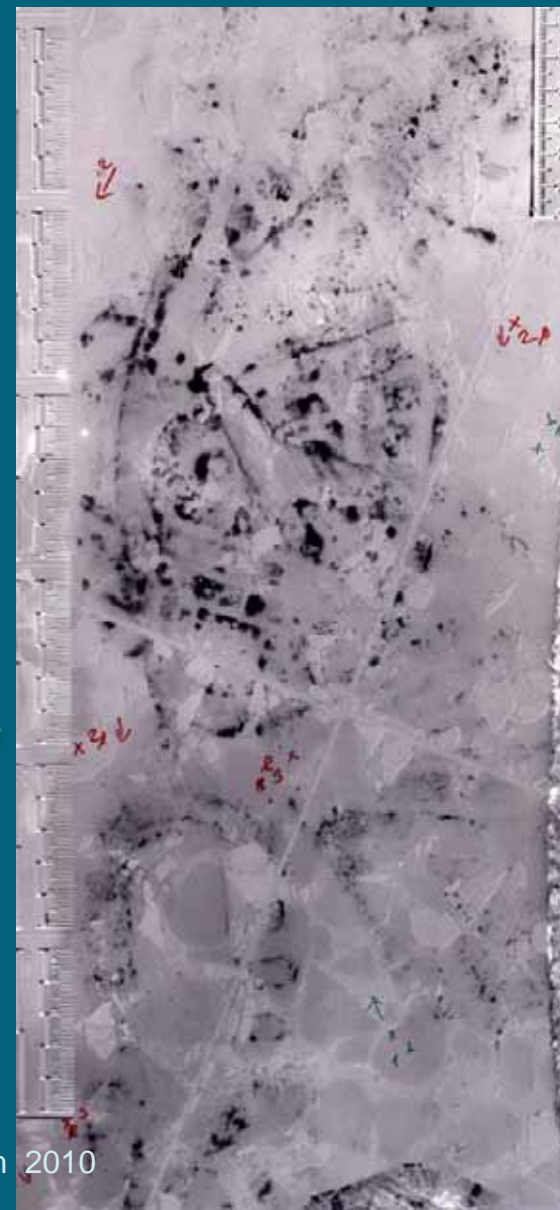


Real Case



← Before

After →



Angled Photographing of shoeprints

Reference:

The Evidential Value of Distorted and Rectified Digital Images in Shoeprints Examination, Shor Y, Tsach T and Chaikovsky A. *Forensic Science International*, 166. 77-83 2007 Aug. 2005.

Angled Photography of shoeprints

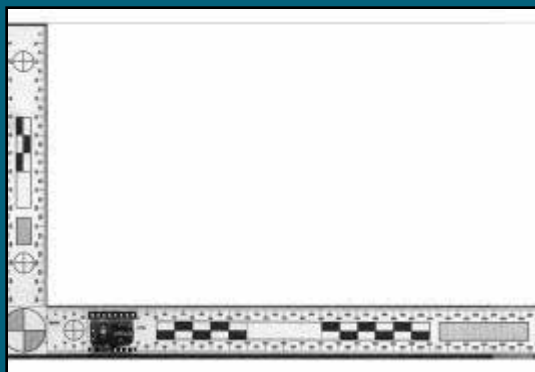


Right angled photograph of shoeprint on cardboard

Angled photograph of the same shoeprint



Angled Photographing of shoeprints



Shoeprint after straitening the scale

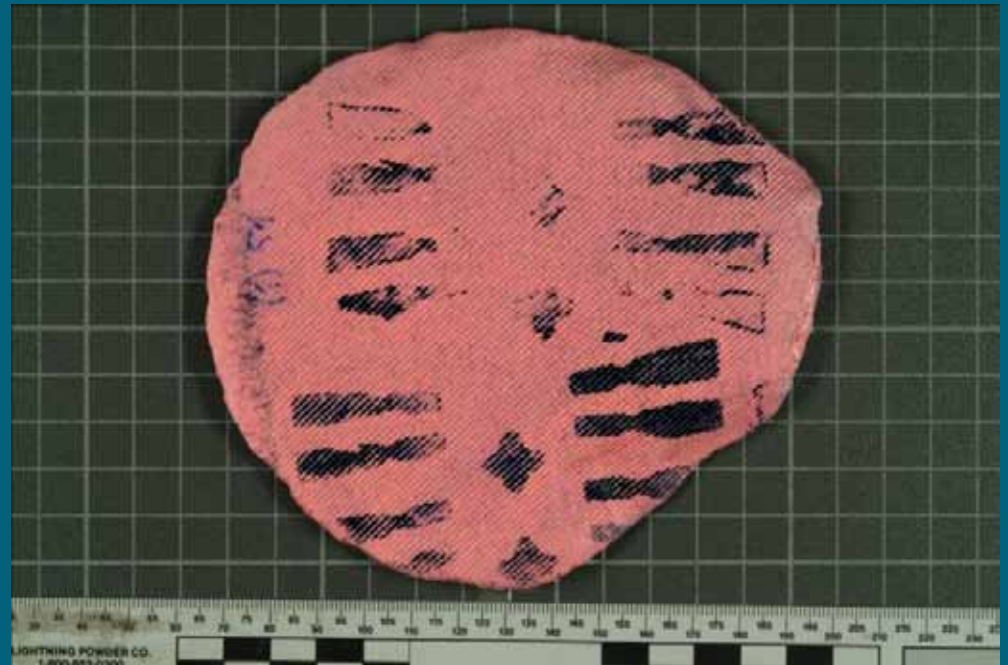
Lifting bloody shoeprints on clothes with Alginate

Lifting Bloody Footwear Impressions On Clothes with Alginate

The print on the pants



The print lifted with alginate putty



The proper working method



ü



ü



The effect of Alginate on the original print

Before



After



Water : Alginate ratio

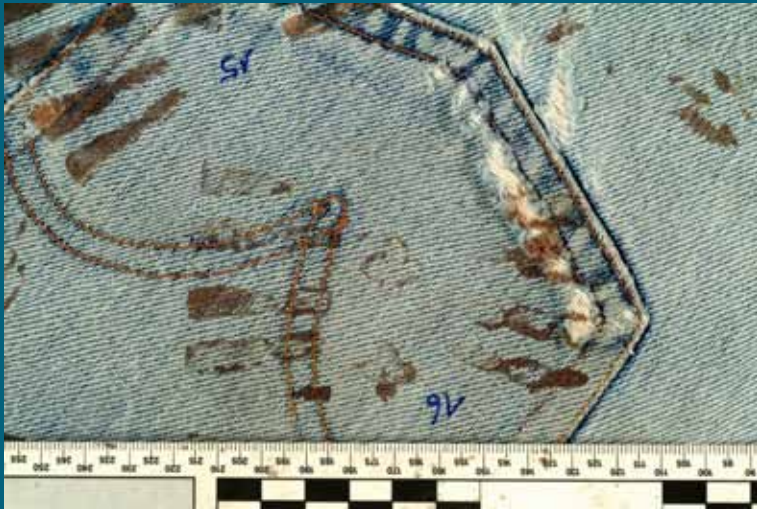
2.4 water : Alginate ratio



4.8 water : Alginate ratio

LCV vs. amido-black on Alginate

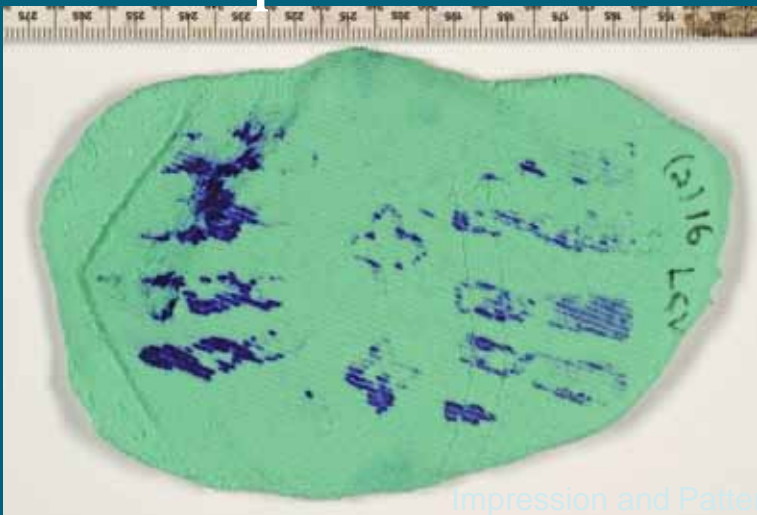
The print on the pants



Alginate cast of the print



Development with LCV

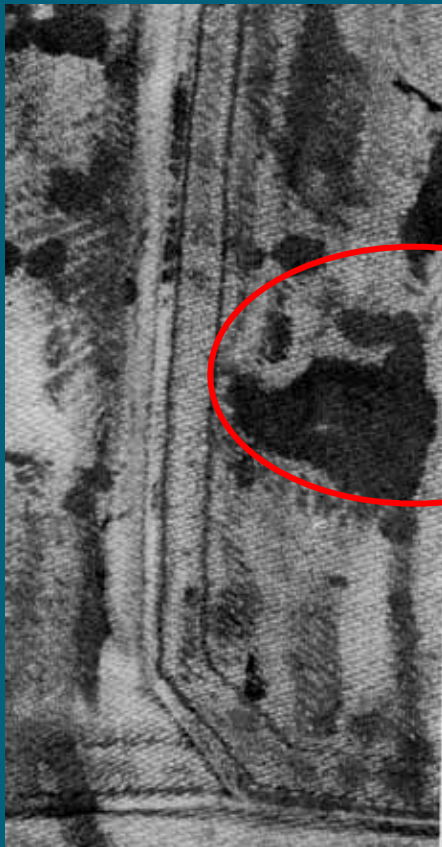


Development with amido-black

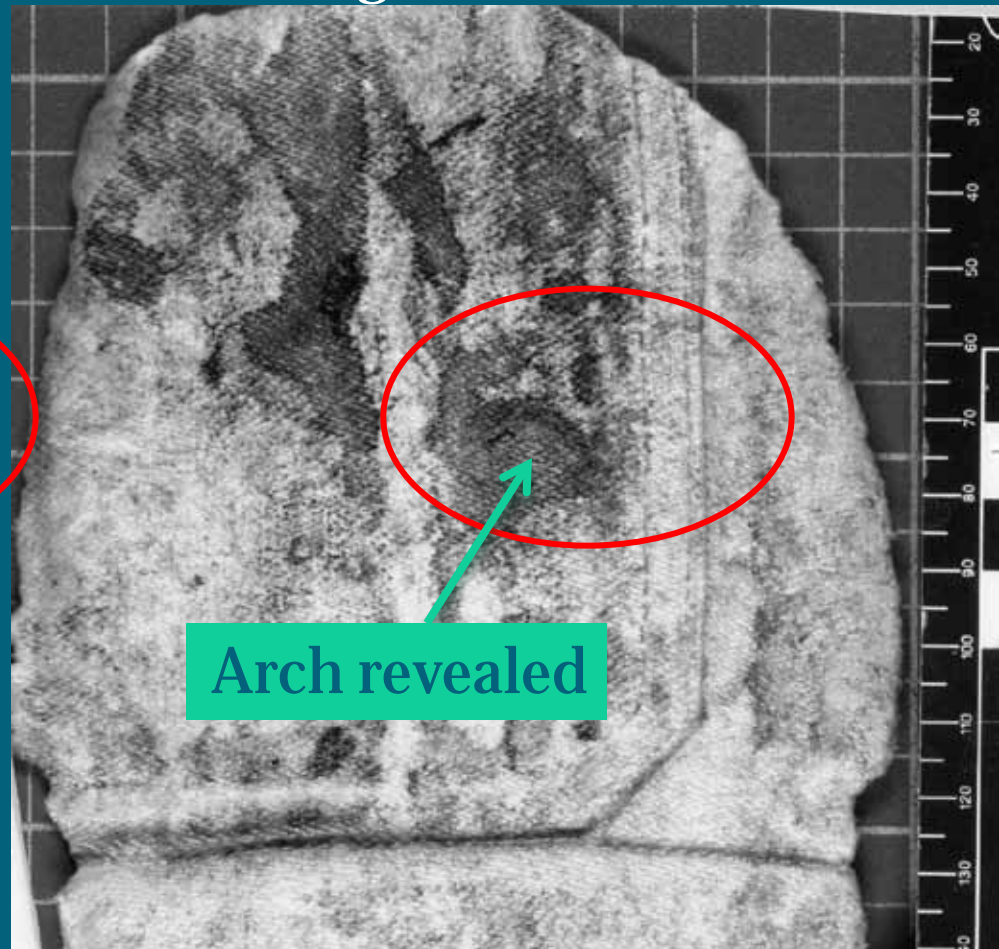


Shoeprint revealed with Alginate

Jeans



Alginate cast



Arch revealed

Thank you for your attention

