

TECHNICAL NOTE

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An Improved Technique to Enable 2-Dimensional Shoe Sole Impression Evidence to be Photographically Recorded "To Scale"

REFERENCE: Hall, B. R. and Nolan, A. M., "An Improved Technique to Enable 2-Dimensional Shoe Sole Impression Evidence to be Photographically Recorded 'To Scale'," *Journal of Forensic Sciences*, JFSCA, Vol. 39, No. 4, July 1994, pp. 1094-1099.

ABSTRACT: An improved technique to photographically record 2-Dimensional shoe sole impressions "to scale" is described. This technique was developed as a result of continual attacks in court in relation to the question of precise SCALE.

Staff at our laboratory are routinely required to examine shoe sole impressions evidence that has been collected by our Scenes of Crime Officers. The Scenes of Crime Officers have been instructed in the appropriate photographic techniques which *should* be used to record 2-Dimensional shoe sole impressions, however, for one reason or another, including inexperience, this technique is not rigidly adhered to.

We have seventy-five (75) Scenes of Crime Officers throughout Queensland, and nearly all of the shoe sole interpretation work is done in the Brisbane Headquarters. It is the case that the Scenes of Crime Officers record the scene and other photographers record the Test Impression.

There are three problems that affect the quality of the scale photographs submitted.

1. The camera is not directly over the center of the subject.
2. The camera is not exactly parallel to the subject.
3. The designs of the camera lens.

These problems are highlighted when barristers compare the scale photos of the test impressions made in the laboratory, with the scale photos of the scene impressions. Barristers actually measure the distance between features and usually a discrepancy (albeit slight) is found. The GRID allows us to demonstrate to Lay persons and Lawyers the interrelationship of identification features, by reference to a particular GRID.

KEYWORDS: criminalistics, shoe sole impressions, scale

Accepted for publication 14 June 1993; revised manuscript received 9 Dec. 1993; accepted for publication 22 Jan. 1994

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Discussion

It is acknowledged, that an experienced photographer would be able to record most 2-dimensional shoe sole impressions at a high enough standard for our court purposes. However, our experiences confirm, that it is the exception rather than the rule, for photographs of court standards to be submitted to our laboratory for examination.

Even where we have increased the skills for the Scenes of Crime Officers via training there are still problems that occur when;

- (1) the impression is on a curved surface of a toilet cistern, seats, or car panels.
- (2) the impression is in a position that makes it difficult to position a camera directly overhead, as in the case of ceiling cavities, or under benches.

The New Scale (The Grid)

A clear acetate sheet on which a 1 cm grid is printed was designed. The grid is prepared on A3 size graph paper that is then printed onto A3 Overhead Transparency Acetate. We

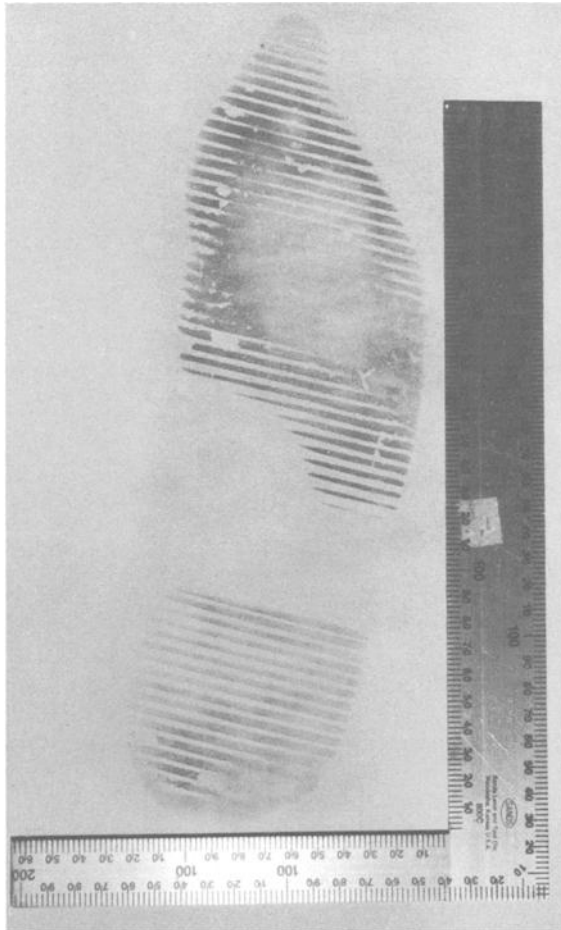


FIG. 1

used an IPEC975 Offset Duplicator with Toyo Black Overnight B-Pak Ink for the printing, thus ensuring precise duplication.

The Grid is then placed over the 2-dimensional impression that is to be recorded *after* first recording it using the standard current method. The standard method is used first in case the grid alters the impression (impression in dust).

Method

Record impression photographically using a 90° ruler scale (Standard Technique). See Fig. 1.

Place grid over impression a record photographically. See Fig. 2.

Move grid slightly and record photographically (This will ensure that no details is obscured by grid lines). See Fig. 3.

Photographic Requirements

These four listed photographic requirements should be considered for successful use of the grid.

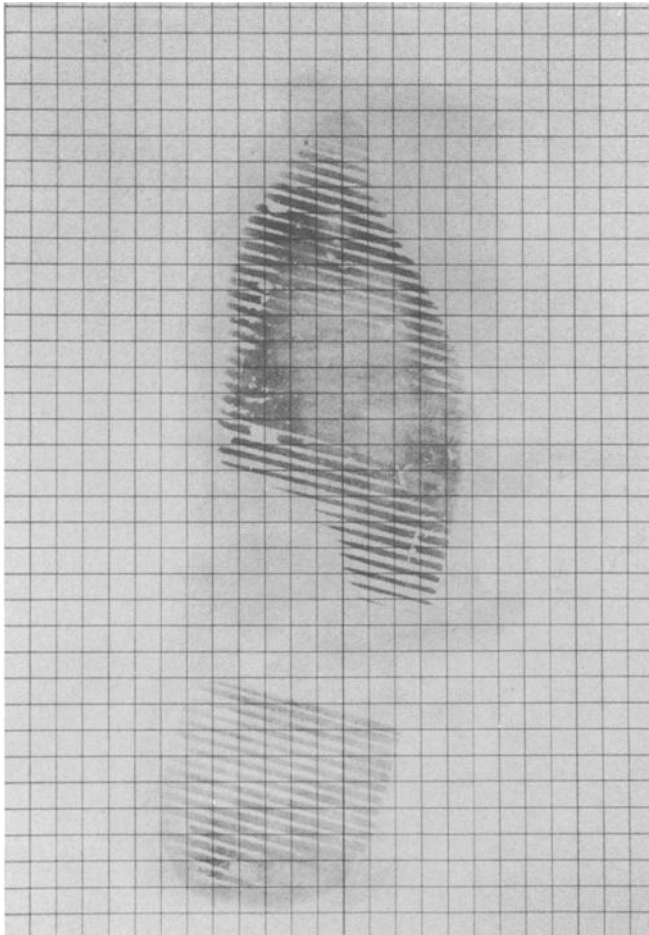


FIG. 2

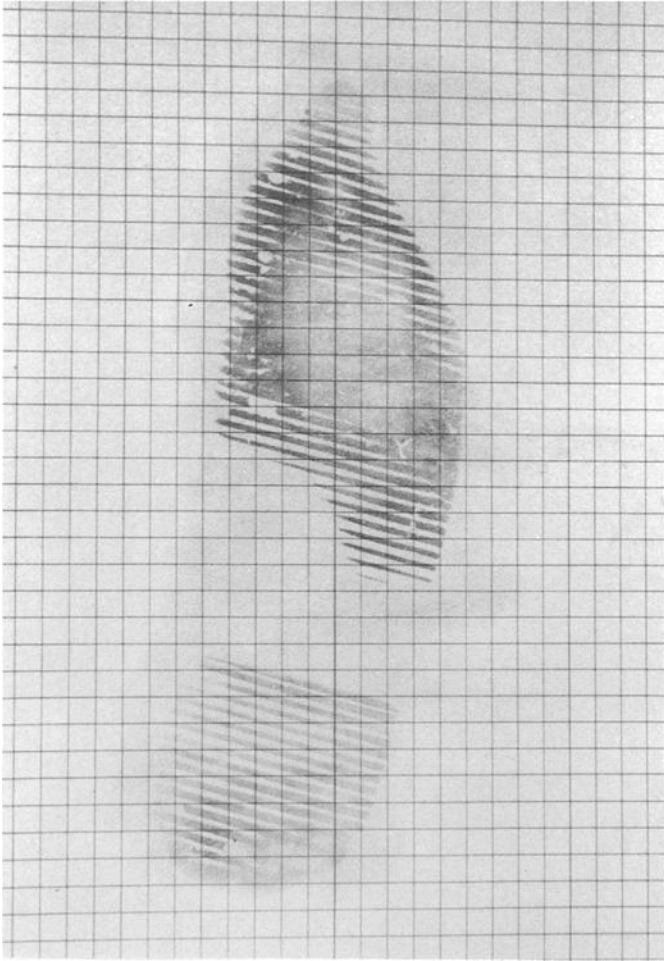


FIG. 3

- (1) The Grid must cover the 2-Dimensional impression.
- (2) The Grid must be flush against the 2-Dimensional impression so as to avoid shadow lines. Adhesive tape or magnetic strips may have to be used.
- (3) The flash must be held obliquely to the impression to avoid flare off the overlay grid.
- (4) Overhead lights may have to be turned off or blocked out to avoid flare.

The use of the grid, allows for accurate measurements to be made, of the relative distance between identifying characteristics on a test and as compared to the scene impression.

The grid is a valuable tool, in that it allows accurate measurements to be made, even when the scene was not able to be ideally photographed, for example the impression maybe under a bench or in a ceiling cavity. See Fig. 4.

When the impression is on curved surfaces such as car bonnets and toilet seats the grid allows for subsequent comparisons. This is because the GRID becomes distorted as much as the impression, but we know that the GRIDS are 1 cm square, so that we can still compare relative distances between characteristics present in the scene impression and the test impression. See Fig. 5.

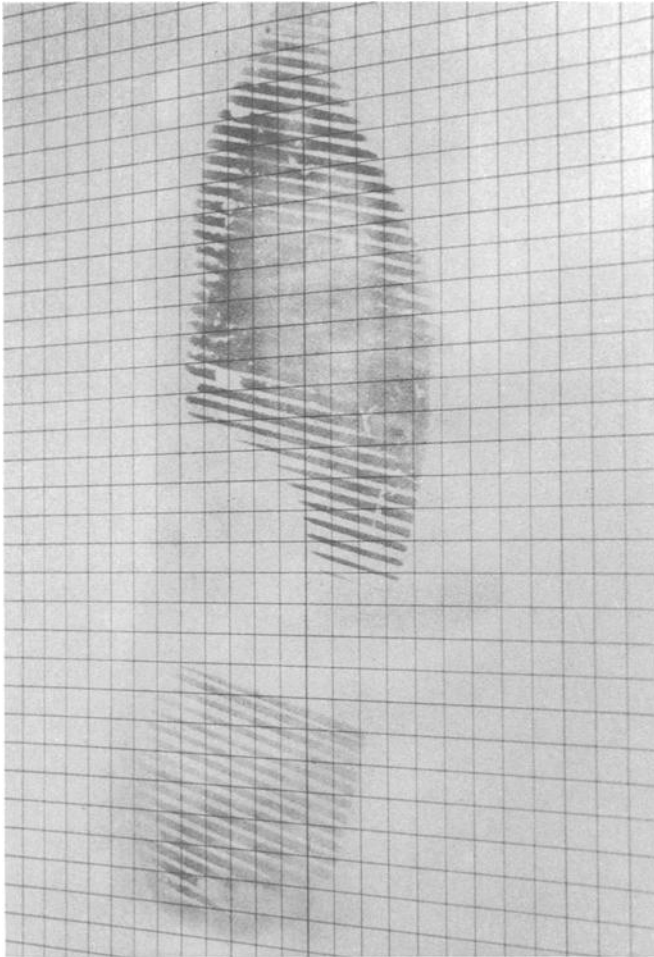


FIG. 4

We can also make accurate measurements of class characteristics of partial shoe sole impressions, this aids in size determination.

Chart Preparation

When a scene photograph is submitted with a grid on it, on which there is identifying features, we then prepare a test impression of the shoe. Over the test impression we then place a grid, so that it is in the same relative position as that grid in the scene photograph. We then photograph the test impressions with the grid, and prepare our chart. Our chart does not have arrows pointing to the random features, but places the features within a grid reference. Our charts do not include photographs of the shoe sole, only the scene impression and the test impression. The shoes are produced to the Court for scrutiny by the Barristers and the Jury. See Fig. 6.



FIG. 5

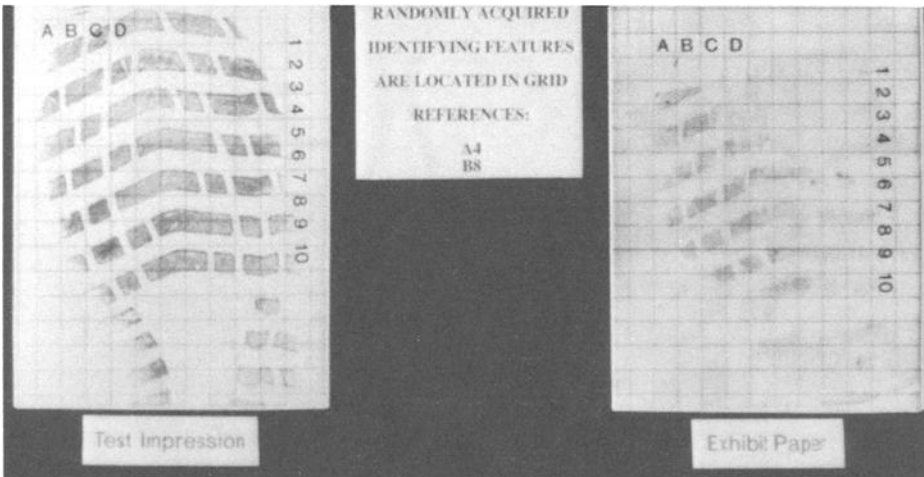


FIG. 6