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## Police Science Technical Abstracts and Notes

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## POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

M. Edwin O'Neill

### Luminescence Test for Blood

The August 8, 1942 issue of the British Medical Journal contains an article describing a useful preliminary test for blood, the basis of which is a typical chemical luminescence produced by the reaction of haematin with 3-amino-phthalic acid-hydrazide-hydrochloride.<sup>1</sup> The author, Dr. John McGrath, of the Department of Medical Jurisprudence, University College, Dublin, recommends the test as a useful adjunct to the usual tests for blood, especially in cases where the stains are small in amount, are mixed with mud, ashes, oil, paint, or other interfering substances, or are difficult to discover because of their location on dark or soiled objects, or in crevices or cracks. The author states that the test was first suggested by Specht,<sup>2</sup> and he cites a paper by Gleu and Pfannstiel<sup>3</sup> describing the preparation of the reagent.

The suspected object or surface is sprayed with a fine mist of a 0.1% aqueous solution of 3-amino-phthalic acid hydrazide hydrochloride containing either 0.5% of sodium peroxide or 5% of 10 vol. hydrogen peroxide and sodium carbonate. When the mist falls on a blood stain there is produced a bluish-white luminescence which is clearly visible in the dark and which persists for several minutes, so that it can be photographed. Since the reaction depends upon the presence of haematin, the luminescence is more marked with older blood stains in which a greater proportion of haematin is present.

The author does not suggest that the test be used as a final specific test, although he reports that the test appears to be specific for haematin. Other substances commonly encountered in investigations such as bile, sputum, pus, seminal stains, faeces, vegetable matter, earth, paints, oils, wax, and shoe polish do not react. The special advantage of the test as a preliminary one in locating stains is that the reagent does not interfere with the confirmatory tests for blood after the treated material has been allowed to dry.

### Sexual Differences in Breadths of Epidermal Ridges on Finger Tips and Palms

An interesting article bearing the above title appears in the September, 1942 issue of the American Journal of Physical Anthropology.<sup>4</sup> The authors, Edwin A. Ohler and Harold Cummins of the Anatomy Department of Tulane University, report the results of a study of ridge widths in the fingerprints and palm prints of 100 young women college students. Comparisons are made with the data obtained previously on 200 male subjects by Cummins, Waits, and McQuitty.

The study contains some interesting observations on ridge widths which might possibly have an application to criminal investigation. In addition to the sexual differences reported, the study seems to indicate that the ridge count becomes smaller (ridges coarser) through greater use or in those areas subjected to the greatest friction and pressure. In both sexes the thumb and index finger contain the coarsest ridges, and right hands showed coarser ridges than the left hands in all digits. Similar results were obtained in the studies of the palms. The ridge widths were also found to vary somewhat with the type of pattern or configuration, ulnar loops having slightly coarser ridges than whorls.

<sup>1</sup> McGrath, J., "The Chemical Luminescence Test for Blood; Forensic and Clinical Applications." *Brit. Med. J.*, ii: 156-157. (Aug. 8, 1942).

<sup>2</sup> Specht, W., *Z. Angew. Chem.* 50: 155. (1937).

<sup>3</sup> Gleu, K., and Pfannstiel K., *J. Prakt. Chem.*, 146: 129, 137. (1936).

<sup>4</sup> Ohler, E. A. and Cummins, H., "Sexual Differences in Breadths of Epidermal Ridges on Finger Tips and Palms." *Amer. J. Phys. Anthr.* 29 (8): 341-363. (Sept. 1942).