

1959

Police Science Technical Abstracts and Notes

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Recommended Citation

Police Science Technical Abstracts and Notes, 49 J. Crim. L. Criminology & Police Sci. 618 (1958-1959)

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Typewriting Impressions: Testing and Differentiation by Chromatographic Adsorption—Linton Godown, *Journal of Forensic Sciences*, 3(4): 431-43 (October 1958). An excellent discussion of a scientific advance in typewriter identification. The author shows that thin adsorption chromatography is suited to qualitative comparison of minute traces of components of some writing elements. The use of a talc-alcohol-acetone or similar system with an appropriate handling technique, such as described, permits differentiation between black typewriting impressions made with different but similar materials within the fabric ribbon or carbon impression classes. There is no means known at present whereby typewriting impressions can be chemically tested and determined as having an "identical" source although the possibility of differentiating or distinguishing between impressions from similar sources has substantially improved. (WEK)

A Study of Class Characteristics of Autoloading Weapons—John G. Sojat and John C. Stauffer, *Journal of Forensic Sciences*, 3(4): 444-79 (October 1958). In the first part of this article, the authors attempt to demonstrate the extent and possibility of close reproduction of various marks by different pistols of the same make and model. The basis for recognizing these similarities as being class characteristic in nature, depends strictly on the examiner's intimate knowledge of the weapon and its tendencies in this respect. Since a study of this

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kind requires the comparison of many fired specimens in order to form a concept of what is to be anticipated, they briefly described the manner in which such a study was undertaken, and some of the specialized equipment found useful for this purpose.

In describing the peculiarities of the .32 Cal. Beretta Model 1934, the authors attempt to demonstrate: (1) the importance of a good understanding of the weapon and its tendencies in class characteristic reproduction of the various pertinent marks in firearms identification; (2) when uniformity in reproduction is to be anticipated, and when variation is acceptable; (3) how absence of faithful reproduction can be satisfactorily reconciled. They attempted to show how proper evaluation of similarities in form should not always be based on extent of similarity present, since this similarity is not very significant when it follows the typical reproduction of the make and model of weapon. How, on the other hand, it is very significant when it extensively deviates from class characteristic form, but is established to be an individual trait of the weapon.

The authors are not presenting a new concept in firearms identification. Their efforts are rather to emphasize the importance of this study and the importance of its application in the identification of a weapon which demonstrates strong tendencies in reproduction of markings along a well defined class characteristic pattern.

It is assumed that the experienced examiner would not merely concern himself with similarities and dissimilarities present, with no regard as to what extent reproduction might be influenced by make and model of weapon. It would be like describing in detail, or attempting to identify a certain person without first taking into consideration that he is an Eskimo. One certainly would not judge his color, hair, features, size, and structure

with no regard as to what extent these characteristics were racial traits. It is immaterial whether one acquires this knowledge of class characteristic reproduction through a formal study as described in this article, or through observations during the course of time spent in routine work and many investigations. It is, however, very important that this knowledge is properly applied so that the identification of a weapon is truly based on similarity of class characteristic reproduction present and on similarities positively established to be individual characteristics. (WEK)

Potassium Levels in Cerebrospinal Fluid and Their Relation to Duration of Death—Walter Hordynsky, *Journal of Forensic Sciences*, 3(4): 480-5 (October 1958). The cerebrospinal fluids of forty-six unselected hospital cases were analyzed for Mg, Ca, Na, and K levels. The amount of K increased at a constant rate in relation to the time of death and the temperature of the body. It is suggested that the determinations of cisternal fluid K and temperature may be helpful to criminal investigators charged with the often frustrating responsibility of estimating how long someone has been dead. (WEK)

Chromatographic Analysis of Inks—Donald Doud, *Journal of Forensic Sciences*, 3(4): 486-92, (October 1958). This article represents some of the noteworthy work that has been done in this comparatively new field of chromatographic analysis. This is only the beginning, and undoubtedly future research will produce better and more effective methods which may enable the document examiner to not only differentiate ink definitely but to identify inks more certainly. (WEK)

The Value of Anti-H Reagents (Ulex Europaeus) for Grouping Dried Blood Stains—Alexander S. Wiener, Eve B. Gordon, and Anais Evans, *Journal of Forensic Sciences*, 3(4): 493-502 (October 1958). Anti-H reagents are readily prepared from certain seeds, such as those of *Ulex europaeus*. Such reagents have proved to be useful for inhibition tests on saliva to determine an individual's secretor type. In this paper, the application of such anti-H reagents for grouping dried blood stains by the absorption techniques is described. The great value of such anti-H reagents lies in providing the internal control needed for reliable grouping of

dried blood stains from group O and group A₁B individuals. The advantage of anti-H reagents from *Ulex* seeds is their ready availability, and the reproducibility of the reactions. (WEK)

Criminal Investigation and the Methodology of the Sciences—K. J. Bowden, *The Australian Police Journal*, 12(3): 221-6 (July 1958). Fine exploration of possible contributions of philosophical (logic) and scientific "working tools" to criminal investigation. Provides samples of methodology and Descartes' four principles of scientific attitude, with a view to developing the investigator's rigorous attention to detail. (VGS)

Identification of Fluid and Ball Pen Inks by Paper Chromatography—Simone Pougheon and Zeev Moloster, *Revue Internationale de Criminologie et de Police Technique*, 12(3): 207-212 (July-September 1958). A study of paper chromatography separation of inks resulted in the selection of solvents suitable for good separation within each group of inks, i.e., blue, blue-black, black, purple, red, and green inks. The solvents consisted of varying proportions of ethyl acetate, ethyl, butyl, and isopropyl alcohol in aqueous solution acidified with formic or acetic acid or alkalized with ammonia. Arches filter paper No. 302 was used with the ascending technique. Very good separations without tailing were achieved with samples of various European and American fluid inks. Further, a combination of ethanol, ethyl acetate, water, and ammonia (25:12:60:3) was found to be universally suitable for separation of eleven different ball pen inks. (JB)

Wood Identification—Gunhild Rane, *Nordisk Kriminalteknisk Tidskrift*, 28(7): 161-164 (July 1958). A summary of the potentials and limitations of gross and microscopic wood identification from the criminalistic viewpoint. A case is cited wherein two spatula-shaped wood fragments apparently cut from the end of a lead pencil were recovered at the scene of a safe burglary. These were compared with the cut end of a pencil found in the possession of a suspect. The color and dimension corresponded, and in addition, it was possible to align the annular ring structure on the two questioned shavings with that on the cut face of the pencil. (JB)

Unusual Findings on a Suicide Weapon—Edmond Heiby, *Revue Internationale de Criminologie et de Police Technique*, 12(3): 213-215 (July-September 1958). The author examined a .25 caliber automatic pistol used by a suicide, and was surprised to find the outside surfaces free from blood, in spite of copious bleeding from the victim's head. The inside surfaces, however, were stained. Small areas of dried blood were found in the bore, around the ejection port, and on the breech-face and the firing pin. The autopsy showed a firm contact wound in the right temple and a wound canal which traversed the brain, the bullet having lodged under the skin of the left temple. On the basis of these findings the blood on the weapon's interior is explained as a result of gas pressure traveling back through the barrel and out through the ejection port after the breech opened. (JB)

Identification of Alcohols by Microscopic Mixed Fusion Analysis—D. E. Laskowski and O. W. Adams, *Analytical Chemistry*, 31(1): 148-53 (January 1959). Mixed fusion temperatures of 2,4,6-trinitrobenzoate esters of 29 alcohols with naphthalene and phenanthrene are reported. Also listed are the melting points of the esters. (JDN)

Identification of Substituted Barbituric Acids by X-Ray Diffraction—P. P. Williams, *Analytical Chemistry*, 31(1): 140-3 (January 1959). The x-ray diffraction patterns of 20 5,5-disubstituted barbituric acids are given. These compounds can be reliably identified if uniform preparative procedures are followed. (JDN)

The Proof of the Genuineness of Documents—Ordway Hilton, *Kriminalistik*, 12(11): 459-62 (November 1958). The proof of the authenticity of a document depends upon establishing the absence of alterations. Although this may not lead to positiveness in all cases, the methods discussed can establish a high probability that the document was not altered. Detection of alteration can, of course, be reliable and positive when sufficient proven methods are employed. The tests to be used

on handwritten and typewritten material are discussed. (JDN)

Chromatography of Inks—R. Malby, L. Windhaber, C. Schulz and H. Merz, *Kriminalistik*, 11(10): 390-2 (October 1957). Copy ink, ballpoint pen ink, and liquid ink writing were studied by paper chromatography. Either 0.1% potassium hydrogen oxalate or 0.1% ammonium bioxalate was used as an ink solvent. Three to five letters were cut out and extracted with 1 cc of solvent over a water bath for ten minutes. The solution was concentrated on a watch glass, and the residue taken up in 0.003 cc of water and transferred to the chromatographic paper. Methanol was used to develop ballpoint ink; 30% water, 56% phenol, and 14% propanol mixture was used to develop copy ink; and 30% water, 56% propanol, and 14% phenol was used to develop ordinary ink. Visible and ultraviolet examinations were employed to compare inks. (JDN)

Unusual Techniques in Post Mortem Fingerprinting—T. D. Cooke, *Fingerprint and Identification Magazine*, 49(2): 3-8, 15-18 (August 1958). A review of recently developed methods for identifying unknown dead through fingerprints. Molding in plastic, radiography, and pre-printing treatments are discussed. (JDN)

How Liquid Latex Identified Willie Williams—B. R. Wier, *Fingerprint and Identification Magazine*, 49(5): 3-5 (November 1958). The mummified fingers of the deceased were amputated and dipped, individually into liquid latex (Vultex Latex). The digit was removed permitting the latex to dry, and the process was repeated as often as necessary to build up a cast of $\frac{1}{32}$ of an inch thickness. When dry, the cast was rolled from the finger, rolled onto the technician's finger, and inked and rolled onto the appropriate square of the fingerprint card. The color and flow of ridges is reversed and must be considered when searching and classifying. (JDN)