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## Police Science Technical Abstracts and Notes

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# POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Edited by  
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## Abstractors

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**Editors Note:** This marks the last issue in which the name of William E. Kirwan will appear as an abstractor in this section. Since March of 1955 Mr. Kirwan has been a faithful contributor to the Technical Abstracts Section. Mr. Kirwan's work has been most appreciated and will be missed.

sides of the argument over the use of the polygraph. The concluding segment covers legislation affecting the use of the polygraph including licensing legislation in eleven states. The series is concluded with a model set of minimum standards for operator certification and regulation. (GDM)

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**Firearms Identification in the Soviet Union—**Stanton O. Berg, *Fingerprint and Identification Magazine*, 53(4): 3-8 (October 1971). A visit to the Soviet Union in 1969 presented the author with an opportunity to meet and discuss criminalistics with Soviet leaders in this field. (GDM)

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**Ubiquitous Reds: A Local Perspective on Secobarbital Abuse—**Bryan S. Finkle, *The Forensic Science Gazette*, 2(2): 1-4 (April 1971). The social background and results of a study and evaluation of secobarbital abuse in Santa Clara County, California is presented and discussed. During the year of study almost half of 2295 toxicology cases involved secobarbital. They represent juveniles and young adults (12-25 years). The study also reports the results of analytical analysis showing great variations of the secobarbital content of capsules and also shows that the blood levels are significantly in excess of therapeutic levels which is a possible explanation for a rapid use in secobarbital fatalities among young people and the drug involvement in road traffic accidents. (TRE)

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**Forensic Applications of the Scanning Electron Microscope—**I. Covin and O. Jahari, *Police*, 16(3): 6-14 (November 1971). The proceedings of a Forensic SEM Workshop held in May, 1971 are highlighted. Also included is a comparison of SEM, TEM, and Light Microscopy. (GDM)

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**The Problem of Cannabis (Marihuana or Hashish)—**J. Cheymol, G. Heuyer and D. Douady, *International Criminal Police Review*, 242: 275-285 (November 1970). The authors discuss the background, properties, legalization, medical opinion of the propaganda advocating the free sale of hashish and protection for schools and universities as encountered in France. (TRE)

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**The Status of Polygraph Legislation of the Fifty States—**Clarence H. A. Romig, *Police*, 16(1, 2, 3): 35-41, 54-61, 55-61 (September, October, November 1971). The author begins this three part series by discussing the history of the polygraph, the physiological and psychological aspects involved, and the legal status of the polygraph in the United States. Part two continues with the various uses being discussed and concludes by presenting both

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**Detection of Firearms Discharge Residue by Neutron Activation Analysis—A Review—**Maynard J. Pro, *International Criminal Police Review*, 242: 270-247 (November 1970). Summary of the "State of the Art" on detection of firearm dis-

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charge residues. N.A.A. technique has proven to be the most sensitive and reliable method. It is possible to detect gunshot residue deposited on hands or clothing, and identify holes produced by bullets. It is not possible to determine the caliber of gun or number of firings represented by the quantity of residue present, although studies are being conducted in this area. "Tagged" cartridges were also discussed, but additional production costs and need for strict quality control are limiting factors. (TRE)

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Marking of Dentures in Sweden—K. O. Frykholm, P. G. Lofberg, & R. Soremark, *International Criminal Police Review*, 242: 287-290 (November 1970). The article describes the marking of dentures with the social security number of their owners to facilitate the identification of the dead, especially disaster victims. (TRE)

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Alcohol Breath Tests: Gross Errors in Current Methods of Measuring Alveolar Gas Concentrations—N. Herbert Spector, *Science*, 172(39): 57-59 (April 2, 1971). The author discusses effects of residual alcohol in the mouth on the Breathalyzer test. The results are affected for more than 20 minutes after transitory contact of ethanol with the mucous membranes of the mouth or nasal passages. (TRE)

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The Use of Scanning Electron Microscopy for the Identification of Toolmarks—H. Hantsche and W. Schwarz, *Archiv f. Kriminology* 148(1, 2): 24-32 (July, August 1971). The article contains 9 photographs of an actual case which illustrates the superiority of scanning electron microscopy over optical microscopy. The main advantage of the former is a capability for a three dimensional image and consequently a more powerful application of statistics. (ER)

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The Evaluation of Accident Photographs Without Time Consuming Measurements at the Scene—A. Schontag, *Arch f. Kriminology*, 148(1, 2): 1-13 (July, August 1971). For accurate estimation of distances in photographs such as those of tire marks easily recognizable reference distance markers have been proven useful. A one meter reference square, each side divided into 10 segments, is being used by the Bavarian State Police. The author analyzes in detail several automobile accidents on the basis of photographs of tire marks

and the distance reference. Eleven photographs illustrate the article. (ER)

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Dispersion Staining of Fibers—L. Forlini and W. C. McCrone, *The Microscope*, 19(3): 243-254 (July 1971). Given is one of the nine detailed studies published on the use of refractive index for fiber analysis. By use of a standard set of liquids with the red, yellow, and blue filters, dispersion curves for the common natural and man-made fibers were obtained. The data given indicates this method should provide greater differentiation than many of the instrumental methods available. (JFC)

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Accurate Use of Hot Stages—Y. Julian and W. C. McCrone, *The Microscope*, 19(3): 225-234 (July 1971). This article in recognition of the importance of hot stage microscopy stresses accuracy as well as precision. The newly developed, highly precise Mettler hot stage is the main instrument discussed. Noted are the factors generally associated with the decrease in accuracy of hot stage measurements. Tables and photographs are given to support the discussion points. (JFC)

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Gas Liquid Chromatographic and Mass Spectrometric Studies on Trimethylsilyl Derivatives of N-Methyl- and N,N-Dimethyltryptamines—N. Narasimhachari, J. Spaide, and B. Heller, *Journal of Chromatographic Sciences*, 9(8): 502-505 (August 1971). The identification of members of a class of hallucinogens is aided by means of instrumental analyses of their derivatives. Derivatives of N,N-dimethyltryptamine (DMT), 5-methoxy-N,N-dimethyltryptamine (5-OMe-DMT), 5-hydroxy-dimethyltryptamine (bufotenin), N-methyltryptamine (NMT), N-methylserotonin (NMS), and several primary amines were obtained using pyridine and bis (trimethylsilyl) trifluoroacetamide plus 1% trimethylchlorosilane. These derivatives were analyzed by gas chromatography and mass spectrometry. It was found that the tertiary amines gave one derivative with the trimethyl substituent on the indolic nitrogen; the secondary amines gave more than one derivative. Primary amines were identified by conversion to isothiocyanates using carbon disulfide. (GHK)

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What Do You Call It?—Arthur R. Pahalke, *The Locksmith Ledger*, 32(9): 83-86 (September 1971). Asks for a standardization of lock terminology.

This standardization is necessary if any burglary prevention ordinances can be made to work. (MJK)

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Comments on the Determination of Nationality from Handwriting—Gordon R. Stangohr, *Journal of Forensic Sciences* 16(3): 343-358 (July 1971). "He talks with a foreign accent." Does he write with one? A foreign "flavor" in handwriting can be detected from the outer quality or appearance aspect of a writing. While a determination of one's country of origin from a writing, theoretically, is feasible on the basis of a reflection of national writing patterns, difficulty is encountered in attempting to effect a certain determination. Writings derived from the cursive alphabet forms of central European countries show the greatest distinctiveness and thus offer the best basis for a judgment, at least on a regional or more localized basis. The diffusion of writing caused by population shifts and migrations, polyglot styles used internally, historical ties, and the inevitable introduction of individual traits and characteristics complicate these efforts. The complexities involved are better understood when a study is made of alphabet development. (WEK)

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Serum Changes in Drowning—Ezatollah Foroughi, *Journal of Forensic Sciences* 16(3): 269-282 (July 1971). In fresh water drowning: (1) The serum sodium concentration of blood from the left heart is usually lower than that of serum of blood from the right heart and femoral vein. (2) The serum chloride concentration of blood from the left heart is lower than that of serum of blood from the right heart and femoral vein. (3) Comparison of the serum sodium and chloride concentrations of the left heart with femoral vein and cerebrospinal fluid is recommended. (4) The osmolarity of serum of blood from the left heart is lower than that of serum of blood from the right heart. (5) The total solids of serum of blood from the left heart is lower than that of serum of blood from the right heart. (6) The serum potassium concentrations of blood from the left heart were not significantly different from those of the sera of blood from other locations. (7) The serum hemoglobin concentration of the drowned group was higher than that of the control group. (8) Non-drowned control cases show no significant differences in sodium, chloride, osmolarity, total solid, or hemoglobin between sera from the blood of the left heart, right heart, femoral vein, and the cerebrospinal fluid. (WEK)

Glass and Paint Fragments Found in Men's Outer Clothing—Report of Survey—E. F. Pearson, R. W. May, and M. D. G. Dabbs, *Journal of Forensic Sciences* 16(3): 283-300 (July 1971). One hundred suits of clothes received for cleaning at a dry cleaning establishment were examined for traces of glass and paint. A total of 551 glass fragments, much of which came from two suits, were found and the refractive index, size and color of the glass fragments were recorded. A large number of paint fragments were collected and when fragments of identical color and layer structure and from the same site on a suit were grouped together there were 1,077 samples of paint. The color and layer structure of each paint fragment were recorded and the size distribution of a random, representatively chosen group was determined. (WEK)

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Comparison of Bullet Lead Specimens by Non-destructive Neutron Activation Analysis—H. R. Lukens and V. P. Guinn, *Journal of Forensic Sciences* 16(3): 301-308 (July 1971). The present work has established a strong basis upon which to judge a lack of commonality between bullets or bullet fragments with different antimony levels. Also, the consistency of antimony concentration that has been found in single bullets and among bullets of common lot origin is an important factor in establishing commonality between bullets or bullet fragments. However, it is clear that additional background information is needed—with respect to the consistency of trace-element levels in bullet lead of common origin, and the differences of levels that may exist between bullet leads of different origin—in order to improve the confidence in conclusions derived from bullets or bullet fragments that have similar antimony levels. Additional studies are in progress. (WEK)

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A Large-Scale Study of Paper by Neutron Activation Analysis—H. L. Schlesinger and D. M. Settle, *Journal of Forensic Sciences* 16(3): 309-330 (July 1971). If the data obtained in this study are applicable to the entire population of bond paper samples, it would be possible to identify the most probable source of a given paper sample, by TNAA, to a rather high degree of probability. If the problem is to compare two or more samples, to establish the probability of a common source, the data obtained in this study can be used in interpreting the analytical results. It is obvious that more work should be done in this area, in order to obtain bet-