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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Separation and Identification of Minor Alkaloids of *Strychnos Nux Vomica*—G. B. Marini-Bettolo, F. Delle Monache, A. Gelabert de Brovetto and E. Corio, *Journal of the Association of Official Analytical Chemists*, 51(1): 185-91 (January 1968). A method for the separation and identification of the alkaloids of *Strychnos nux vomica* L. by the use of silica gel or alumina columns and their layer plates is described. The groups separated are strychnine, pseudostrychnine, and icajine. (PJC)

Partition Chromatographic Assay of Opium and Opium Preparations—Edward Smith, Joseph Levine, and Daniel Banes, *Journal of the Association of Official Analytical Chemists*, 51(1): 180-5 (January 1968). A 3-hour analytical procedure for the assay of morphine in pareogoric is described. It utilizes partition chromatography and U.V. spectrophotometry. (PJC)

Mass Spectral Identification of Some Hallucinogenic Drugs—Sander W. Bellman, *Journal of the Association of Official Analytical Chemists*, 51(1): 164-5 (January 1968). A general method for the mass spectral identification of some hallucinogenic drugs is given. Data for the following drugs are given: LSD, 2-bromolysergic acid diethylamide,

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1-acetyllysergic acid diethylamide, 1-methyllysergic acid diethylamide, lysergic acid ethylamide, 1-methylmethyletergonovine, mescaline, STP, DMT, psilocin, and psilocybin. (PJC)

Analytical Procedures Used in FDA Laboratories for the Analysis of Hallucinogenic Drugs—Robert J. Martin and Thomas G. Alexander, *Journal of the Association of Official Analytical Chemists*, 51(1): 159-63 (January 1968). Methods for the analysis of LSD, DMT, and psilocybin are described in this article. General background information for other hallucinogenic drugs is also given. (PJC)

Assay of *Rauwolfia Serpentina*—Frieda M. Kunze, Susan Barkan, and Daniel Banes, *Journal of the Association of Official Analytical Chemists*, 51(1): 157-9 (January 1968). A 3-hour analytical procedure for the assay of reserpine-resanamine group alkaloids in *Rauwolfia Serpentina* is described. (PJC)

Micro Silver Chloride Technique for Infrared Spectrophotometry—J. T. Chen and J. H. Gould, *Applied Spectroscopy*, 22(1): 5-7 (January-February 1968). A micro-infrared method using silver chloride as the supporting matrix is described. Advantages of silver chloride as opposed to KBr are that it is not hygroscopic and it also permits the examination of inorganic compounds. (PLC)

Laser-Spark Excitation of Homogeneous Powdered Materials—A. B. Whitehead and H. H. Heady, *Applied Spectroscopy*, 22(1): 7-12 (January-February 1968). Study was made of precision matrix effect and detection sensitivity of laser probe when used to vaporize and excite trace

elements in homogeneous specimens. Comparison of dc-arc and laser-probe spectra as a function of matrix indicates that the laser is less subject to this effect. Good precision ratios were obtained for trace elements blended into various matrix materials. A study of detection sensitivity showed the probe to be equal to the dc-arc. Based on this study, it appears that laser probe could be used as a general spectrochemical source. (PLC)

Infrared Spectra of Monoterpenes and Related Compounds II Terpene Alcohols—B. M. Mitzner, V. J. Mancini, S. Lemberg, and E. T. Theimer, *Applied Spectroscopy*, 22(1): 34-53 (January-February 1968). Infrared spectra of 141 highly purified acyclic, monocyclic, and bicyclic terpene alcohols, their reduced derivatives, and related compounds are presented. The majority of these spectra are new to literature. (PLC)

I. R. Spectra of Polishing Compounds—Donald E. McCarthy, *Applied Spectroscopy*, 22(1): 66 (January-February 1968). Spectra of eight common grinding and polishing compounds are shown. Included are aluminum oxide, bernesite, cerium oxide, glassite, rouge, sodium thiosulfate, stannic oxide, and titanium oxide. (PLC)

Thin Layer Chromatography of Toxicologically Significant Substances on Silica Gel-Coated Glass Plates and Polyester Sheets—Paul Schweda, *Analytical Chemistry*, 39(8): 1019-22 (July 1967). The study compares chromatograms of barbiturates, some narcotics, and other toxicologically important drugs on Eastman Chromagram Sheets with data on silica gel-coated glass plates. (PJC)

Water as an Internal Standard in Determination of Blood Ethanol by Gas Chromatography—J. K. Colehour, *Analytical Chemistry*, 39(10): 1190-2 (August 1967). The author gives the results of blood ethanol determination by gas chromatography using an F & M Model 400 gas chromatograph equipped with a flame ionization detector. The conditions for the analysis are:

Column: Glass "U" 66 cm x 44 mm i.d.

Packing: 50 to 80 mesh Porapak Q

Carrier gas: He

He flow: 38 ml/min.

Column Temp. 121°C

Range 1: Attenuation 32. (PJC)

Analytical Chemistry in the Cosmetics Industry—Charles M. Farchild, *Analytical Chemistry*, 39(10): 22A-34A (August 1967). Procedures for the analysis of lipsticks, shampoos, nail enamels, perfume oils and dyes are given. (PJC)

Separation and Determination of Trinitrotoluene Isomers by Gas Chromatography—D. G. Gehring and J. E. Shirk, *Analytical Chemistry*, 39(11): 1315-8 (September 1967). A G. C. method for separating and quantitatively determining the TNT isomers is presented. The apparatus used was an F & M Model 810 dual-column gas chromatograph equipped with a thermal conductivity filament detector and a 1-mV recorder. The conditions used were:

Column: two 9 foot x 0.25 inch stainless steel
Packing 10% DC-LSX-3-0295 silicone copolymer (Applied Science Laboratories, Inc.) on 80-90 mesh Anakrom-ABS support (Analabs, Inc.)

Carrier gas: Helium

Flow Rate: 200 cc per minute

Detector Temp.: 225°C

Injection Temp.: 225°C

Detector Bridge Current: 170 mA

Programming: 8°C/min. from 100°C to 225°C; then maintain 225°C until all components eluted. (PJC)

Abstracts of Papers XIII Colloquium Spectroscopicum Internationale, Ottawa, Canada 19-23 June 1967, Inhomogeneity Studies of Alloys with the Electron Microprobe—Kurt F. J. Heinrich *Applied Spectroscopy*, 21(6): 403 (November-December 1967). Study of inhomogeneity requires a high degree of instrumental stability, and the strategy of collecting, evaluating and reporting measurements must be carefully chosen. Results of studies underway are described and discussed in detail. (PLC)

Infrared Identification of Thermosetting Resin Type in Fiberglass-Reinforced Articles—R. M. Bly and P. Harold Parker, Jr., *Applied Spectroscopy*, 21(6): 357-60 (November-December 1967). Technique for identifying resin type in fiberglass-reinforced articles involves grinding the sample to a fine powder and measuring the spectrum in a KBr pellet. The following resins can be easily distinguished in the presence of high concentrations of fiberglass: (1) unsaturated polyester

styrene, (2) anhydride-cured epoxy and (3) amine-cured epoxy. (PLC)

X-Ray Fluorescent Analysis of Trace Toxic Elements in Water—Frank J. Marcie, *Norelco Reporter*, 15(1): 3-5 (January-March 1968). A rapid procedure for the quantitative determination of Ag, Cd, In, Sn, Cu, Zn, Ni, Co, and Mn is described. After Chelation of the metals by pyridine dithiocarbamate and extraction into chloroform the sample is evaporated onto filter paper discs and submitted to x-ray analysis. This same procedure could be applied to biological samples, air, industrial waste, or soil analysis. (PLC)

Forensic Science Scenes of Crime Officers—Sergeant E. K. Curtis, *Australian Police Journal*, 22(1): 29-45 (January 1968). A brief description of types of evidence, evidence collection, and amount of evidence required by a crime laboratory is discussed. (CRT)

A Camera Designed for Fingerprint Photography—Max Neilson, *Australian Police Journal*, 21(2): 93-9 (April 1967). A simply constructed fingerprint camera using a 75 mm. wide angle lens, a box camera shutter, and flash attachment is described. The construction and numerous uses of the camera are discussed in detail. (CRT)

The Treatment of Documents for the Purpose of Revealing Obliterated Writing—D. G. Murray, *International Criminal Police Review* (212): 267-8 (November 1967). A method using chloroform, oxalic acid, sodium hypochlorite, and infra-red photography is described for revealing wording beneath ball point obliterations. (CRT)

Detecting Additions to Typewritten Texts—Andre Mertens, *International Criminal Police Review*, (201): 231-3 (October 1966). The problem of vertical and horizontal alignment of typing additions is discussed, and a simple grid for use in detecting alignment differences is described. (CRT)

Die Daktyloskopie von Brandleichen mit Silikongummipaste—A. Simon and H. Jordan, *Archiv fur Kriminologie*, 141(1 & 2): 28-33 (January & February 1968). A method for fingerprinting burned bodies by the application of silicone rubber is described. This method is especially advantageous in cases in which the

finger has undergone shrinkage or wrinkling. (SMK)

Eine Einfache Methode Zum Qualitativen Nachweis Von Blei Bei Nahschuß—O. Huber, *Archiv fur Kriminologie*, 141(1 & 2): 45-50 (January & February 1968). Present methods of studying close-range firearm stains are reviewed. Considering the diphenylaminal sulfuric acid reaction as unreliable, the author presents a simple method for the qualitative demonstration of lead in close discharge firearm stains. (SMK)

LSD Analysis in Seizures—Melvin Lerner, *Bulletin on Narcotics*, 19(3): 39-45 (July-September 1967). Several methods for the analysis of LSD are listed including thin layer chromatography, ultra violet spectrophotometry, gas chromatography using silylation, and infra red spectrophotometry. The G. C. and I. R. methods require 50 micrograms while the others require 0.01 to 0.4 microgram of LSD. (GDM)

Manual for the Determination of Narcotics and Dangerous Drugs in the Urine—K. D. Parker and C. H. Hine, *Bulletin on Narcotics*, 19(2): 51-7 (April-June 1967). A detailed extraction procedure is outlined for 24 narcotics. The procedure involves solvent concentration and identification and semi quantitation by thin layer chromatography. (GDM)

Studies with the U. N. Cannabis Reference Sample—G. Joachimoglu, J. Kiburis and C. Miras, *Bulletin on Narcotics*, 19(1): 21-22 (January-March 1967). Included in this study are methods for thin layer chromatography of the components of hashish and an infra red method of identification. The study was designed to evaluate the potency of various hashish samples. (GDM)

Analysis of Paint by Infra Red Spectroscopy—L. A. O'Neill, *Medicine, Science and the Law*, 7(3): 145-147 (July 1967). The author lists the advantages and disadvantages of the examination of paints by infra red spectroscopy. Information which is attainable from paints as well as methods and techniques required are discussed. (GDM)

Comparison of Plastic Materials and Paint Films Using Infra Red Spectroscopy—B. Cleverley, *Medicine, Science and the Law*, 7(3): 148-152 (July 1967). A method is described for the com-

parison of resins, dyes, pigments, and fillers found in paints by matching the absorbance ratios of known and questioned paints. The method requires 20 micrograms of material and utilizes lead frames for making the pellets. (GDM)

How to Photograph an Accident—*Kodak Law Enforcement Photography Bulletin*, 2(4): 1-3 (1967). The article contains some tips on obtaining good photographic coverage of an accident, and includes basic rules such as photographing should be done promptly, photographs taken at the driver's eye level; they should include a permanent reference point, and if bodies are removed or it is necessary to move a vehicle the location should be outlined with white chalk. Skid marks and accident debris and other significant evidence should be photographed. (OH)

Fingerprints Still Superior Evidence—H. Schell, *Kriminalistik*, 21(11): 587-589 (November 1967). Although the evidential value of crime scene fingerprints is undisputed, the author suspects that too many investigators take too casual an attitude toward the search for prints. Only a thorough and deliberate search will yield results, as shown by the actual experience in the author's department, which employs two-man crime scene teams. The article takes exception to the oft-heard excuses about "gloves", "professionals don't leave prints", "fingerprints are too well known". All those concerned with crime scene investigation are reminded that many crimes are spontaneous, many are committed under the influence of alcohol, professional thieves will become careless, gloves may slip partly off the hand, gloves may be prematurely removed, etc.—the factors that favor the accidental deposition of fingerprints even by experienced criminals. (JB)

New Electronic Flash For Infrared—M. Frei-Sulzer and A. Jotti, *Kriminalistik*, 22(1): 10-12 (January 1968). The authors have considered the advantages and disadvantages of currently available options for night-time surveillance

photography by infrared. Image converters are optically inferior to direct IR film exposures, but there are still drawbacks to the use of ordinary flash bulbs. The authors' laboratory therefore developed a special IR electronic flash unit designed to eliminate these shortcomings. This unit, which will be produced by a German firm (Firma Impuls-Physik, GmbH, Hamburg) under the name "LODIF", is said to have the advantage of longer "reach" with telephoto lenses, shorter exposures, is fully automatic and can be electronically triggered from a distance. (JB)

Cranial Identification—G. Vogel, *Kriminalistik*, 21(12): 630-634 (December 1967). On the basis of a skull found in a forest, a satisfactory identification with a missing person was achieved through dental charts, comparison with existing cranial radiographs, and comparison of a portrait photograph with the cranium. In the comparison of radiographs, the skull was simply X-rayed in the proper orientation and the two films directly superimposed. For the skull-portrait comparison, an optical bench was used: a view camera on one end and the skull on the other. A sheet of plexiglass bearing an inked outline of the portrait, with the significant anatomical landmarks drawn in, was placed on the track in front of the skull, and the composite skull-outline photograph made after precise alignment. In the final step, a double exposure was made of the skull and portrait in alignment; this composite print was then superimposed by the plexiglass outline and rephotographed. (JB)

Drugs Versus the Polygraph—Milton A. Berman, *The Journal of Polygraph Studies*, 1(4): 1-3 (January 1967). A discussion of stimulant and depressant drugs and their effect on polygraph recordings. The author concludes that even when a drug can affect the polygraph tracings it is usually constant over the period of a single test, and with one or more control questions included will not materially alter the basis on which the reactions are analyzed. (OH)