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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Marijuana Program Advances at NIMH—
Chemical and Engineering News, 48(28): 30-33
(July 6, 1970). Research programs currently under-
way at NIMH are listed and results obtained to
this point are discussed. This article is first in a
series of articles relating to this research. (GDM)

Poroscopy—Identification by Pore Structure—
Andre A. Moenssens, *Fingerprint and Identification
Magazine*, 52(1): 3-7 (July 1970). The author lists
the history of poroscopy as a means of identifica-
tion and suggests this technique as a method still
available today. (GDM)

**The Status of Forensic Pathology in the United
States Today—**James Luke, William Sturmer and
Charles Petty, *The Forensic Science Gazette*, 1(3):
3-13 (July 1970). In addition to discussing the
current state of pathology, the authors also propose
a course of training for the forensic pathologist
and list current status of training. (GDM)

Court Presentation of Fingerprint Evidence—
Emil G. Giese, *Fingerprint and Identification
Magazine*, 52(2): 3-8 (August 1970). The author
lists a series of points to be considered by the
fingerprint expert in presenting testimony. (GDM)

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**Procedure for the Screening of Drugs of Abuse
in Urine—**John P. Sawinski, *Microgram*, III(5):
144-168 (August 1970). This paper presents ex-
traction, separation and identification procedures.
Also includes a bibliography, material list and
proposed budget for use of this procedure. Cost
per sample is less than \$1, exclusive of capital
expenditures. (GDM)

Research in Forensic Science—A. S. Curry,
Police, 14(6): 7-9 (July-August 1970). A discussion
of forensic science laboratories in England and
Wales. The formation and operation of the Central
Research Establishment is also covered in some
detail. (GDM)

**The Admissibility and Use of Conclusions in the
Nature of Probability in the Outline of the Valua-
tion of Writings—**Lucian Ionescu, *Revue Inter-
nationale de Criminologie et de Police Technique*,
XXIV(1): 49-52 (January-March). Probability
and degrees of certitude are discussed in this article.
The author relates the categories of conclusions in
relation to the work of the expert and discusses
the acceptability of conclusions of probability.
(SID)

Reforms in Blood Test Law—D. J. Lanham,
Medicine, Science and the Law, 9(3): 172-177
(July 1969). This article discusses the relevant
sections of the Family Law Reform Act 1969
regarding provisions for the use of blood tests in
determining paternity. (SID)

Subnormality and Crime II—D. J. Power,
Medicine, Science and the Law, 9(3): 162-171
(July 1969). Deviation and subnormality in rela-

tion to crime is discussed. Chromosome abnormalities and their relationship to criminal behavior is also explained. (SID)

Mass Photography in Murder Investigation—Arthur Chapman, *Journal of the Forensic Science Society*, 9(3 & 4): 177-184 (December 1969). The author relates the circumstances surrounding a murder and shows how mass photography with Polaroid Swinger cameras played a major role in contacting 4,500 persons and eventually led to an identification of the murderer. (SID)

The Influence of Medical and Biological Progress on the Criminal Law—Oliver C. Schroeder, *Medicine, Science and the Law*, 9(3): 137-161 (July 1969). Outlines the increasingly important role of medicine and biology in relation to Criminal Law. The article discusses three phases: philosophy, current practices and contemporary issues and finally the future. (SID)

Police, Scientists and Lawyers—Can They Serve the Interests of Justice?—Nicholas Fairbairn, *Journal of the Forensic Science Society*, 9(3 & 4): 185-189 (December 1969). The author discusses the subject of impartiality in the laboratory, in the lawyer's office and in the courtroom. One suggestion made in the article was that laboratories should be in the hands of independent experts who would be available to both sides in a case. Impartial justice and the judge is also discussed. (SID)

Interpretation of Results Obtained by Activation Analysis—Hamilton Smith, *Journal of the Forensic Science Society*, 9(3 & 4): 205-209 (December 1969). A high sensitivity is the great advantage of activation analysis. This, however, does not mean high accuracy. The bulk of the article is divided into two parts: (1) simple element detection and (2) results obtained from multi-element analysis. (SID)

The Drug Problem in the Military—An American Lawyer's Point of View, *Medicine, Science and the Law*, 9(2): 122-124 (April 1969). This article discusses the bulk of drugs used in the military and what the Army is trying to do to curb the problem. The future of the problem of drugs in the military is also discussed. (SID)

Narcotics and Drug Addiction—Saverio Wermelinger, *Revue Internationale de Criminologie et de*

Police Technique, XXIV(1): 53-55 (January-March). A symposium on the subject of narcotics and drug addiction was held on January 15 and 16, 1970, organized by the Gottlieb Duttweiler Institute and presided over by the celebrated writer, Arthur Koestler. This article is a resume of information from the symposium. It covers LSD and hashish as the focal point of the debate. Physical characteristics are given and the author then relates the three-fold reason why people take drugs. In the conclusion it is stressed that the problem is not a problem for psychiatry alone but for everyone—doctors, criminalists, chemists and sociologists and also the fathers and mothers of families. (SID)

Some Aspects of Hair Examination—S. K. Niyogi, *Medicine, Science and the Law*, 9(4): 270-271 (October 1969). Samples of hair were collected from the scalps of seven human subjects. The author described the characteristic features of burnt, cut, dyed and diseased hair samples. The forensic importance for individualization of hair is also discussed. (SID)

Methods of Dating Skeletal Remains—Bernard Knight, *Medicine, Science and the Law*, 9(4): 247-252 (October 1969). Various tests were applied to 68 skeletal samples of known date ranging from 1 to 3000 years in an attempt to discover practical methods of distinguishing those human skeletal remains recent enough to be of forensic interest from those of more ancient origin. Some of the criteria found of use in making this distinction are nitrogen content, amino acids demonstrated by chromatography, ultra-violet fluorescence, benzidine testing, and immunological activity. (SID)

Forged Fingerprints—Parduman Singh, *The Police Journal*, 43(6): 293-297 (June 1970). The author warns that although fingerprints may easily be forged, detection of the forgery may be quite difficult. Detection depends on the degree of efficiency, keen sense of observation and the amount of experience possessed by the examiner. Several cases of forgery are discussed and defects to be sought in the forgeries are listed. (SMK)

Police Presentation of Dental Details for Identification—H. Butler and Dr. Warren Harvey, *The Police Journal*, 43(6): 278-289 (June 1970). Police requests in dental journals concerning identifica-

tion of victims by dental data have been for the most part unsuccessful. It was determined that this is partly due to the lack of sufficient information and proper visual displays in the published requests. Suggestions are given for the type of information, descriptions, and illustrations which should be included in a written request concerning identification of a victim by dental details. (SMK)

Microcrystalline Identification of Phenothiazine-Type Tranquilizers II Collaborative Study—Carolyn N. Andres, *Journal of the AOAC*, 53(4): 824-827 (July 1970). The results of a collaborative study of microchemical tests on 12 related phenothiazine-type tranquilizers are presented. (PJC)

Comparison of Elemental Composition of Pistol Bullets by Atomic Absorption: Preliminary Study—R. L. Brunelle, C. M. Hoffman, and K. B. Snow, *Journal of the AOAC*, 53(3): 470-474 (May 1970). An atomic absorption method for the determination of antimony, copper, bismuth, and silver in bullet leads is presented. Bullets of the same caliber and produced by three different manufacturers can be distinguished based on the antimony concentration alone. (PJC)

Collaborative Study of the Determination of Morphine in Opium—Edward Smith, *Journal of the AOAC*, 53(3): 603-608 (May 1970). A partition chromatographic procedure for the determination of morphine in opium is described. (PJC)

Comparative Study of Micro Infrared Techniques—Wilson L. Brannon, *Journal of the AOAC*, 53(3): 599-603 (May 1970). Micro techniques for the analysis of pharmaceuticals by infrared spectroscopy are described. (PJC)

The AMR Microfocus X-Ray System—S. Hamill, *Norelco Reporter*, 17(1): 25-28 (April 1970). The article describes a small and intense x-ray source which may be used in modern diffraction, microradiographic and low angle scattering techniques. The x-ray tube will accommodate any commercially available camera, attachment or special experimental device. It is a continuously pumped demountable tube making it possible to replace filament cathode and target anode. It produces a 20 micron diameter round focal spot or a line focus variable in size from 100 × 1000 microns to 300 × 3000 micron size. In microradiography a focal spot of 5 microns can be ob-

tained. Magnification of 20× to 50× can be obtained. The image may be photographed, viewed on a phosphor screen, or obtain an image on a TV monitor by viewing the phosphor screen with a television camera. (TRE)

X-Ray Analysis—A Rapid Solution Technique—J. E. Carrigan, *Norelco Reporter*, 17(1): 22-24 (April 1970). A technique is proposed where semi-quantitative results are available from analyzing metals and alloys. They are dissolved in the appropriate mineral acid, absorbed on a small glass fiber disc and subjected to x-ray emission analysis. Although the article pertains to analyzing naval ship components, it could be applied to any metal or alloy analysis and, under refined techniques, determine if pertinent elements fall within a given range of composition. (TRE)

X-Ray Diffraction Studies of Cocaine and Its Substitutes—R. C. Sullivan and K. P. O'Brien, *Norelco Reporter*, 17(1): 1-6 (April 1970). The identification of cocaine and its many substitutes by x-ray diffraction using the goniometer is discussed. It is important to differentiate between cocaine, which is a narcotic, and many cocaine substitutes, which are non-narcotic. Data is present on cocaine and 16 of its substitutes which may be helpful where no such data on standardized values exist. Fifty mg. of sample using the glass slide technique was employed using emission for a copper tube at 35 kvp and at 18 ma. (TRE)

Pharmaceutical Applications of Nuclear Magnetic Resonance Spectroscopy—R. T. Parfitt, *Perkin-Elmer Instrument News*, 20(4): 8-9 (1970). N.M.R. spectroscopy for compound identification and structure elucidation is well known. When used with U.V., I.R. and M.S. its application minimizes the chemical degradation required. N.M.R. spectroscopy is useful in qualitative and quantitative analysis and provides information on drug geometry and drug interactions, low cost N.M.R. spectrometers are available which may increase the interest of the pharmaceutical chemist in this technique. (TRE)

A Spectrofluorometric Study of Selected Hallucinogens—*Anal. Letters*, 2: 609-622 (1969). This study was concerned with the measurement of the corrected fluorescence spectra of several hallucinogens as a function of solvent and pH. The drugs studied were lysergic acid diethylamide tartrate,

dimethyltryptamine, diethyltryptamine, psilocybin, α -methyl-3,4-methylenedioxyphe-nylamine HCl, 2,5-dimethoxy-4-methyl amphetamine, benactyzine HCl, phencyclidine HCl and mescaline H_2SO_4 . No work was done on biological samples, but the groundwork for future measurements is presented by having determined the optimal conditions of solvent and pH for the fluorescence of these drugs. (TRE)

A Special Case of Sperm-Residue Investigation—G. Walther and P. Hoehn, *Arch. F. Kriminologie*, 145(3,4): 106-108 (March-April 1970). No sperm cells could be observed, and there was only a weak acid phosphatase reaction on the original garment. After the following additional investigation, evidence for human sperm was found: (1) ultrafiltration for concentration of the eluate, (2) agar-gel diffusion according to Ouchterlony, (3) immuno-electrophoresis against antihuman sperm serum, (4) disc electrophoresis for determination of acid phosphatase. (ER)

Human Behavior and Reactions at Blood Alcohol Concentrations Between 0.25 and 12.6 0/00—C. Rose and F. Glass, *Arch. F. Kriminologie*, 145(3,4): 109-120 (March-April 1970). The purpose of the study was to demonstrate alcohol-induced losses of reaction qualities under simple conditions at blood alcohol levels between 0.25 and 1.24 0/00. Forty-five persons aged between 21 and 35 years were investigated. Results were calculated separately for alcohol concentration ranges (0.25-0.74 and 0.75-1.24 0/00). In the lower range faulty reactions increased 2.0-2.6 fold as compared with 2.5-4.3 fold for the higher range. Loss in reaction time was approximately 10% for both ranges. The article contains 23 references. (ER)

Lifting of Fingerprints from Aluminum and Other Polished Metal Surfaces—H. Jordan and H. Fritz, *Arch. F. Kriminologie*, 145(3,4): 101-105 (March-April 1970). The method utilizes ignited polyester resin rod to deposit soot on the prints. The flame had to be close enough to slightly heat the surface. After cooling, excess soot is removed by a careful one-directional wiping with a cotton swab. The prints can be lifted by a transparent plastic tape or a special white "lifting" tape. (ER)

Changes in Letter Faces on Olympia Pica Type-writers—W. Straub, *Arch. F. Kriminologie*, 145(3,4): 81-89 (March-April 1970). Type dif-

ferences for Olympia-Pica, 12 "old", 12 "new" and 97 are described and illustrated. (ER)

Identification of Saws by Sawdust—G. E. Pichler and E. Roehm, *Arch. F. Kriminologie*, 145(3,4): 90-100 (March-April 1970). Relative size distribution of sawdust upon sieving has been shown to distinguish not only among different kinds of saws (hand, chain, etc.) but also exhibit marked sensitivity in distinguishing among similar kinds of saws. (ER)

Diagnosis of Vehicle-Impact-Caused Injuries—S. Merliand, A. Marchiori, *Arch. F. Kriminologie*, 145(4,5): 176-183 (May-June 1970). The emphasis are in injuries resulting in fractured spines. A case which resulted in separation of upper and lower parts of the body by impact is described. (ER)

Combination of U.V. Irradiation and Ninhydrin Method for Fixation of Fingerprints—H. Fritz and H. Jordan, *Arch. F. Kriminologie*, 145(4,5): 163-168 (May-June 1970). U.V. irradiation of fingerprints on paper before application of the ninhydrin method reduces reaction time to half an hour and yields well developed permanent prints. (ER)

A New Micro-Punch for Sampling Dried Ink for TLC Analysis—E. Naumann and A. Rentz, *Arch. F. Kriminologie*, 145(4,5): 149-159 (May-June 1970). A micro-punching device for sampling of about one gamma dried written matter is described and the subsequent TLC method for determining similarities and differences explained. (ER)

Establishing the Pilot of a Crashed Plane—S. Krefft, *Arch. F. Kriminologie*, 145(5,6): 129-148 (May-June 1970). This problem arises mainly in small plane accidents. The type of injury can be related to the operation of a device, such as stick, considering the moments of inertia on impact. The article has 25 illustrations. (ER)

Vital Reaction in Skin Burns—M. O. A. Malik, *The Criminologist*, 5(15): 63-72 (February 1970). The potential of enzyme histochemistry as a tool for demonstrating a vital reaction for purposes of differentiating between antemortem and post-mortem burns is discussed. The results of a two year study of histochemical changes in burns in-

flicted before and after death on both guinea pig and human skin is given. Enzymes investigated were alkaline phosphatase, acid phosphatase, leucine aminopeptidase and non-specific esterase. (BWV)

Fingerprints—Henry Faulds and W. J. Herschel, *The Criminologist*, 5(15): 51-56 (February 1970). A series of the first causes in various branches of the forensic sciences is continued in this issue with the reproduction of Henry Faulds' and W. J. Herschel's letters on fingerprints. (BWV)

A Matter of Life and Death—Francis E. Camps, *The Criminologist*, 15(15): 19-28 (February 1970). The author deals with a situation which has engaged considerable attention but in spite of extensive research, there has not been offered a solution to the problem; namely, the determination and accurate definition of the moment of death. (BWV)

The XYY Syndrome: A Short Review, A Case Study and Investigatory Model—Anthony M. Marcus and G. Richmond, *Journal of Forensic Sciences*, 15(2): 154-172 (April 1970). This case study, laboratory and psychological examinations of an individual with XYY chromosome complement are described in order to outline the various parameters for an investigatory model. The case describes many of the characteristics of one individual possessing the XYY chromosome defect. There is statistical evidence of the occurrence of the defect in some institutionalized individuals who display social maladjustment. Knowledge of the prevalence of the defect in a normal population in the community is necessary—requiring wide-scale population studies. The XYY defect does not appear to meet such criteria of legal responsibility as overt psychosis, mental defect, profound alcoholic intoxication or temporal lobe epilepsy. The XYY defect appears to be taking its place in the multifactorial melting pot, among the variety of contributing factors to the psychopathology of behavior. It is the hope of the authors to at first examine a number of healthy, normal athletes, over 6 feet, who are engaged in competitive, aggressive, contact sports such as football, wrestling and hockey, to determine the extent of the defect in a sample of this population. (WEK)

The Oklahoma City Child Disappearances of 1967: Forensic Anthropology in the Identification

of Skeletal Remains—Clyde C. Snow and James L. Luke, *Journal of Forensic Sciences*, 15(2): 125-153 (April 1970). An unusual case report involving skeletal identification of a young child. In the months and years that may elapse between disappearance and discovery of a skeleton, memories may dim and records lost or destroyed. Therefore, every available item of information useful in identification should be gathered from records and interviews as soon as possible after the reported disappearance. (WEK)

Identification of Rifled Shotgun Slugs—David G. Townshend, *Journal of Forensic Sciences*, 15(2): 173-178 (April 1970). Rifled shotgun slugs may have sufficient individual characteristics imparted to them so that a positive identification of the weapon barrel may be made, especially when the barrel has been altered as in the case of a sawed-off shotgun. Photomicrographs of corresponding areas of slugs used in test firings with two sawed-off shotguns illustrate such positive identifications. (WEK)

Continuing Studies in the Diagnosis and Pathology of Death from Intravenous Narcotism—Henry Siegel and Paul Bloustein, *Journal of Forensic Sciences*, 15(2): 179-184 (April 1970). The criteria for the diagnosis of death resulting from intravenous narcotism first presented four years ago are further critically evaluated and extended in the light of the slightly changing population age group, the newer methods of administration, the greater ease with which heroin can be detected, and other possible pathological changes that may simulate certain of the pathologic alterations found in intravenous narcotism. The importance of recognizing "narcotic lungs" at the autopsy table is emphasized. (WEK)

Comparative Study of Postmortem Vitreous Humor and Blood Alcohol—John I. Coe and Robert E. Sherman, *Journal of Forensic Sciences*, 15(2): 185-190 (April 1970). Vitreous humor is excellent material for use in determination of alcohol, remaining stable for prolonged postmortem periods and having many technical advantages compared to whole blood. Statistical analysis of the data from the 174 cases gave a conversion factor of 0.89 for determining the probable blood alcohol concentration from a measured vitreous humor value. (WEK)

Seasonal Variation in Cannabinolic Content of Indiana Marihuana—Richard Phillips, Robert Turk, Joseph Manno, Naresh Jain, and Robert Forney, *Journal of Forensic Sciences*, 15(2): 191–200 (April 1970). A study of the seasonal variations in cannabinolic content of marihuana growing in three northern Indiana counties was conducted during the growing season of 1969. Results indicate a low Δ^9 -THC content and a cyclic peaking of cannabidiol throughout the season. The question is raised as to whether the pharmacologic activity of marihuana is due solely to THC as generally believed, or whether some activity must be due to some other cannabinoid(s) in the plant. (WEK)

Forensic Science in China—Traditional and Contemporary Aspects—Lt. Col. Frank W. Kiel, *Journal of Forensic Sciences*, 15(2): 201–234 (April 1970). Many of the problems of Chinese forensic science are similar to those found elsewhere in the world. Abortion, murder arising out of jealousy, and medical malpractice are not unique to China. Some of the problems, however, are distinctively Chinese. For example, infanticide, suicide done for revenge, and acupuncture errors have nowhere been as conspicuous as in China. The present-day Communist government of mainland China appears to be abandoning gains in forensic science because of an emphasis on obtaining more general practitioners. This has led to a de-emphasis of medical specialization, including the field of forensic medicine. (WEK)

A Look into Japanese-Made Typewriters—Maureen A. Casey, *Journal of Forensic Sciences*, 15(2): 235–242 (April 1970). The Brother-manufactured typewriter, introduced into the United States in 1961, is presently being sold in numerous retail outlets across the country under almost as many brand names. Only recently Remington has contracted to have Brother Industries produce a machine to be sold under its label, and it is quite possible that Brother machines will soon be sold under other well-known American manufacturer's brand names. All of these machines will bear one of the five "Brother" styles of type. This situation no longer will make it possible for the document examiner to identify a specimen of typewriting bearing one of these five styles of type as having been prepared on a particular "make" machine. His identifying terminology must be revised to include the words "Japanese made", when applicable. (WEK)

Anomalous Left Coronary Artery Arising from the Pulmonary Artery in an Athlete—Manuel A. Bergnes, *Journal of Forensic Sciences*, 15(2): 243–251 (April 1970). A 23-year-old man expired while jogging. At autopsy anomalous origin of the left coronary artery from the pulmonic trunk was found with associated left ventricular fibroelastosis and anterior myocardial wall fibrosis. He had indulged in a vigorous physical fitness program since the age of thirteen years which included skiing, scuba diving, judo, jogging and calisthenics with weights. (WEK)

Identification of Origin of Glass by Neutron Activation Analysis in a Forensic Case—R. A. Schmitt and V. Smith, *Journal of Forensic Sciences*, 15(2): 252–261 (April 1970). Two small glass shards (0.31 gm), taken from the hair of a girl who was exposed to an impacted 10 × 10" glass door light and injured with the subsequent loss of one eye, and glass samples from the only four possible glass manufacturers were subjected to non-destructive neutron activation analysis on behalf of the plaintiff. Gamma-ray spectra taken with a 30-cc Ge(Li) detector coupled to a 4096 channel analyzer revealed 70 or more gamma-ray peaks attributed to over 17 different trace elements and one major element. Agreement of gamma-ray spectra between the small evidence glass shards and only one of the four known specimens resulted in identification and acknowledgment of origin of the glass shards. (WEK)

Spectrometric Forensic Chemistry of Hallucinogenic Drugs—Sander W. Bellman, John W. Turczan and Theodore C. Kram, *Journal of Forensic Sciences*, 15(2): 261–286 (April 1970). The NMR and mass spectral interpretation with some IR data has been given for four classes of hallucinogenic drugs: Lysergic acid amides, indole alkaloids, phenylalkylamines, and esters of benzilic acid. A compound cannot be positively identified unless it is compared with an authentic reference material. It has also been shown that conclusions may be erroneous if only one type of spectroscopy is relied upon, as shown in the case of JB-336 and N-methyl-4-piperidylbenzilate, and in the case of DMT and MET. (WEK)

A Simple Method for the Infrared Identification of Cannabinoids of Marihuana Resolved by Gas Chromatography—Ronald C. Backer, William N. Jensen, Alois G. Beck and Richard J. Barnett,