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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Science and Law Enforcement Partners in Progress—Marlin W. Johnson, *Journal of Forensic Sciences*, 10 (2): 113–20 (April, 1965). To effectively combat crime in these “new times”, the law enforcement officer must utilize the judgment, as the occasion demands, of a lawyer, scientist, physician, judge, psychiatrist. The use of the skills of the forensic scientist by law enforcement is not only desirable, but an absolute necessity if we are to properly discharge our responsibilities to the citizens of the United States. Criminal enemies also use its wonders for their own purposes. The basic goals of the law enforcement officer conducting a criminal investigation and of the forensic scientist examining evidence are identical—to determine the true facts regarding a given situation. The most successful of scientific techniques is worthless unless its availability is known to the police officer. With the forensic scientist as a partner in the patrol car and at the crime scene, the law enforcement officer can take the initiative against the underworld and reverse the crime trend. Failure to reverse this trend could result in serious consequences for the future of our country. It appears from crime figures that we have yet to learn as a nation that law enforcement is everybody’s business and that crime can only be curtailed by effective law enforcement agencies backed by aroused citizens. (WEK)

Techniques of Identification Applied to 81 Extremely Fragmented Aircraft Fatalities—Russell S. Fisher, Werner U. Spitz, Rudiger Breiteneker, and John E. Adams, *Journal of Forensic Sciences*,

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10 (2): 121–35 (April 1965). The organization and procedures utilized in effecting the identification of 81 persons killed in an airplane crash in Cecil County, Maryland on December 8, 1963 are described. Individual cases illustrating various identification criteria, and techniques are described. The investigation discussed indicates the need for detailed information concerning physical characteristics, personal habits, clothing, medical history, and any other potentially useful information about each person whose presence on the aircraft is to be inferred or proved. (WEK)

Pentachlorophenol Poisoning: Report of Two Cases—M. F. Mason, S. M. Wallace, E. Forester, and W. Drummond, *Journal of Forensic Sciences*, 10 (2): 136–47 (April, 1965). Two cases of fatal poisoning by pentachlorophenol are presented. The behavior and recovery of pentachlorophenol at several steps of procedural manipulation in common toxicologic methods for isolation and detection of poisons are described as well as a rapid procedure for determination of pentachlorophenol in autopsy specimens. The detection of pentachlorophenol in some schemes of general unknown screening is discussed. (WEK)

Identification Notes on Firearms Rifled Eight Right—R. C. Nichol and V. Krcma, *Journal of Forensic Sciences*, 10 (2): 148–57 (April, 1965). The purpose of this paper is to outline some of the additions to the field of 8/R which were previously monopolized by the Cooney and Mossberg lines of firearms. A listing of the most common of the eight groove rifling arms of the following manufacturers are listed. H. W. Cooney Machine and Arms Co., Ltd., Cobourg, Ontario, Carl Walther Works at Ulm Donau, West Germany, J. G. Landmann Preetz/Holst, West Germany, Rohm Gesellschaft m.B.H. Sontheim/Brenz, West Germany, Canadian Industries Limited, Montreal.

Quebec, Canada, Tiroler Maschinenbau & Holzindustrie, Kufstein/Tirol, Austria, O. F. Mossberg & Sons, Inc. (WEK)

Intracerebral Vascular Lesions Following Cranial Impact: A Proposed Mechanism—Sanford Edberg, John Rieker, and Alfred A. Angrist, *Journal of Forensic Sciences*, 10 (2): 158-66 (April, 1965). Previous work has shown the existence of alternating positive and negative pressures following impact to water-filled plastic skull models. Current investigations utilized an intracranial vascular model of the venous capillary and arterial capillary junctions, and demonstrated substantial pressure differentials between the arterial and venous sides. It is postulated that momentary reversal of flow on impact with rupture of the venous capillary junction may be a cause of some forms of traumatic intracerebral hemorrhage. (WEK)

Multiple Causes of Death, The Viewpoint of a Forensic Pathologist—Charles S. Petty, *Journal of Forensic Sciences*, 10 (2): 167-78 (April, 1965). Multiple causes of death as listed on death certificates are of two general types: *Parallel*, that is two or more unrelated but simultaneously acting causes, and *series*, two or more related factors resulting in death. The death certificate is better designed to accommodate the latter because of the current World Health Organization rules for the classification of causes of death and the prediction of death certificate design on the rules of classification; *Parallel* multiple causes of death do not fit well with the current general philosophy of vital statistics. *Series* multiple causes of death pose many problems to the forensic certifiers of death: The degree of certainty of relationship of factors required for the certifier to prepare a death certificate which will satisfy the courts. How far should the series or chain of related factors be carried. Should situations (stress or surgical) be noted as one of the factors, realizing that many of these represent forms of trauma. Should mental disease be used as a contributing cause of death. Is acute alcoholism a realistic contributing cause of death in motor vehicle and other accident situations. (WEK)

A Rapid and Specific Spectrophotometric Method For Determining Propoxyphene—Jack E. Wallace, John D. Biggs, and Elmer V. Dahl.

Journal of Forensic Sciences, 10 (2): 179-91 (April, 1965). A rapid method for the quantitative determination of propoxyphene in biological materials involves the formation of a steam distillable product which has a molar absorbancy for ultraviolet light many times greater than that of propoxyphene. Ultraviolet absorbancy of the steam distilled product, whose chemical structure has not been completely defined, adheres to the Beer-Lambert law over a wide concentration range. The method is sufficiently sensitive to permit determination of propoxyphene in the urine of patients who have taken a single therapeutic dose of the drug orally. For forensic toxicologic purposes, the procedure is specific for propoxyphene. (Darvon®). (WEK)

The Stability of Ordinary Blood Alcohol Samples Held Various Periods of Time Under Different Conditions—Blaine L. Glendening and Truman C. Waugh, *Journal of Forensic Sciences*, 10 (2): 192-200 (April, 1965). A study was made of the stability of blood samples held in rubber stoppered tubes for alcohol analysis under varying conditions. Groups of ten samples held at room temperature for different intervals of time all showed an average decrease in alcohol content ranging from .009 per cent at each of the one-week, two-week, and one-month periods to .045 per cent at two years. The changes were not statistically significant at the two-month period or below, but all groups at the six-month or longer storage time showed significant loss of alcohol. Significant changes in alcohol content were not found for samples stored as long as ten months in the refrigerator or nine months in the deep freeze. Samples stored in an incubator at 90°F. showed significant loss of alcohol at the two-week and one-month period as did those left in an automobile trunk for approximately one week during hot weather. Samples preserved with sodium fluoride and potassium oxalate gave similar decreases over a two-three month period. Loss of weight of stored samples was greater with white stoppers than with black stoppers. (WEK)

Quantitation of Alcohols Using Gas Chromatography and a 15% Hallcomid Column—Marshall Steinberg, Joe B. Nash, and Jack Q. Walker, *Journal of Forensic Sciences*, 10 (2): 201-6 (April, 1965).

1. A procedure following the method of Cadman

and Johns is advocated, utilizing a 15% Hallcomid M-18 column. The method has certain advantages in comparison with the original method of Cadman and Johns.

2. The column is readily and economically prepared.
3. Hallcomid has a low bleeding rate and offers shorter retention times.
4. There is greater sensitivity using a flame detector.
5. Earlier clearance of the column allows for a shorter waiting period between specimen injections which is especially advantageous when the method is employed in the clinical laboratory for assessing the contribution of alcohol or other volatiles to neurologic deficits in emergency cases. (WEK)

Analysis of Toxic Gases in Blood By Infrared Spectroscopy—M. Feldstein, *Journal of Forensic Sciences*, 10 (2): 207-16 (April, 1965). A rapid and simple procedure for the analysis of a series of 11 toxic gases and vapors is presented. The procedure involves the aeration of acidified samples of blood into a 10 meter path length infrared cell, and measurement of absorption at specific wave lengths for each of the compounds under discussion. The procedure serves as an excellent screening procedure to rule out the presence of any of the above compounds, and probably many others since normal acidified blood samples show only CO₂ absorption peaks in the infrared region when subjected to the procedure described. Preliminary work has already shown that the procedure is suitable for the determination of other volatile liquids including gasoline, kerosine, naphtha solvents, turpentine, and other halogenated hydrocarbons. (WEK)

Chelation as a Method of Exclusion Screening for Drugs—F. Rieders and S. K. Niyogi, *Journal of Forensic Sciences*, 10 (2): 217-24 (April, 1965). The formation of chloroform extractable mercury, bismuth, cadmium, lead, zinc and copper-complexes at pH 4.4 and pH 8.1 of barbital, phenobarbital, secobarbital, mephobarbital, thiopental, bluthethimide, salicylate, phenacetin, antipyrine, caffeine, propoxyphene, sulfadiazine, chlorpromazine, thioridazine, imipramine, and chlordiazepoxide was investigated. All of the drugs except salicylate and caffeine were found to form such complexes with one or more of the metals. Mercury

formed complexes with more of the drugs than did any of the other metals while lead did not seem to interact with any of the drugs under the conditions of these experiments. Direct extractability from blood of the mercury complexes of glutethimide, chlordiazepoxide, propoxyphene, and diphenhydramine was tentatively demonstrated. (WEK)

The Use of Footprints For Identification in Infanticide: Report of a Case—Sanford Edberg, Arthur Mandella, and Charles H. Hochman, *Journal of Forensic Sciences*, 10 (2): 225-31 (April, 1965). A major difficulty in the solution of the crime of infanticide is identification of the body of the infant. Two cases are described in which positive identification was established by comparison of the flexion creases of the infant's footprints with those on record in the hospital where it was born. It is suggested the compulsory footprinting of newborn infants should be more generally developed. (WEK)

The Gas Chromatographic Analysis of Low Concentrations of Barbiturates Using an Electron Affinity Detector—B. J. Gudzinowicz and S. J. Clark, *Journal of Gas Chromatography*, 3 (5): 147-51 (May, 1965). Successful analyses are possible on microliter quantities of solution containing 0.1-0.8 micrograms of barbiturates. In this work, a glass column with 3% SE-30 silicone gum rubber on Anakrom AS was used. The electron affinity detector proved more sensitive than the flame detector. At this low concentration, adequate separation of mixtures permits qualitative identification. (JDN)

Are You a Photographic Expert?—H. B. Tuttle and E. C. Conrad, *Fingerprint and Identification Magazine*, 46 (9): 3-7, 13-16 (March, 1965). The authors caution police photographers against calling themselves "experts" in photography. The photographer may be "experienced", however unless he is thoroughly familiar with all of the latest ramifications of photography, in wide scope and depth, he is not an "expert". The authors suggest the best bases for acceptance of photographs in court. (JDN)

Use of Silicone Oil as Solvent in Gas Chromatography—K. F. Sporek and M. D. Danyi, *Journal of Gas Chromatography*, 3 (5): 178 (May,

1965). For non-polar organic substances for which silicone oil is a solvent D C 200 fluid can be used with advantage. Contrary to many other solvents, silicone oil produces no solvent peak. (JDN)

A Rapid Accurate Determination of Glycerol Trinitrate and Chloroglycerol Dinitrate in Pharmaceutical Preparations—E. T. Fossel, *Journal of Gas Chromatography*, 3 (5): 179 (May, 1965). Samples of nitroglycerine tablets in absolute ethanol were assayed on a 3% SE-30 column on Anakrom 50/60. (JDN)

Historical Development and Evaluation of the "12 point rule" in Fingerprint Identification—C. R. Kingston and P. L. Kirk, *International Criminal Police Review*, No. 186: 62-9 (March 1965). The suggestions of Salton, Balthazard, Bertillon, Locard, Cummins, and Midlo are discussed. The authors conclude no sound statistical basis for the '12 point rule' exists in the literature cited. Experience has not shown it to be in error, however, the number may be too conservative. (JDN)

The Italian Scientific Police Services Mobile Laboratory—R. Pocerì, *International Criminal Police Review*, No. 186: 73-6 (March, 1965). By using a van type vehicle, the Italian Police attempt to bring a modest amount of scientific procedures to the crime scene. In addition to the usual evidence preservation procedures, this vehicle is equipped to handle preliminary blood, serum, and narcotic tests as well as perform identifications by means of foot and fingerprints. It is still indispensable to back stop the unit with a fixed, thoroughly equipped laboratory. (JDN)

The Role of the Criminal Laboratory in an Arson Case—A. E. A. Hamdy, *International Criminal Police Review*, No. 185: 34-41 (Feb. 1965). An unusual fire destroyed a major portion of a large jute warehouse. After eliminating normal source of fire, the author observed peculiar staining and erosion of the bricks along one wall. Samples analyzed had a substantial sulphur and phosphorous content. By calculating the available volume for smoke accumulation, it was shown that considerably more time was needed for the fire to develop than would fit the suspects time schedule. (JDN)

The Use of Electronic Methods by the Police—M. A. Debrìe, *International Criminal Police Review*, No. 185: 42-51 (Feb., 1965). The advantages of punch card and magnetic data storage are discussed. (JDN)

Southern Police Institute Appointments—The Southern Police Institute of the University of Louisville announces the appointment of two new full-time staff members bringing the staff to full strength under the terms of the Ford Foundation grant received last year.

B. Edward Cambell who served as Director of the Louisville Civil Service for nearly four years joined the staff in November, 1964. He is a graduate of the University of Louisville and also holds a certificate in public administration.

In October, 1965, Inspector Raymond A. Dahl, Assistant Chief of Police of Milwaukee, joined the staff. He is the author of *A Guide to Understanding Human Relations* and will teach a course which includes police responsibility in racial conflicts and police activities in civil rights and civil liberties. In addition to the teaching program, both Mr. Cambell and Mr. Dahl will take part in the Institute's expanded research program. (OH)

College of Police Science of the City University of New York—On September 20, 1965 the new four year college of Police Science of the City University of New York officially opened with an academic convocation. Former Police Commissioner Michael J. Murphy, who is Acting President of the College, presided. Speakers and participants at the convocation included Dr. Gustave G. Rosenberg, Chairman of the Board of Higher Education; Dr. Donald Riddle, Dean of Faculty; Police Commissioner Vincent J. Broderick; and Dr. Albert H. Bowler, Chancellor of the City University.

This new college is believed to be the first institution devoted exclusively to the education of law enforcement officers. All students are members of the New York City Police Department or of other law enforcement agencies in neighboring communities. The college has 1,000 part time students. 327 are matriculated for baccalaureate degrees and 223 for associates in science degrees. The remaining 450 students are nonmatriculants, but many of these may qualify for matriculation. Included in the enrollment are 26 women. It is estimated that