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## Police Science Technical Abstracts and Notes

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## POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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**The Police Photographer in Court**—Harris B. Tuttle, *Law and Order*, 13 (4); 8-9 (April 1965). A short article with important items to any photographer who will be testifying in court. Contains cautions of information and data that should be obtained and kept when the photograph is taken. Also some cautions concerning a photographer being qualified as an expert in court. (JDC)

**Police Photography in Pittsburgh, Pennsylvania**—Jerry Wesson, *Law and Order*, 13 (4); 10-14 (April 1965). This article gives a description of the Pittsburgh Police Department Photography Detachment, along with photographs of various pieces of equipment. Also describes some of the procedures utilizing their equipment and use of manpower. (JDC)

**Close-Up Photography**—S. F. Spira, *Law and Order*, 13 (4); 18 (April 1965). This is a one-page article describing some equipment which can be used for photographing all objects at close range. The average 35 mm camera lens focuses at around 3½ feet covering a subject of about 20 to 30 inches. With the lenses described area covered by 35 mm camera negative is reduced to about 1½ by 2½ inches. (JDC)

**Color Picture for Better Identification**—Peter Diadome, *Law and Order*, 13 (5); 6-7 May 1965. Gives a description of the Nassau County, New York, Police Department, and their experiences

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with color photography. Also gives a floor plan of their photo lab which may be of interest to departments anticipating building or rebuilding a photo lab. (JDC)

**The New York DWI Seminars**—Joseph Kusalia, *Law and Order*, 13 (6); 16-18 (June 1965). Describes the DWI Seminars presented to law enforcement agencies in 7 key population centers in New York State. The Seminars were two day workshops and cooperating agencies included practically all New York's enforcement agencies. Subjects covered were Drinking-Driving Problems, Physiology of Alcohol, Implied Consent Law, Examining the Drinking Driver, Chemical Tests, Motion Pictures and Intoxicated Drivers, Defense of Drunk Driving Cases, Prosecuting of Driving While Intoxicated Case, The Role of the Court, Suspension and Revocation of Operator's License. (JDC)

**Data Processing System**—Lt. E. G. Columbus, *Law and Order*, 13 (7); 9-14 (July 1965). A description of data processing system as used by the Fairfax County Police Department, Fairfax, Virginia, describing such areas of use as: daily activity report, arrests accounting, accident reporting, and budget and accounting. (JDC)

**The Diagnosis of Death from Delayed Air Embolism**—H. A. Shapiro, *Journal of Forensic Medicine*, 12 (1); 3-7 (January-March, 1965). The author cautions against a hasty diagnosis of air embolism where an autopsy has been delayed. Further, unless the air is analyzed, establishing the presence of oxygen, putrefaction cannot be excluded as a source of the gas. Delay mechanisms are described whereby the time from injection to death might be several hours rather than within 45 minutes. (JDN)

Innocent Until Proven Guilty—R. D. Rushton, *RCMP Gazette*, 27 (3); 12-14 (March, 1965). The author urges a double check for carbon monoxide where the alcohol level does not corroborate clinical symptoms. (JDN)

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Areas of Applications, Contraindications, Legal and Ethical Considerations in Hypnosis—H. Arons, *Police*, 9 (2); 11-5 (November-December, 1964). The advantages of hypnosis are discussed. Reported aids in memory recall of a witness, breaking amnesia, and some form of lie detection are given. (JDN)

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Backyard Explosives—R. R. Lenz, *Police*, 9 (2); 36-9 (November-December, 1964). Terrorists are including "anti-tamper" devices in bombs. This seriously increases the risks involved in handling a suspicious package. Most of the ingredients are common items readily available without signature. Counter measures are given. (JDN)

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Thermal-Optical Effects in Acrylic Fibres—D. G. Grabar, *The Microscope*, 14 (6); 209-14 (September-October, 1964). When acrylic fibers are examined for birefringence, a change is observed at 175°C. to 180°C. from negative to positive. This can be observed by plotting parallel and perpendicular refractive indices using the immersion method on a hot stage. The author also describes the effect using Cherkasov's method. (JDN)

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Micro Hot Stage Methods for the Identification of Organic Compounds—A. Kofler, *The Microscope*, 14 (6); 239-245 (September-October, 1964). Eutectic, refractive index of the melt and simple melting point are given as means for identification of several compounds of forensic interest. (JDN)

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The Electronic Finger Printing Method—Y. Kimura, *Finger Print and Identification Magazine*, 46 (7); 3-7, 11-14 (January, 1965). An electronic finger print method using xerography is described. By this technique finger prints can be taken without staining palms or fingers. Under ordinary circumstances the prints are superior to the inking method. (JDN)

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Sound Movies Utilized in Sobriety Testing—J. F. Moomaw, *F.B.I. Bulletin*, 34 (3); 7-10, 20 (March, 1965). Denver's use of movies of DWI suspects materially raised conviction rate and saved \$30,000.00 annually in court costs. (JDN)

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Criminal Investigation—Criminals Incorporated—R. D. Ostler, *The Police Journal*, 38 (4); 161-74 (April, 1965). As a consequence of a series of burglaries, the police of three countries developed a "Ghost" Squad to observe the actions of several suspects. In addition, control samples, foot and tire print casts, and tool marks were collected at each scene. When apprehended, the suspects and their premises were thoroughly searched. After examining 216 items of evidence with respect to five suspects, the testimony of L. C. Nickolls of the Metropolitan Police Laboratory resulted in numerous guilty pleas and several prison terms. (JDN)

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Determination of Wear Metals in Used Lubrication Oils by Atomic Absorption Spectrometry—J. A. Burrows, J. C. Heerdt, and J. B. Willis, *Analytical Chemistry*, 37 (4); 579-82 (April, 1965). The determination of trace metals in automobile lubricants may be a significant factor in identifying a hit and run vehicle. Reported here is a simple, relatively inexpensive method that is sensitive and reproducible. The atomic absorption analysis of oils for traces of copper, chromium, iron, lead, and silver can be run on solutions of oils in 2-methyl-4-pentanone, spraying the solution into an air-acetylene flame. Matrix effect is negligible. (JDN)

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Technique for Obtaining Spectra of Microgram Amounts of Compounds Separated by Thin Layer Chromatography—W. N. McCoy and E. C. Fiebig, *Analytical Chemistry*, 37 (4); 593-95 (April, 1965). A capillary method for concentration, solution, and transfer of specimen spots from thin layer media to an infrared cell. (JDN)

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Silver Chloride Disk Technique in Infra-Red and Visible Spectrometry—L. L. Pytlewski and V. Marchesani, *Analytical Chemistry*, 37 (4); 618-9 (April, 1965). Silver chloride can be used to advantage in the preparation of pressed disk samples. Thin Teflon disks should be used to prevent deterioration of the press die. The flexibility of silver chloride permits its use as a binder with high concentrations of sample. (JDN)

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Gas Liquid Chromatography of Alkaloids Using Capillary Columns and Four Packed Columns—J. L. Massingill, Jr. and J. E. Hodgkins, *Analytical Chemistry*, 37 (7); 952-5 (June, 1965). Retention times are reported for 25 alkaloids on Epon 1001 Resin; XE-60, a silicone copolymer; SE-52,

methylphenyl silicone polymer; and JXR, dimethylpolysiloxane, as packed columns. Also reported are retention times on capillary columns coated with Apiezon L, QF-1 and SE-30. Retention ratios to caffeine are given. (JDN)

**Gas Chromatographic Separation of Oxides of Nitrogen**—J. M. Trowell, *Analytical Chemistry*, 37 (9); 1152-4 (August, 1965). Three columns and two detectors and recorders are used to separate the decomposition products of explosives and propellants. Column one consists of  $\frac{1}{2}\%$  carbowax on glass beads; column two, is 40% DMSO on Gas Chrom RZ; column three, is  $13\times$  molecular sieve. (JDN)

**Determination of Nitroglycerin and Resorcinol in Double-Base Propellant Following Separation by Thin Layer Chromatography**—J. A. Kohlbeck, *Analytical Chemistry*, 37 (10); 1282-3 (September, 1965). Nitroglycerin and resorcinol are determined by thin layer chromatographic separation on silica gel. 80:20 benzene-diethyl ether is the solvent mixture. The support is sprayed with 0.1% N,N'-diphenylbenzidine and irradiated with a mercury lamp for 10-15 minutes to detect nitroglycerin. Resorcinol is detected by spraying a 1% iodine solution in methanol followed by a 0.1% starch solution. (JDN)

**The Use of Scientific Aids in Crime Detection**—A. A. Muir, *Journal, The Forensic Science Society*, 4 (3); 119-23 (March, 1964). Suggests that police officers should be given more training in science in order to understand and appreciate the aid that laboratories can give. To support the laboratory, suitable crime scene equipment should be available. (JDN)

**Application of High Temperature Chromatography to Toxicological Analysis**—H. V. Street, *Journal, The Forensic Science Society*, 4 (3); 142-44 (March, 1964). Time of development is shortened by using Tributyrin and aqueous buffers on reversed phase paper chromatography at 97°C. Analysis time is reduced to 15 minutes. (JDN)

**The Detection of Barbiturates and Related Drugs by Thin Layer Chromatography**—J. Bogan, E. Rentoul, and H. Smith, *Journal, The Forensic Science Society*, 4 (3); 147-54 (March, 1964). A chloroform extract of the suspected tissue or fluid is placed on chromatoplates (aluminum oxide or

silica gel) and developed with chloroform and acetone (9:1). Standard mixtures of Barbitone and Thiopentone are developed as alternating spots. The developed plate may be treated with mercurous nitrate, potassium permanganate, Zwicker's Reagent or fluorescein. Identification depends upon the  $R_{f-b}$  value, the distance of the spot above the lower Barbitone spot divided by the distance between the Barbitone and Thiopentone standards. The  $R_{f-b}$  value is more reproducible than the  $R_f$  value. Tables of values are given for common barbiturates and similar acting compounds. Sensitivity of 1  $\mu$ g is reported for mercurous nitrate reagent. (JDN)

**The Identification of Abnormal Haemoglobins in Bloodstains**—B. J. Culliford, *Journal, The Forensic Science Society*, 4 (3); 155-7 (March, 1964). The separation of HbF and HbA by electrophoresis on cellulose acetate is described. Boric acid, sodium hydroxide make up the tank and bridge buffer. Tris, citric acid buffer is used on blotting paper under the cellulose acetate strips. One-half hour to two hours are required for proper development at 20-22 volts/cm. (JDN)

**The Nature of the Process of Identification**—S. S. Kind, *Journal, The Forensic Science Society*, 4 (3); 162-6 (March, 1964). A discussion of the general steps tending toward identification of the major types of evidence encountered in the crime laboratory. (JDN)

**The Interpretation of the Arsenic Content of Human Hair**—H. Smith, *Journal, The Forensic Science Society*, 4 (4); 192-9 (October, 1964). Arsenic may contaminate hair internally or externally. Caution should be exercised when establishing limits above which criminal sources can be postulated. A linear analysis that shows definite zones of high concentration is significant if small enough increments are used. Relatively high levels are detected at the roots within four hours after ingestion. High levels are evident up to 35 days after ingestion. (JDN)

**The Chemistry of Inks for Writing, Printing and Copying**—P. Patterson, *Journal, The Forensic Science Society*, 4 (4); 200-8 (October, 1964). A general discussion of the chemistry and analysis of "permanent", "washable", ball point pen inks. Printed documents, pigments in inks and copying inks are also treated. (JDN)

The Use of Normal Incident Illumination in the Examination of Hair Cuticle—W. E. D. Evans, *Journal, The Forensic Science Society*, 4 (4); 217-8 (October, 1964). A dry mount of hair is examined by means of a vertical illuminator. (JDN)

Investigation of the Causes of Explosions—H. J. Yallop, *Journal, The Forensic Science Society*, 5 (1); 6-10 (January, 1965). General discussion. (JDN)

Concentrations of Alcohol in Samples of Blood and Urine Taken at the Same Time—W. H. D. Morgan, *Journal, The Forensic Science Society*, 5 (1); 15-21 (January, 1965). Blood alcohol, calculated from urine, in random samples of actual cases showed considerable deviations, as much as  $\pm 10\%$ . (JDN)

The Biological Individuality of Dried Human Bloodstains—R. A. Outteridge, *Journal, The Forensic Science Society*, 5 (1); 22-51 (January, 1965). A comprehensive survey of current techniques for grouping and subgrouping blood stains. The author does not indicate that present methods permit a reliable extension beyond the ABO level. (JDN)

A New Method for Coating Glass Beads for Use in Gas Chromatography of Chlorpromazine and Its Metabolites—Donald E. Johnson, Charles F. Rodriguez, and Wade Schlamers, *Journal of Gas Chromatography*, 3 (10); 345-347 (October, 1965). Describes the use of glass beads coated with a liquid phase of 0.15% XE-60, and 0.1% CW 20-M combined with diatomaceous earth for use in columns to determine chlorpromazine and its metabolites by gas chromatography. (GDM)

Salicyluria—The Ingestion of Salicylamide—H. M. Stevens, *Medicine, Science and the Law*, 5 (3); 157-158 (July, 1965). Describes the ether extraction of salicylamide from acidified urine. The method separates salicylamide from any salicylic acid present by extracting the ether extract with a 3% sodium hydroxide solution. Extraction of the ether extract with a sodium bicarbonate solution and evaporation of the extract over steam gives a compound whose x-ray diffraction pattern and infrared spectrum compares favorably with a known pure sample. (GDM)

Use of Dry Syringes for Preparing Specific Gas Mixtures, for Analysis of Certain Gases and as

Dry Gas Meters—Rolla N. Harger and Eugene S. Turrell, *Journal of Forensic Sciences*, 10 (3); 239-52 (July, 1965). Tests with dry, well-ground, conventional glass syringes have shown that they are so nearly gas-tight that they serve admirably for the measurement, transfer, and mixing of gases. Description of a compact, dry syringe apparatus with which one may determine the concentration of carbon dioxide, water vapor, oxygen, ether, etc. in air or other gas, with an accuracy which approaches that of instruments employing liquids to measure gas volumes. (WEK)

Histologic Examination of Trace Evidence—Pierre A. Finck, *Journal of Forensic Sciences*, 10 (3); 253-62 (July, 1965). This paper reports four cases of trace evidence examined grossly and microscopically by the author. The light microscope allowed the identification of brain tissue (Case 1), an exudate consistent with thermal burns (Case 2), Caucasoid skin with a portion of tattoo (Case 3), and Negroid skin (Case 4). Police officers should be aware of the requirements, possibilities, and limitations of an examination performed on a specimen of trace evidence. The best results are obtained when there is adequate exchange of information between the police investigation and the various forensic specialists. The value of the report issued by a criminal investigation laboratory or by a pathologist depends to a great extent upon the information provided and the care exerted by the investigator who collected specimens of trace evidence. (WEK)

The Psychiatric Character of the Assailant as Determined by Autopsy Observations of the Victim—Frank W. Kiel, *Journal of Forensic Sciences*, 10 (3); 263-70 (July, 1965). Four cases of violent killing are presented, together with the comments, based only on a picture and a brief history, of 20 medicolegal experts. These comments on the state of mind and character of the assailant are compared with follow-up data on the real assailant.

Many clues can be suggested by the forensic pathologist which may help police investigator apprehend the assailant, such as the criminal's probable size, personality, associates, socioeconomic condition, and family status. However, considerable reluctance is expressed by most respondents to stating at trial psychiatric opinions about the assailant, based only on physical evidence of the victim and scene of the crime. (WEK)

**A Rapid Method for the Comparison of Glass Fragments**—Elmer T. Miller, *Journal of Forensic Sciences*, 10 (3); 272–81 (July, 1965). Optical comparison of glass fragments in the forensic laboratory can be accomplished accurately and rapidly by the use of a monochromator, an arrangement for accurate temperature control, a set of calibrated immersion liquids, and a microscope. (WEK)

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**Polarographic Determination of Chlordiazepoxide and Diazepam in Toxicological Analyses**—G. Cimburá and R. C. Gupta, *Journal of Forensic Sciences*, 10 (3); 282–93 (July, 1965). A procedure has been set forth for the determination of microgram quantities of chlordiazepoxide, diazepam, and the hydrolysis products of the two drugs. The method consists of a series of extractions and polarography in acidic medium. Chlordiazepoxide, diazepam, and the mixture of the two compounds may be identified and differentiated from one another.

The proposed procedure is believed to be simple, rapid, sensitive and specific for the drugs tested. It permits the determination of 10 micrograms of each drug in 10 ml. samples with an over-all recovery of about 88%. The technique has been applied successfully to routine toxicological work. The two drugs, chlordiazepoxide and diazepam, are two of the most widely prescribed drugs for the relief of anxiety. (WEK)

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**Effects of Drugs on Handwriting**—David J. Pirtell, *Journal of Forensic Sciences*, 10 (3); 335–46 (July, 1965). With the great number of people under medication, the effects that drugs have on a person's ability to write has become a serious problem to the document examiner. It makes no difference whether the examiner is in private practice or is employed by a law enforcement agency, cases are encountered where people involved are under the influence of drugs, alcohol, and narcotics. Since the amount of published research is limited regarding this problem, this article has attempted to show that the document examiner needs the assistance of the medical profession in researching this problem. By way of producing the most effective results, the American Academy of Forensic Sciences, whose objectives and purposes are to promote the interdisciplinary studies of mutual problems, should give some thought to this question, "What effect does medicine have on a person's handwriting?" (WEK)

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**The Psychiatric Determination of Legal Intent**—Thomas J. Meyers, *Journal of Forensic Sciences*, 10 (3); 347–65 (July, 1965). This study is intended to be a discussion of the practical points involved in the question of legal intent as pertains to the judicial process. Techniques are not discussed, but principles are, with the assumption that trained psychiatrists are familiar with the usual techniques in psychiatric procedures. There are points that pertain to bringing out clearly the mental attitudes and mechanisms as causative in criminal acts. To some extent, conclusions must be arrived at by deduction. A clinical diagnosis helps, for schizophrenics, living in a world of their own, often are unable to correlate well with reality. Evaluation of concrete abstract thinking is necessary, and a fairly good appraisal of inner and outer personality controls needs to be determined. (WEK)

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**Death Due to Intentional Overdosage of Isoniazid; A Case Report**—Thomas Kelso, Henry W. Toll, Jr., Donald C. Pinkerton, and L. C. Kier, *Journal of Forensic Sciences*, 10 (3); 313–9 (July, 1965). A case of intentional ingestion by a 15-year-old girl of approximately 5 grams of isoniazid is reported. The patient experienced vomiting, convulsions, coma, and oliguria. Despite vigorous medical therapy, including peritoneal dialysis, she survived only about 70 hours after ingestion of the drug. No new pathological findings can be reported, although it was initially thought that the renal tubular changes noted represented acute cloudy swelling. Critical review of the sections has failed to confirm this impression. The metabolism and toxic effects of isoniazid are discussed, and the literature reviewed. To our knowledge, this is the first fully-described case of overdosage of isoniazid with a fatal outcome reported in the English medical literature. (WEK)

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**A Microtitration Method for Grouping Dried Bloodstains**—Harold M. Alfultis, *Journal of Forensic Sciences*, 10 (3); 319–34 (July, 1965). The experiments performed with the Takatsy-Sever serial dilution procedure, using plates and diluting loops, indicate that the technique can be applied with success in forensic immunology. (WEK)

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**Invisible Ultraviolet Fluorescence**—Ulf von Bremen, *Journal of Forensic Sciences*, 10 (3); 368–75 (July, 1965). Invisible UV fluorescence, by using glass filters on a powerful light source and fast plates with view camera equipment, does