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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Spectrochemical Analysis Over Two Wave Length Ranges—Much of the spectrochemical analysis in police work must be made with one exposure with the evidence sample. For that reason the method devised by N. H. Nachtrieb, J. G. Conway, E. D. Wilson, and S. Wexler and reported in the *Analytical Chemistry*, 20: 282 (March, 1948) will be of considerable interest. Through a system of lenses and mirrors or prisms a portion of the light from an arc is made available to a second slit or second spectrograph where an additional range may be recorded. Thereby a range of 2250 A.U. to 6700 A.U. may be recorded sufficiently dispersed to be useful for identification studies.

Benzedrine Intoxication—An abstract of a paper by Corporal H. H. Gyorgy in the *U.S. Army Medical Department Bulletin*, 3: 204 (September, 1946) cites the possibility of error in the determination of intoxication where only alcohol is sought. The examiner must be aware of the use of benzedrine inhalers to produce intoxication and test for this compound, β -phenylisopropylamine, by the coupling reaction with p-nitrobenzene diazonium chloride. This test may be applied to the urine.

Arson of Airplanes—Although John Kennedy does not say that arson cases involving airplanes has increased, he does point out in an article in the *Journal of American Insurance*, 25: 16-18 (February, 1948) that the prevailing idea that arson does not enter the aviation field must be modified. Since the war many small aviation businesses have been established, and in the event of a recession there may be a rise in arson for profit. Also to be considered is the factor of repossessed planes and the destruction of partial wrecks. The usual "psychological" arsonists are present here as well as in other areas of arson fires.

Capillary Tubes for X-Ray Diffraction—Police technicians fortunate enough to have access to x-ray diffraction equipment will be interested in a method for the production of cellulose acetate capillary tubes for Debye-Scherrer powder cameras described in *The Review of Scientific Instruments*, 19: 179-80 (March, 1948). These tubes are made by dipping annealed 24 gauge copper wire into a cellulose acetate solution and withdrawing at a suitable steady rate. The wire mandrel is then stretched until broken and thus removed from the tube. A centering jig is described which cuts loading to 5 minutes per sample. This work was done at the Phillips Petroleum Company, Research Department, by K. E. Ben and H. H. Claassen.

An Unusual Accident—During the course of a demonstration of a powder-actuated tool an accidental discharge caused the projected stud to perforate the demonstrator's hand and lodge in neck of a spectator. Although this tool is engineered for safety and properly handled should be a valuable instrument for industry it occurred to the writer that it possessed interesting possibilities for criminal application. It is oper-

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ated by the discharge of a blank cartridge which provides the necessary pressure to drive the stud into concrete or steel. The stud has the appearance of a nail having a small portion enlarged at the rear for threads. In tests at the Chicago Police Laboratory using the heaviest charge penetrations of three pieces of two inch pine were possible. Since it is not classified as a firearm it may be carried without restriction and may therefore escape notice when found in the wrong hands.

New York City Police Laboratory—Richard L. Demmerle has written a brief summary of the activities of the New York Police Laboratory in the *Chemical and Engineering News*, 26: 456-8 (February 16, 1948) which should give the reader an idea of the scope of this organization. Its facilities in the laboratory and the work of the Mobile Unit are described. This might serve as a guide for those departments contemplating a police laboratory.

Crystallographic Data—*The Analytical Chemistry*, starting with volume 20, March 1948, will publish crystallographic data as contributed by the Armour Research Foundation of Illinois Institute of Technology, Chicago, Illinois. This organization has undertaken the task of checking and placing in standard form material submitted by various contributors. Since the compounds considered will be those having industrial and common usage, this project should be of considerable interest to persons working in the police analytical laboratories. The five major sections into which data will be placed are, Introduction (crystallization, solubility, etc.), Crystal Morphology, X-Ray Data, Optical Properties (refractive indices, optical axes, etc.) and Thermal Data (melting points). The Foundation and technicians in police laboratories will welcome any contributions either whole or in part coverage of the above categories.

Blood Test Reagent—N. M. Cullinane and S. J. Chard examined 2,7—diaminodiphenylene oxide as a reagent for blood and found it five times as sensitive as benzidine. The reagent is prepared from benzidine—2,2'—disulphonic acid by treatment with sodium hydroxide. The solution consist of 0.375 g. of the amine dissolved in warm glacial acetic acid (5 ml.) and water (45 ml.). One drop of the aqueous solution of blood is mixed with one drop of reagent and followed by one drop of three per cent hydrogen peroxide. A blue color indicates a positive reaction. The radicals which interfere with the benzidine tests also interfere here. Reported in *The Analyst*, 73: 95-7 (February, 1948).

Portable Typewriters—In rating the post-war portable typewriters the *Consumers' Research Bulletin*, August 1947, page 9, lists the following changes: the Underwood Champion and Universal machines have newly designed plastic keys and the Royal elite type machine space 6.5 lines per inch, but a standard line spacing machine can be ordered if desired. (Submitted by David J. Purtell, Chicago Police Scientific Crime Detection Laboratory.)

The Scopometer—A machine developed by two inspectors of the Federal Police, Argentina, is described by Commissioner Oscar R. Preller in the *Finger Print and Identification Magazine* 29:3-5 (Oct. 1947). The

purpose of this machine is the making of exact tests of typewritten tests in order to determine the horizontal and vertical alignment of the writing. The machine may also be used for precision measurements on documents in general.

The scopometer consists of an absolutely smooth wooden desk on which the document may be attached. It is constructed on an incline to facilitate observation. Two bearings, one at each lower corner of the board holds a guide screw with a thread of 10 turns per inch. The guide screw goes through a threaded nut on which is mounted a guide ruler. Any turning of the screw will move the nut and ruler. This ruler can be moved over the surface of the board for studying alignments and for measuring documents.

At the extreme right of the guide screw is mounted a double drum or knob which is divided in such a way that they may turn separately or together. The second or measuring drum has a scale divided into 127 equal parts corresponding to the travel of the ruler. The double drum construction meets the requirement of being able to bring the "O" of the measuring drum into position with the indicator when starting measurements. On the lower part of the board there is a fixed scale, parallel to the guide screw. The gauge of this scale is 10 division per inch and is used to count the complete turns of the measuring drum.

To facilitate a quick determination of the amount of travel of the ruler, a table of values is used in connection with this machine. Two photographs are used to illustrate this machine. (Note submitted by David J. Purtell of the Chicago Police Department Scientific Crime Detection Laboratory.)

Invitation to Contributors

The American Journal of Police Science is an open forum devoted to the advancement of technical and administrative methods in the police profession. The Editorial Staff welcomes comments on and criticisms of the material which appears in this Journal and stands ready to publish constructive discussions and the results of research by all workers in this field of applied science. Manuscripts and letters should be forwarded directly to the Editor, Ordway Hilton, 15 Park Row, New York 7, New York.