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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Joseph D. Nicol*

The Mercury Finger Print "Scare"—F. J. Sirchie takes issue with the recent reports on the hazard of constant use of mercurial fingerprint powders. In his discussion in the *Fingerprint and Identification Magazine*, 31:5-7 (May, 1950) he points out the lack of case histories in the United States involving any fingerprint technicians. He concludes that since hydrargyrum-cum-creta is manufactured to be used as a medicine it can have no injurious effects when used as a fingerprint powder. No statistics are given regarding the vapor pressure of mercury when mixed with chalk and honey.

Seminar and Training Courses in Arson Detection and Investigation—The Sixth Annual Seminar for Arson Investigation was held May 8 - 12 at Purdue University. The following subjects were presented and discussed: Trends and Training for Arson Control; Check Your Arson I.Q.; Elements of Effective Investigation; Developing Investigative Leads from Observations; Training and Reference Materials; This is Arson; Investigating the Noronic Ship Disaster; Determining the Cause of the Fire—Electrical Fires; Arson Motives and Resultant Investigative Action; Circumstantial Evidence in Arson Cases; Evidence in Arson Investigations; Forum—A Critical Analysis of Successful and Unsuccessful Arson Investigations; Sources of Background Information; Psychological Aspect of Arson Investigations; Scientific Aids for the Arson Investigator; Arson Photography—Its Use and Abuse; Forum—How the Technician Can Aid the Investigator; The Art of Preparing Effective Reports; Fraud Fire Problems; Incendiary Devices and Explosions; Automobile Fire Investigations; How to Question Children; Forum—Handling the Juvenile Fire Setter; Techniques of Effective Interrogation; Trends in Confessions; What the Autopsy Can Prove; and The Investigator's Professional Responsibility. Further information may be obtained by writing Professor J. L. Lingo, Director, Public Safety Institute, Purdue University, West Lafayette, Indiana.

Advisability of Shooting Bullet Holes in Gasoline Tanks of Burning Motor Vehicles—A discussion of this subject is to be found in the *Bulletin of the Bureau of Criminal Investigation of the New York State Police Department*, 15(1):1-2 (1950). The National Fire Protection Association advises strongly against this procedure as being ineffective and dangerous and, in fact, may only increase the likelihood of explosion of the contents of the tank. Where local fire departments can be summoned early enough there is little danger of explosion. In more remote areas the police are advised to clear the area of people and not to attempt to vent the tank.

Metal Transfer in the Cutting Process—The possibilities of changing patterns in comparative micrography studies and the necessity for plausible explanations of the change are of considerable interest to police technicians. Proof of the fact that metal adheres to a cutting edge and becomes a cutting tool itself can be found in a discussion of metal transfer in the *Journal of Applied Physics*, 21:349-50 (1950), by M. C. Shaw and C. D. Strong, Jr. Using radio-

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active metal, Shaw and Strong found that the cutting edge of tools was built up even under the most ideal conditions of lubrication and cutting speed. Since the built-up edge is constantly changing this would account for the difficulties encountered when tool marks are to be duplicated.

Latent Fingerprint Developers—The history of fingerprint powders is related by C. Campbell in *The Police Journal* (London), 23:143-56 (April-June, 1950). A description is given of the poisoning effect derived from the use of powder containing mercury. A non-poisonous powder is described as follows: One part zinc sulphide, C.P., one part zinc oxide, C.P., one part barium sulphate, C.P., one part titanium dioxide, C.P., one part bismuth oxychloride, C.P., (all above to sieve through 200 mesh), and one-fourth part calcium carbonate (ppt.) to sieve through 70 mesh. All parts are by weight. This powder is called Lanconide and is said to be quite sensitive.

Chemical Detectives—Dyes suitable for the apprehension of false fire alarm setters are listed in an article in the *Bulletin of the Bureau of Criminal Investigation of the New York State Police Department*, 15: (1) 7-9 (1950). Visual indications may be found by using malachite green, gentian violet, or aniline dyes. Mixing the dye with vaseline will prevent its being washed away by rain if it must be applied to exterior surfaces. Fluorescent dyes may also be used and may be detected by a portable ultra violet lamp. Such dyes are: Acridine; Anthracene; Benzoic acid; Berberine; Chlorophyll; Chrysene; Curcumin; 8-Diaminoacridine methochloride; Dimethylnaphtheurhodine; Eosin; Naphthol; Fluorescein; and others.

Headlight Glass—The problems of identification of Sealed Beam headlamps is discussed in the *Bulletin of the Bureau of Criminal Investigation of the New York State Police Department*, 15: (1)2-6 (1950). The types of lamps manufactured and their uses in various makes of cars are related with the cautionary note that the lamps are interchangeable and little value is to be found for the purpose of tracing a recently manufactured vehicle.

Methadon Hydrochloride. Optical Properties, Microchemical Reactions and X-Ray Diffraction Data—Clifford E. Hubach and Francis F. Jones present physical and chemical properties of methadon hydrochloride. Seven reagents are listed which give characteristic microscopic crystals in dilute solution. In the case of single crystals, measurement of optic axial angle, extinction angles, and refractive index can be made. Interference figures are also utilized. X-ray diffraction and ultraviolet absorption spectra can also be used to advantage. (Methadon is classified as a narcotic. It is one of the synthetics and is also sold under the names dalophine, amidoñe, etc.) *Analytical Chemistry*, 22:595-598 (April, 1950). (Submitted by Clemens R. Maise, St. Louis Police Lab.)

Fractional Sublimation on a Removable Transparent Film—An improvement over the usual sublimation apparatus is described by Alexander O. Getter, Charles J. Umberger, and Leo Goldbaum. (*Analytical Chemistry*, 22:600-603 (April, 1950)). Here the sublimate is collected on a removable plastic film which enables the technician to perform chemical tests to the crystals directly on the film or make microscopic examinations. The process is carried out under reduced pressure permitting the sublimation of a larger number of

organic substances. Effective separations of salicylic acid and barbituric acid derivatives were made by the authors. (Submitted by Clemens R. Maise.)

Safety to Life from Fire—In a lecture to the College of Engineering of the University of Kentucky, G. H. Parker points out the necessity for building design engineers to be safety conscious. With many well chosen illustrations Parker shows that many lives and much property could be saved if the engineer properly designs the original building. Fire and arson investigators may obtain copies from The Kentucky Inspection Bureau.

Investigations on Building Fire. Part I. The Estimation of the Maximum Temperature Attained in Building Fires from the Examination of the Debris—T. W. Parker and R. W. Nurse (*National Building Studies*, Technical Paper No. 4) studied the possibilities of estimating actual fire temperatures from the condition of debris after the fire. Such materials as small pieces of metal, glass, and ceramics lend themselves to such a study since their reactions to various temperatures differ. The determined temperatures are of course localized to the original position of each item. The degree of precision is determined by knowledge of the duration of the fire. The extenuating circumstances are discussed, and a temperature scale is given based upon commonly occurring materials.

Part II. The Visible Changes in Concrete or Mortar Exposed to High Temperature—G. E. Bessey studied the colors produced in building materials as related to the temperature and temperature gradients encountered. Samples were heated at various temperatures and for varying lengths of time and the color observed. It is concluded that the resulting colors are consistent enough to give a fair estimate of the temperature of an actual fire. (R. C. Steinmetz.)

NEW PRODUCTS

EDITOR'S NOTE: It is the purpose of this additional service to the readers of the Journal to call their attention to new products deemed helpful in police fields. Data presented will be abstracts of the manufacturer's literature or reports of demonstrations. Only those products considered most suitable to police science will be included. The mention of any product in this Journal, however, is not to be construed as a recommendation by the Journal.

Low Power Portable Microscope—A low power, 20x and 40x, microscope with built in reticule and light is offered by the Clarkstan Corporation of Los Angeles as a field microscope. A high eye-point ocular is provided so that the instrument may be used with glasses. The Clarkstan Industrial Microscope may find useful application in field evidence recovery kits.

Bullet Comparison Microscopes—The Bausch and Lomb Optical Company has adapted their comparison microscope to work in the Model L Photomicrographic bench. The bench is equipped with a counterbalanced camera and a sliding optical bench arranged so that the visual examination may be made at one end and then the entire comparison microscope may be moved on the optical bench until the camera and eyepiece are aligned and the picture taken. The specifications for the comparison microscope are essentially the same as in previous models.

FOREIGN LANGUAGE PERIODICALS AND ARTICLES OF INTEREST IN THE
FIELD OF POLICE SCIENCE*

Compiled by

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Algemeen politiebld van het Koninkrijk der Nederlanden. The Hague. 99th year, no. 7-8, April 8 and 22, 1950.

F. Lassche, *Gevangeniswezen in nieuwe banen* (New ways in penology) (no. 7, p. 131-133; no. 8, p. 155-157).

Annales de médecine légale. Paris. no. 1-2, Jan./Feb.-March/April, 1950.

H. Griffon, M. Janvier (et al.), *Étude des propriétés pharmacodynamiques des drogues utilisées par les toxicomanes et les trafiquants* (A study of the pharmacodynamic quality of drugs utilized by dope fiends and peddlers) (no. 1, p. 5-12).—J. Bourret, H. Fraisse, F. Serusclat, *L'intoxication par la picrotoxine. A propos d'un cas de suicide par ingestion de coque du Levant* (Poisoning by picrotoxin. A case of suicide by ingestion of *occulus indicus* (fishberry)) (no. 1, p. 13-20).—Maurice Rosa, *Un cas typique d'expertise judiciaire faite en collaboration intime par les médecins légistes et l'expert en balistique* (A typical case of a judicial examination made by close collaboration of legal medicine and experts in ballistics) (no. 2, p. 89-91).

International criminal police review. Revue internationale de police criminelle. Official organ of the International criminal police commission. Paris. Fifth year, Jan.-April 1950, no. 34-37.

Ch. Gilliéron, *Police photography in small format* (no. 34, p. 3-9 no. 35, p. 38-44; no. 36, p. 75-83).—J. Kadlec, *Identification criminelle du fusil-mitrailleur* (Criminal identification of automatic arms) (no. 34, p. 19-21). J. E. Hoover, *The F. B. I.'s field police training schools* (no. 37, p. 98-100).—J. Kadlec, *The construction of safes and bank strong rooms*. pt. I (no. 37, p. 101-109).

Kriminalistik. Zeitschrift für die gesamte kriminalistische wissenschaft und praxis. Heidelberg. 4th year, heft 7/8, April 1950.

Dr. Frey-Sulzer, *Die bedeutung des kleiderstaubes in der kriminalistik* (The importance of clothes dust in criminology) (p. 76-80) Walter Kallfelz, *Die Alkohol-blutprobe* (The blood test with regard to alcohol) (p. 87-90).

Kriminalistika. Review for the criminology and the criminal law. Prague. 4th year, no. 11-12, Nov.-Dec. 1949.

Emanuel Vleck, *Úmrtí zavinená zvířaty* (Death caused by animals) (p. 147-153) (The articles in *Kriminalistika* have summaries in English, French and Russian.)

Die neue polizei. Monatliche fach- und lehrzeitschrift der polizeiorgane. Munich. 4th year, no. 3-4, March 15, April 15, 1950.

W. Ruml, *Die beweiskraft der maschinenschrift* (Typewriting as conclusive proof) (no. 3, p. 35-37; no. 4, p. 52-55).

*All periodicals listed are available in the Elbert H. Gary Library, Northwestern University School of Law, 357 East Chicago Ave., Chicago.

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Revista de la Escuela de estudios penitenciarios. Madrid. Año V, Dec. 1949, no. 57; año VI, Jan. 1950, no. 58, Feb. 1950, no. 59.

Antonio Alvarez de Linera, *Lecciones de psicología* (Lectures in psychology) (no. 57, pp. 52-57; no. 58, pp. 77-83; no. 59, pp. 102-109) Cesar Camargo, *El psicoanálisis y la criminología* (Psychoanalysis and criminology) (no. 57, pp. 58-71; no. 58, pp. 45-51; no. 59, pp. 95-99)—Antonio Quintano Ripollés, *Posibilidades criminológicas de la neurocirugía: la lobotomía* (Criminological possibilities of neuro-surgery: lobotomy) (no. 58, pp. 5-11).

Juan Lorca Canovas, *Dactiloscopia. Ordenación y colocación de tarjetas en un archivo dactilar* (The method of arrangement of the cards in an dactyloscopic archive) (no. 59, p. 88-94).

Revue de criminologie et de police technique. (Geneva. Vol. 4, no. 1, Jan./March 1950.

L. Reutter, *L'importance et le rôle de la toxicologie en matière criminelle* (The importance and the part of toxicology in criminology) (p. 44-47).—W. Hepner, *Utilisation des rayons invisibles dans la recherche des traces en criminalistique* (Utilization of invisible rays in the search for traces in criminology) (p. 54-70).

Revue de droit pénal et de criminology. Publiée sous les auspices du Ministère de la justice avec le concours de la Fondation universitaire de Belgique. Brussels. 30th year, 1949-50, no. 6, March 1950.

Jacques Ley, *La psycho-chirurgie* (Psycho-surgery) (pp. 569-581).