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Police Science Technical Abstracts and Notes

POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Edited by
Joseph D. Nicol*

Abstractors
John F. Williams† William E. Kirwan‡ Ordway Hilton§

Spectrophotometric Determination of Fluoride—E. D. Schall and H. G. Williamson, *J. Assoc. Offic. Agr. Chemists, 38* (2): 454 (May 1955). The method described adapts the bleaching of the colored complex of titanium and ascorbic acid by fluorine to quantitatively estimate fluoride. Specimen is ignited with magnesium acetate and distilled from perchloric acid solution after precipitation of chloride with silver carbonate. The color is then developed in a buffered solution of titanium and ascorbic acid reagents and read at 360 mμ. Fluoride values are taken from a standard curve. Concentrations of 1 p.p.m. can be determined, but the range cannot be extended much beyond 50 p.p.m. The method has been applied to rock phosphate and mineral feed supplements but should be adaptable to other materials. (JFW)

Identification of Rodent Fur Hairs—Dorothy B. Scott, *J. Assoc. Offic. Agr. Chemists, 38* (2): 503 (May 1955). Differentiating characteristics of the "medullary unit" of hairs from rat or mouse, rabbit, squirrel, and muskrat are described and illustrated. A method of mounting in glycerine jelly is outlined. (JFW)

Determination of Barbiturates in Pharmaceuticals—Felice A. Rotondaro, *J. Assoc. Offic. Agr. Chemists, 38* (3): 809 (August 1955). The author discusses several methods of determining barbiturates and concludes that they may be unified into a single relatively simple extraction procedure in which chloroform is used as solvent providing adequate safeguards are used to insure the extraction of the pure barbiturate free from possible acidic and neutral decomposition products or contamination or both. A bicarbonate or other buffer solution at pH 7.2 to 7.5 is necessary to purify the barbiturate extract. Variations of absorbance of the barbiturates in solution may be used in differentiating the various barbiturates. (JFW)

Analysis of Lipstick—John E. Clement, *J. Assoc. Offic. Agr. Chemists, 38* (3): 838 (August 1955). A scheme of analysis for lipstick is outlined which separates the lipstick ingredients into the following groups: Lakes and fillers, hydrocarbons, waxes, ricinoleic acid esters, and fluorescein dyes. (JFW)

Principles of Precision Colorimetry—Charles N. Reilley and Crayton M. Crawford, *Analytical Chemistry, 27* (5): 716 (May 1955). The authors discuss the effects of slit width, sensitivity, and dark-current knob setting on spectrophotometric precision. Four methods are discussed, two of which are new. The precision of the various methods is indicated, and in conclusion it is pointed out that the overall error will not be better than the care with which volumetric, chemical, and other non-instrumental processes are carried out, irrespective of the method used. (JFW)

Distillation Micromethods for the Analysis of Petroleum—A. R. Javes, Christian Liddell, and W. H. Thomas, *Analytical Chemistry, 27*

*Technician, Dade County C.B.I. Laboratory, Miami, Florida.

†Technical Laboratory, Missouri State Highway Patrol.

‡Director, New York State Police Scientific Laboratory, Albany.

§Examiner of Questioned Documents, New York City.

(6): 991 (June 1955). Apparatus and methods of distilling, fractionating, and vacuum distilling specimens of from 0.8 to 5 ml. are described and illustrated. (JFW)

Colorimetric Determinations of N-Phenyl-1-Naphthylamine in New and Used Oils—W. S. Levine and W. A. Marshall, *Analytical Chemistry, 27* (6): 1019 (June 1955). A rapid colorimetric method is outlined for determining N-phenyl-1-naphthylamine, an oxidation inhibitor, in new and used industrial oils. The oil is dissolved in acetone to which diazotized-p-nitroaniline is added to produce a blue violet color. The method is not specific for N-phenyl-1-naphthylamine. Other aromatic amines, if present, may interfere but are not likely to be present in known oil blends. (JFW)

Elimination of the Second Image in Double-Coated Film—William Parrish, *Norelco Reporter, 2:* 67 (July–August 1955). Elimination of the second image produced by focusing cameras is often desirable. Likewise, minimizing the effect of background due to X-ray fluorescence is desirable where specimens high in iron or chromium are irradiated with Cu Kα radiation. Both problems can be treated by masking the back of the film in the first case, and the front in the second, during development. The masking tape is removed before the film is fixed. (JDN)

Development of Ethanol in Blood Samples and Human Organs During Forensic Chemical Practice—R. Bonnichsen, F. Halstrom, K. O. Moller, and H. Theorell, *Acta pharmacol. et toxicol., 9:* 352–61 (1953). Using the alcohol-dehydrogenase method and the Zeisel-Fanto method, the authors demonstrated abnormal distributions of alcohol in the organs of several bodies where no alcohol was indicated in case histories. Bacteriological studies revealed alcohol-producing bacteria. It is the authors' opinion that the alcohol was developed post-mortem. Experiments with specimens of blood drawn under clean, but not sterile conditions, showed alcohol production on standing. If the specimens were obtained under sterile circumstances, no alcohol was produced. It is felt that several organs should be analyzed for alcohol and that the distribution must be normal before valid results can be reported. No studies have been made on blood from living humans. (JDN)

The Preliminary Examination of Documents—W. R. Harrison, *International Criminal Police Review*, Number 89: 175–8 (June–July 1955). To test the authenticity of a document and to provide valuable information proving later alterations, the author recommends that odor, size, impressions, folds and creases, surface holes and other imperfections be recorded before any attempt is made to study the writing or typing. Various examinations should be made for erasures or deletions by cutting. Stamp impressions and the condition of envelopes may indicate evidence of fraud. (JDN)

Method for Simultaneous Determination of Phenobarbital and Diphenyl Hydantoin in Blood—G. L. Plaa and C. H. Hine, *Federation Proceedings, 14:* 1225 (March 1955). The determination of phenobarbital and diphenyl hydantoin in a single blood specimen, is possible by the following method:

Extract 5 ml of whole blood, buffered to pH 8.5–9, with a cyclohexane-butanol mixture. The cyclohexane is extracted with carbonate buffer (pH 11). The optical density difference is measured at 235–260 mμ and is proportional to the quantity of hydantoin. The aqueous phase is acidified and extracted with chloroform. The phenobarbital is removed from the chloroform with buffer, pH 9. The phenobarbital is determined by subtracting the optical density reading at 260 mμ in pH 9 buffer from reading after addition of a few drops of saturated NaOH to the same sample. (JDN)

The People of the State of New York, Plaintiff, v. Henry Kovacik, Defendant—Anon., *Bulletin Bureau of Criminal Investigation*, New York State Police, *20:* 1–9 (1955). A discussion of the New York City case concerning chemical tests for intoxication. (JDN)

A Gas-Operated Shotgun—E. H. Harrison, *The American Rifleman, 103:* 22–4, 83 (August 1955). A discussion of the J. C. Higgins, Model 60, manufactured by High Standard. Takedown is described. (JDN)

The Determination of the Alcohol Content of Biological Fluids by Means of Vanadic Acid—E. Nidic, *Arzneimittel Forschung, 4:* 506–7 (1954). The alcohol in blood, serum, or urine is determined by absorbing the specimen in a filter paper roll supported above 3 cc of a vanadic-sulfuric acid solution in a Widmark flask. The flask is maintained at 85 degrees in a thermostat for 180 minutes. After the reaction is completed and the flask cooled, 20 cc of boiled distilled water is added. A blank is made by diluting 3 cc of reagent with 20 cc of distilled water. The optical density is read using a red filter. Standardization is made against known solutions. The reagent solution is made by dissolving 4.30 gms. of sodium vanadate ($NaVO_3 \cdot 4H_2O$) in 13 cc of distilled water. One hundred milliliters of H_2SO_4 is added with stirring dropwise until the precipitation of red hexavanadate ceases, and then the solution cooled. The solution must be clear; if turbid, it should be heated again. (JDN)

The Determination of Carbon Monoxide in Blood by Microdiffusion Analysis.—M. Feldstein and N. C. Klendshoj, *Canadian Journal of Medical Technology, 16:* 81–4 (1954). Carbon monoxide in blood is determined spectrophotometrically using a palladium chloride solution (0.01 N in N/100 HCl) in a Conway Diffusion Cell. Two milliliters of palladium chloride solution is pipetted into center well, 1.0 ml of whole blood and 1.0 ml of 10% H_2SO_4 are placed in outer compartment, and the unit is sealed with vaseline. A film of metallic palladium indicates presence of carbon monoxide. After standing for one hour, 0.1 ml of unreacted solution is transferred to a 10 ml volumetric flask, 1 ml of a 0.1% Gum Ghatti solution added, mixed, 1.0 ml of 15% KI solution added, diluted to mark, and optical density read at 500 millimicrons. Control of 0.1 ml of original palladium solution is prepared. Calculations are based upon the following equation: (density control − density unknown) (0.528/density control) 420 = Vol. % CO. The procedure is rapid and results compare favorably with gasometric estimations. (JDN)

Triple Verification of the Age of a Questioned Document.—J. F. A. Albert Bessemans, *International Criminal Police Review,* No. 84, 17–24 (Jan. 1955). The age of a disputed document is established by sulfate migration, changes in the character of the writer's style and a comparison of rubber stamp impressions. The method of Mezger, Heess, and Rall was used to show the sulfate migration. (JDN)

Some Scientific Investigations at the National Gallery, London—F. I. G. Rawlins and A. E. A. Werner, *Endeavor, 13:* 140–6 (July 1954). Microsections of paint were mounted in a cold-setting polyester resin (Marco Resin 26C) and cross sections were polished. Micro tests could then be applied to individual layers. Studies were made of natural resins by paper chromatography. The resins were located by using the Halphen-Hicks reaction. A solution of phenol in carbon tetrachloride was sprayed on the chromatogram, and the paper was then suspended in bromine vapors. Old resin films were so oxidized that separation of the resins was no longer possible. In the reverse-phase chromatography, odorless kerosene was the stationary phase, and the mobile phase was isopropanol (65 parts) and water (35 parts.) (JDN)

The Isolation and Purification of Toxicologically Important Drugs, with Emphasis on Alkaloids—*Royal Canadian Mounted Police Crime Detection Laboratories,* Seminar No. 2, March 20–21, 1954. The Second Seminar conducted by the Royal Canadian Mounted Police at their Crime Detection Laboratory, Regina, Saskatchewan, was attended by 19 outstanding scientists. Representations from Canada, New York, Washington, and Pakistan attended. The following papers were presented and discussed:

1. Some Aspects of Forensic Chemistry—Classification of Chemical Evidence, its Prep-

aration and Adduction—by C. G. Farmilo, Ph. D.

2. A Resume of Methods Respecting Extraction Purification and Identification of Drugs as Employed in Connection with Police Case Work at the Regina Crime Detection Laboratory of the R.C.M. Police—by W. Radych, M. Sc.

3. Extraction of Drugs at Various pH Levels—by Charles E. Morgan and Robert E. Vessiny.

4. The Identification of Drugs by Optical—Crystallographic Methods—by Briggs T. White, Ph. D.

5. Serological Examination in Relation to Police Case Work—by G. W. Hay, M. Sc.

6. Isolation and Purification of Drugs from Tissue and Body Fluids—by Charles J. Umberger, Ph. D.

7. Drug Losses during Heating and Evaporation of Solutions—by Charles E. Morgan and Frank Wochinger.

8. Recent Researches by the United Nations Secretariat on Extracting the Alkaloids from Solid Opium—by Charles C. Fulton.

9. The Detection of Country of Origin of Opium by Analysis of Opium Ash—by C. G. Farmilo, Ph. D.

X-ray diffraction patterns, charts, and other descriptive illustrations accompany the report. (WEK)

Photographic Evidence and the Commercial Photographer—R. C. Hakanson, *PSA Photographic Science and Techniques*, Series II, *2* (1): 47–50 (February 1955). Discussion of forensic photography from the viewpoint of the commercial photographer, which is illustrated by several typical cases. Contains some points of value to the police photographer, but no new techniques. (OH)

Use of Color Blind Emulsions in Questioned Document Photography—Joseph Tholl, *PSA Photographic Science and Techniques*, Series II, *1* (4): 134–8 (November 1954). The article points out advantages of color blind emulsions, especially high contrast, for certain questioned document photographic problems. It goes over much of the same ground covered by the author in an article on high contrast photography, and while methods are discussed, suggestions should not be followed blindly as modifications may provide as good or superior results. Note, for example, the advantages gained sometimes by slight enlargement in deciphering indented writing, a procedure which the author advises against. (OH)

Northwestern University Traffic Institute Training Program. 1955–1956—The following courses at the Northwestern Traffic Institute, Evanston, Illinois, are of interest to law enforcements:

Administration and Techniques of Primary Functions of Traffic Police

1955 . . . .

TRAFFIC LAW FOR POLICE, Nov. 7–23—3 weeks—Tuition $135.00

TRAFFIC CONTROL, Devices and Methods for Police, Nov. 28–Dec. 9—2 weeks—Tuition $100.00

CHEMICAL TESTS FOR INTOXICATION, Dec. 12–16—1 week—Tuition $55.00

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ACCIDENT INVESTIGATION, Administration and Techniques, April 16–May 4—3 weeks—Tuition $135.00*

TRAFFIC LAW ENFORCEMENT, Administration and Techniques, April 30–May 18—3 weeks—Tuition $135.00*

ACCIDENT INVESTIGATION, Administration and Techniques, October 1–19—3 weeks—Tuition $135.00*

TRAFFIC LAW ENFORCEMENT, Administration and Techniques, October 15–November 2—3 weeks—Tuition $135.00*

TRAFFIC LAW FOR POLICE, November 5–23—3 weeks—Tuition $135.00

TRAFFIC CONTROL, Devices and Methods for Police, November 26–December 7—2 weeks—Tuition $100.00

CHEMICAL TESTS FOR INTOXICATION, December 17–21—1 week—Tuition $55.00

* Tuition for Combined Accident Investigation and Traffic Law Enforcement Courses (five weeks)—$202.00

Management of Traffic Police Service

1955....

SUPERVISION OF POLICE PERSONNEL, November 28–December 9—2 weeks—Tuition $100.00

1956....

INTRODUCTION TO POLICE MANAGEMENT, January 2–27—4 weeks—Tuition $168.50

POLICE TRAFFIC RECORDS, Analysis and Use of Data, January 30–February 17—3 weeks—Tuition $135.00

PERSONNEL MANAGEMENT FOR POLICE, February 20–March 2nd—2 weeks—Tuition $100.00

SUPERVISION OF POLICE PERSONNEL, March 5–16—2 weeks—Tuition $100.00

TRAINING PROGRAMS AND METHODS FOR POLICE, March 19–30—2 weeks—Tuition $100.00

Southern Police Institute, Spring Term, 1956—It has been announced that the Spring term of the Southern Police Institute, will run from March 26 through June 15, 1956. Applications for attendance must be made at least one month prior to March 26 at the Office of the Director, David A. McCandless, Southern Police Institute, University of Louisville, Louisville, Kentucky. (JDN)

Southern Police Institute, Mid-Winter Seminars—The Southern Police Institute, University of Louisville, announces the Second Annual Mid-winter Seminars as follows: Police Administration, January 2–12, 1956; Delinquent Youth and Society, January 23–February 3; Alcohol and Road Traffic, February 13–24; and Scientific Crime Investigation, March 5–16. Information regarding tuition and applications can be obtained from the Office of the Director.

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

Compiled by Kurt Schwerin†

ALGEMEEN POLITIEBLAD VAN HET KONINKRIJK DER NEDERLANDEN. The Hague. Vol. 104, no. 7, April 2, 1955; no. 13, June 25, 1955.

W. Froentjes, *Onderzoek van bloedsporen in het laboratorium* (The investigation of traces of blood in the laboratory) (no. 7, p. 131–35).—L. J. van der Meulen, *Valse vingerafdrukken en een nieuw aspect* (Counterfeit finger-prints, a new aspect) (no. 13, p. 243–46).

GOLTDAMMER'S ARCHIV FÜR STRAFRECHT. Hamburg. 1955, no. 5.

W. Specht, *Gedanken zur Bewertung von schriftidentitäts-begutachtungen* (Remarks on the evaluation of expert opinions on handwritings) (p. 129–40).

INTERNATIONAL CRIMINAL POLICE REVIEW. Paris. Tenth year, nos. 85–88, February–May, 1955. (English edition)

Ordway Hilton, *Photographic methods for deciphering erased pencil writing* (no. 85, p. 47–50).—Ugo Sorrentino, *The use of finger-prints found on the scene of a crime* (p. 51–52).—Steffen B. Berg, *A new method of testing for seminal stains* (p. 53–55).—M. de Andres, *Finger-tip surgery* (no. 86, p. 66–71).—O. Rosenlund-Hansen, *Soil identification* (p. 76–77).—W. F. Hesselink, *A controversy over a forged document* (p. 78–82).—Jean Pinatel, *Crime and education* (p. 83–87).—G. Nettre, *Euthanasia* (no. 87, p. 98–105).—J. A. Churchman, *Bullet recovery* (p. 109–19).—J. F. Kristensen and Ch. Vesterbirk, *The police in Greenland*, pt. 1 (no. 88, p. 130–36).—F. E. Louwage, *Police methods* (p. 137–38).—A. Echeverri, *Odontological classification* (p. 139–44).—J. L. Kaufman, *Illegal drug traffic* (p. 148–49).

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

†Assistant Librarian, Elbert H. Gary Library, Northwestern University, School of Law.