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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Use of Photography in Detecting and Proving Vote Frauds—Joseph Tholl, *Photographic Science and Techniques* (Section B, *PSA Journal*) 19: 152-5 (November, 1953). The methods used in comparison and identification of cross marks in election fraud investigations with special emphasis on photographic procedure are treated. The need and mode of studying the torn edges of ballots is also considered. A section dealing with photographic equipment and processing procedures is appended. (Submitted by Ordway Hilton.)

A Processing Test Kit for Photographic Solutions—R. W. Henn and J. I. Crabtree, *Photographic Science and Techniques*, (Section B, *PSA Journal*) 19: 140-5 (November, 1953). A kit for determining the condition of the short stop and fixing baths used in processing photographic films and papers as well as for estimating the permanency of the final prints and negatives is described. Indicator papers are used to test the acid condition of the stop bath. Film hypo is checked with regard to acidity and clearing time; while a potassium iodide solution indicates when printing fixing baths should be discarded because of excess silver content. Staining tests for establishing the hypo and silver content of processed prints and films are included. (O. H.)

Technical and Legal Aspects of Scientific Evidence—Daniel T. Dragel, *Illinois Bar Journal*, 42 (1): 18-20 (September, 1953). The author discusses basic laboratory techniques in the investigation of narcotics, chemical tests for intoxication, fingerprint identification, ballistics, and lie detection. He also considers legal decisions and legal procedure of presenting expert testimony with special emphasis on Illinois law in connection with these fields of scientific evidence. (O. H.)

Methods for Eliminating the Image on One Side of Double-Coated X-Ray Film—H. F. Sherwood, *Photographic Science and Techniques* (Section B, *PSA Journal*) 19 (4): 151-2 (November, 1953). In some scientific applications of x-ray film, such as x-ray diffraction studies, autoradiograph, and microradiograph, it may be necessary to eliminate parallax due to two images on a double-coated film when only commercial film is readily available. Two methods are discussed. (1) The unwanted image is chemically removed by taping the film to glass during processing and swabbing the upper side with one-half normal solution of potassium hydroxide followed in a few minutes by brushing with a stiff brush and washing. (2) One side is covered with a waterproof material during developing, and the cover is removed before the film is cleared in the hypo. Several precautions are discussed. (O. H.)

The Products of Combustion in Burning Buildings—F. E. T. Kingman, E. H. Coleman and D. J. Rasbash, *Journal of Applied Chemistry*, 3: 463-8 (October, 1953). Two two-story houses were burned completely, and the rate of fouling and smoke-logging of the air determined. House No. 1, with fiber board walls, allowed the occupants 5-10 minutes from the start of the fire before the air was not respirable. House No. 2, with plaster board walls, extended this period to 10-24 minutes. In both cases the fire burned with freedom until the room oxygen was reduced and then assumed the phase of

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destructive distillation with the production of carbon monoxide, carbon dioxide, hydrogen, and hydrocarbons. Where doors to rooms were closed, the deterioration of the air was delayed.

A Paper-Strip Method of Examining Fuel Oils Suspected of Being Identical—Magnus Herd, *The Analyst*, 78: 383-4 (June, 1953). The method of paper chromatography was applied to the study of fuel oils contaminating the surfaces of navigable waters. Samples to be compared are dissolved in ether, and the dilution is adjusted until it approximates the color of 0.06 N potassium dichromate solution. Identical 12 inch strips of filter paper are suspended to the same depth in 50 mls of the ether solution and allowed to remain thus overnight. The strips are removed, dried, one inch is cut from the lower end, and they are suspended in ether overnight. Under ultraviolet light several bands appear, and these are compared with standards treated in the same manner. Since this is an empirical method, conditions for questioned and standard must be closely duplicated.

Spontaneous Ignition of Spray Gun Residues—Per Sundberg, *International Criminal Police Review*, Number 72: 304-6 (November, 1953). The following studies and their results will be of interest to arson investigators. Sundberg determined the ignition point of nitrocellulose finishes as 140-135°C (282-311°F) when deposited in small quantities. Where the deposit is greater, the ignition temperature is lower. Suitable conditions might be found if nitrocellulose coatings are deposited on surfaces hot enough to produce chemical changes.

The absorption of oxygen is exothermic, and spontaneous combustion is favored if dry spray gun residues are powdery, in large quantity, if the air supply and insulation is satisfactory, if the solvent is of poor quality and the surrounding temperature is high. Four hundred grams of dry residue, spread out, ignited in fifty minutes.

A third condition, that of foreign interacting materials, is mentioned but was not verified by experiment.

A Genuine "Counterfeit"—A. Brüning, *International Criminal Police Review*, Number 72: 307-10 (November, 1953). The analysis of a document case in which it is pointed out that the document examiner must be certain that the health of the writer at the time of writing of the questioned material is substantially the same as at the writing of the standards.

An Ingenious Method of Packing Fragments of Glass Bearing Fingerprints—G. Vanderanwermeulen, *International Criminal Police Review*, Number 72: 311-2 (November, 1953). A roll of strong paper, one inch wide, a paper punch, and a stapler are the instruments needed for this method. A paper strip slightly longer than the peripheral distance of the glass fragment is cut, and oblong holes corresponding to the corners of the glass fragment are punched into the strip. The corners of the fragment are inserted into the holes, and the overlap is stapled. This support will hold the weight of the glass and other fragments packaged on top.

Using the Camera for Speed Control on City Streets—V. P. Conklin, *FBI Law Enforcement Bulletin*, 22: 11-3 (November, 1953). A "Photo Traffic" camera, developed by the Brighton, N. Y., police, records the speed of offending cars by taking two pictures of the vehicle at a set time interval and thus

recording the distance travelled. On a third picture is placed a record of the time, date, place, legal speed, road condition, car license number, and officer's name. After processing, positives are sorted and summons mailed to the registered owner. Other traffic violations can also be recorded with this camera.

Sex Perversion as a Factor in Pyromania Cases—J. M. Reinhardt, *FBI Law Enforcement Bulletin*, 22: 18-21 (November, 1953). A discussion of the compulsive fire setter.

The Identification of Crime Scene Latent Prints in Los Angeles—A. R. McLaughlin, *Finger Print Magazine*, 35: 5-8, 15 (November, 1953). A survey of the Los Angeles Police Department Scientific Investigation Division with emphasis on the Latent Finger Print Section.

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. The mention of any product in this Journal, however, is not to be construed as a recommendation by the Journal.

Microspectrophotometer Cells and Holders—The Microchemical Specialties Company is marketing the Microspectrophotometer Cells and Holder developed by P. L. Kirk for the Beckman Spectrophotometer. Analytical work can be performed on samples as small as 0.2 ml.

Indicator and Reagent Sprays—The Microchemical Specialties Co., Berkeley, California, is marketing all glass reagent spray units in 10ml, 50ml, and 250ml capacity. They produce a fine spray when operated with rubber bulb or low air pressure.

Arson Investigators' Seminar at Purdue University

The Tenth Annual Seminar and Training Course for Arson Investigators will be conducted at Purdue University, Lafayette, Indiana, May 3 to 7, 1954, according to an announcement by Professor Shelby Gallien, Director of Purdue's Public Safety Institute.

This seminar and training course offers an opportunity for specialized study and discussion of arson investigation problems under the guidance of outstanding police and fire specialists from all parts of this country and Canada. The seminar is conducted by the Public Safety Institute of Purdue University, with the cooperation of local, state and national organizations interested in arson control and prevention.

The effective detection and investigation of suspicious fires is recognized today as an important phase of public safety. It is also recognized today as a technical and somewhat specialized field requiring first hand knowledge of modern techniques and methods. Present trends indicate a steady increase in the number of set fires and the use of even more ingenious methods by the arsonist to escape detection. These factors place an even greater responsibility for effective action on the part of all agencies dealing with the investigation of suspicious fires.