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## Police Science Technical Abstracts and Notes

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## POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Joseph D. Nicol\*

**Identify Latents Through a Single Fingerprint File**—The new single fingerprint system currently used by the F.B.I. is described in the *F.B.I. Law Enforcement Bulletin*, 20:7-9 (Nov., 1951). Its major advantage lies in the speed with which prints can be classified and filed. Since the prints are mounted as left hand and right hand, it is possible to compare adjacent prints to bolster comparison hampered by blurred areas; also the latent can be compared with all prints of the same type without having to pull several cards as would be necessary if the prints are filed individually. The prints are grouped according to offence (only the major crimes represented), segregated by hands, and then in order of classification number.

**The Roentgenological Identification of Victims of the "Noronic" Disaster**—A. C. Singleton describes the work done by the Roentgenological teams in the identification of victims of the Noronic ship fire in *The American Journal of Roentgenology and Radium Therapy*, 66:375-84 (Sept. 1951). Where identification by fingerprints was accomplished in six out of 119 cases, or 6 out of 38 suitable for fingerprinting, X-ray study resulted in the identification of 24 out of 35 sets of X-rays obtainable. In only 5 cases were the extremities missing for which roentgenograms were submitted. The success depends upon submitting satisfactory roentgenograms, and Singleton suggests that "routine preservation of all roentgenograms for longer periods of time than is now in common practice, or of microfilming of all roentgenograms before they are discarded might make this type of identification more universally applicable.

**Skidding Danger Increases with Synthetic Tires**—Studies by the National Safety Council's Committee on Winter Driving Hazards, headed by A. H. Easton, are reported in the *Traffic Digest*, 5:20-1 (Nov., 1951). The tests showed that specialized "mud-snow" or "winterized mud-snow" tires may improve the stopping distance over that obtained with conventional or natural rubber tires, but the greatest improvement in stopping ability on snow or ice is still found with reinforced tire chains. In some cases the specialized tires were found to be worse than conventional tread tires.

**Arson and Explosives**—The paper on arson and explosives presented by R. C. Steinmetz at the 58th Annual Conference of the International Association of Chiefs of Police, may be obtained from the Mutual Investigation Bureau, 111 W. Washington Street, Chicago, Illinois.

**The Five Finger System of Finger Print Classification**—The system of classification used by the South African Criminal Bureau is described by Vaughn Sharp in the *Finger Print and Identification Magazine*, 33:3-8, 15-20, 31, 32 (Nov., 1951). The system cannot be abstracted and interested persons are referred to the original for information.

**Loops and Arches in Fingerprint Classification**—Continuing the series on

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Identification, the December issue of the *F.B.I. Enforcement Bulletin* 20:6-8 (Dec., 1951) discusses problems of loops and tented arch classification.

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**Micro-Conical Tipped Homogenizer and its Use in Analytical Procedures**—A. Lazarow and R. A. Portis give the dimensions for a micro-conical tissue homogenizer and discuss its use in the *Journal of Laboratory and Clinical Medicine*, 38:773-6 (Nov., 1951). The homogenizer consists of a plunger, with 8 mm shank, ground to fit the conical tip of a tube 12 mm I.D. Samples of tissue from a few to 50 milligrams have been successfully homogenized in this apparatus and 70% of the material recovered.

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**Searching Single Fingerprints**—The method of classifying single finger prints used by the Glasgow Identification Bureau is discussed by George Maclean in the *Police Journal* (London), 24:264-74 (Oct.-Dec., 1951).

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**The Narcotic Evil**—*Spring 3100*, 22:4-11 (Dec., 1951) contains an excellent treatment of the narcotic problem with many fine suggestions for policemen. The legal phase pertains to New York law, but the factual material, glossary, and illustrations will be found universally applicable.

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**The Specificity of the Desiccation Method for Determining Alcohol in Biological Fluids**—The study of the desiccation method for alcohol in blood or urine is reported by H. W. Smith in the *Journal of Laboratory and Clinical Medicine*, 38:762-6 (Nov., 1951). A 50 ml glass stoppered flask is used as the desiccation vessel. The glass stopper has a rod and cup to hold a filter paper cylinder moistened with the sample, 0.5-1.0 ml of blood or urine. 3 ml of dichromate solution (400 ml 24 N H<sub>2</sub>SO<sub>4</sub>, added to 200 ml redistilled water containing 0.4 gms K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>; solution heated for one hour at 80° C, cooled, and adjusted to 15 N acidity) are placed in the bottom of the flask, and the flask and contents are heated in an oven at 60° C for 90 or 150 min. for 0.5 ml and 1.0 ml samples. After chilling, 20 ml of redistilled water are added, and residual dichromate determined colorimetrically or by titration. The percentage of recovery is excellent, and the method is not interfered with by acetone, paraldehyde, or urotropin.

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**"999" Emergency Calls**—According to the *Police Journal* (London), 24:244-6 (Oct.-Dec., 1951) Police calls can be made as quickly as it takes a householder to dial 999. This system might merit study for small communities in America although it is used successfully even in London. It is also noteworthy that the London Journal points out the impression made on the victim of the crime when he is enmeshed in the red tape which follows the report and apprehension. Good public relations dictates that the maximum of speed and courtesy be exercised in the routine work which follows the citizens encounter.

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**Identification and Comparison of Petroleum Products**—A simple technique for the comparison of petroleum products, particularly when the specimens are very small, has long been needed for use in police laboratories. A recent article "Identification of Petroleum Products by Chromatographic Fluorescence Methods" by Jacob A. Schuldiner, *Analytical Chemistry*, 23 (11): 1676-80 (Nov., 1951) discusses such a technique. Preliminary tests

conducted in this Laboratory, indicate it to be a valuable method for use in comparing very small smears of oil and grease found on the clothing of hit-run victims and samples obtained from under suspected vehicles. Numerous other applications would be apparent to the crime laboratory worker for comparing petroleum products in other types of cases. (David Q. Burd, California State Bureau of Criminal Identification and Investigation Laboratory)

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**Determination of Iron in Used Lubricating Oils by Spectrochemical Analysis**  
A rapid and accurate method is described by John Hausen, Paul Skiba, and C. R. Hodgkins for the quantitative determination of a wide range of iron content in lubricating oils. The method according to the authors gives accurate results in the range of 3 to 3000 p.p.m. of iron. A fixed quantity of internal standard is added to a weighed amount of sample, and 10 drops of the resulting mixture is ashed in the cavity of an electrode. A special electrode design is described so that the wall can be easily removed to expose the ash on a conical tip. The overall accuracy is said to be about  $\pm 5\%$ . *Analytical Chemistry*, 23 (10):1362-65 (Oct., 1951). (Submitted by Clemens R. Maise, St. Louis Police Laboratory.)

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**Spectrographic Analysis of New and Used Lubricating Oils—Accuracies of the order of 10% are claimed by C. M. Gambull, A. G. Gassman, and W. R. O'Neill for the determination of lead and iron and additives such as barium, calcium, zinc, and phosphorus. Two methods are described: A porous cup method and a rotating disc method. Film background read adjacent to the element line is used as internal standard in both techniques. *Analytical Chemistry*, 23 (10):1365-69 (Oct., 1951). (Submitted by Clemens R. Maise.)**

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**Special Atmosphere Excitation in Generalized Semiquantitative Spectrographic Analysis—A quartz chamber surrounding carbon electrodes which are shaped to exact dimensions is described in detail. The primary purpose being to eliminate cyanogen banding and make available useful spectral regions otherwise obscured. James Y. Ellenburg and Louis E. Owen used mixtures of oxygen and helium in the chamber. Data is presented on the semiquantitative determination of a number of different metals using this technique. *Analytical Chemistry*, 23 (10):1512-14 (Oct., 1951). (Submitted by Clemens R. Maise.)**

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**Quantitative Determination of Natural Rubber Hydrocarbon by Refractive Index Measurements—This method by Rachel J. Fanning and Norman Berkkedahl offers a solution to the problem of identifying rubber specimens. The authors state that rubbers from different sources vary considerably in rubber hydrocarbon content: From less than 70% to about 95%. The refractive index of a known weight of acetone-extracted rubber in a known weight of 1-bromonaphthalene is measured in an Abbe-type refractometer. *Analytical Chemistry*, 23 (11):1653-56 (Nov., 1951). (Submitted by Clemens R. Maise.)**

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**Measurement of Refractive Index of Elastomers—Amerlia Arnold, Irving Madorsky, and Lawrence A. Wood give detailed descriptions of apparatus used and procedure for G-R-S rubber. The method has been used for several years as the basis for the determination of bound styrene in copolymers of butadiene and styrene and is currently employed for control purposes in the**

government owned synthetic rubber plants. *Analytical Chemistry*, 23 (11): 1656-59 (Nov., 1951) (Submitted by Clemens R. Maise.)

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**Forensic Science Practice in Smaller Communities**—K. M. Dubowski urges greater use of hospital laboratories in smaller communities for the solution of problems of a forensic science nature. This places certain responsibilities upon the hospital technician over and above the ordinary hospital work and technicians with some background in police science could be induced to engage in this type of civic activity. Several examples of the type of services to be expected are given in the *Annals of Western Medicine and Surgery*, 5:876-81 (Oct., 1951.)

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**Deaths Caused by Carbon Monoxide**—F. R. Dutra points out that carbon monoxide poisoning cases need not always be accidental or suicidal and each case should be thoroughly investigated to eliminate the possibility of homicide. In his article in the *Annals of Western Medicine and Surgery*, 5:787-90 (Sept., 1951), he relates the sources of carbon monoxide and illustrates with several cases. Dutra cautions against erroneously certifying carbon monoxide as the cause of death where the only gas in the area is natural gas.

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**Determining the Origins of Opium**—By the following methods it is possible to establish the geographic origin of opium, according to the *UN Bulletin on Narcotics*, 1:14-9, 42-7 (Oct., 1949): microscopic examination, colorimetric determination of "porphyroxine-meconidine", codeine determination, morphine determination. Determinations of fats, narcotine, papaverine, thebaine, and ash are also useful.

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**Scientific Publications on Narcotic Drugs for 1948**—A bibliography for 1948 on opium, morphine, opium derivatives, coca drugs, cannabis and synthetic drugs is published in the *UN Bulletin on Narcotics*, 2:114-24 (Jan., 1950.)

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### 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.

**Xerography**—The Haloid Company, Rochester 3, New York, is now manufacturing equipment for producing pictures on any surface by Xerography. This process compares in exposure speed with that of photography, and direct positive prints may be made in less than a minute. Gradations in tone are not possible so that its major use in police departments would be in the area of reproduction of records.

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**Galileo Universal Photomicrographic Equipment**—Officine Galileo Di Milano have announced a new photomicrographic camera and microscope. This instrument is console in type and is adaptable to biological, petrographic, and metallographic problems using both reflected and transmitted light.

The image may be viewed directly or on a screen, 5"x7". A photocell is built in to facilitate calculating exposures. The microscope tube may be equipped with accessories for polarized light, dark field, and low angle reflected light.

**Cenco-Polaroid Micrography Camera**—The Central Scientific Company, 1700 Irving Park Road, Chicago, 13, Illinois, has adapted the Polaroid Land camera to micrography. An adjustable camera stand and viewer permits the application of this device to any microscope, and pictures can be obtained at all magnifications. This stand and viewer will work only with the Polaroid camera.

**Polaroid Back for Graflex**—The 4x5 Graphic camera with Graflok back can now be equipped with a Polaroid Land Back which enables the photographer to adapt this technique to many lens and accessory arrangements. The position of the holder does not interfere with the regular operation of the camera.

### NOTES FROM PROFESSIONAL ORGANIZATION

#### International Association of Arson Investigators

The following meetings of the International Association of Arson Investigators have been announced by President George W. Clough:

Monday, April 28	4:30 p.m.	Board of Directors
Tuesday, April 29	8:00 p.m.	Annual Meeting
Thursday, May 1	5:00 p.m.	Board of Directors
Thursday, May 1	8:00 p.m.	Banquet and Installation

All of these meetings are to be held in the Purdue Memorial Union, Lafayette, Indiana.

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

Compiled by  
KURT SCHWERIN\*\*

Algemeen Politieblad van het Koninkrijk de Nederlanden. The Hague. 100th year, no. 21, Oct. 20, 1951.

H. H. Westhof, *De waarde van kinderverklaringen en de bestrijding der sexuele criminaliteit* (The value of children's evidence and the fight against sexual criminality), p. 387-390.

Criminalia. Mexico. 17th year, no. 11, Nov. 1951.

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

\*\*Head, Foreign and International Law Sections, Elbert H. Gary Library, Northwestern University School of Law.

- Gislero Flesch, *La confesión en estado hipnótico en la investigación judicial* (Confession under hypnosis and legal investigation), p. 624-630.
- La Giustizia penale. Rome. 56th year, no. 10, Oct. 1951.
- Carlo Reviglio della Veneria, *L'esame elettro-encefalografico nella perizia medico-legale* (The electro-encephalographic examination in medico-legal experience), pt. I, col. 345-348.
- International criminal police review. Paris. Sixth year, nos. 51-52, Oct.-Nov. 1951. (English edition)
- E. Malespine, *Graphography and its applications* (no. 51, p. 266-273).—W. F. Hesselink, *The examination of hardly visible traces* (p. 274-278).—Kay Schourup, *Determination of time of death. A new auxiliary bio-chemical method* (p. 279-281).—H. J. Weekenshrov, *Dogs in the service of the Dutch state police* (no. 51, p. 282-286; no. 52, p. 322-327).—Ordway Hilton, *Identification of the make of typewriter* (no. 51, p. 287-293).—*Technical installations and processes of the Argentine police* (no. 51, p. 294-298; no. 52, p. 318-321).—R. Grassberger, *Women as defendants or witnesses* (no. 52, p. 306-311).—K. Simpson, *Dental data in crime investigation* (p. 312-317).—*The artisan burglar* (Based on notes supplied by the Chief of the Austrian National Central Bureau), p. 328-333.
- Nordisk kriminalteknisk tidsskrift. Stockholm. 21st year, nos. 7-8, 1951.
- G. Dalström, *Klassificeringssystem för handflateavtryck* (A system of classification for palm prints) p. 73-76.—V. Karesalo, *Om fjärridentifiering av fingeravtryck* (A system for long-distance identification of finger-prints), p. 85-88.
- Revue de criminologie et de police technique. Geneva. vol. 5, no. 3, July/Sep. 1951.
- Supplementary listing: H. Amet, *Un téléimprimeur utilisé par la police suisse* (A new telautograph used by the Swiss police) Free translation of an article published in *Kriminalistik*, Heidelberg, no. 7/8, 1951. (p. XXV-XXVII).