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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Modern Analytical Tools in Criminalistics—G. Machata, *Archiv fuer Kriminologie*, 127 (1/2): 1-21 (Jan.-Feb. 1961). The application of gas chromatography, IR and UV spectrophotometry, flame spectrophotometry and chromatography to the identification of gasoline and petroleum products is illustrated by case problems submitted to the author's laboratory. (JB)

Unusual Characteristics of Automobile Tires—E. Weinig and G. Schmidt, *Archiv fuer Kriminologie*, 127 (1/2): 22-34 (Jan.-Feb. 1961). Certain manufacturing processes may contribute to the identification of rubber tire impressions. For example, some tires may have a slightly but noticeably different tread design from others made in the same mold, in that the zig-zag pattern is not quite symmetrical. This defect was found by the authors to be the result of a slight offset between the two halves of the vulcanizing mold as they are being pressed together. The cooling flange pattern on the tire shoulders would, of course, be similarly offset. Since this slippage is a relatively rare occurrence, some evidentiary value could be assigned this phenomenon when it is found in a questioned tire impression. In the impression under study, the tire diameter could also be determined from the systematic recurrence of wide and narrow cooling flange spaces. In the particular manufacturing process involved the repetition of this flange pattern varies with different tire sizes. (JB)

Forged Documents—J. Mathyer, *Revue Internationale de Criminologie et de Police Technique*, 15 (2): 129-138 (Apr.-June 1961). A survey of forgery detection methods originally presented by the author to a conference on criminal law. A few

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technical footnotes have been added for specialist readers, one dealing with the author's paper chromatography technique (described in the *International Criminal Police Review*, May 1961), and another on the determination of the sequence of strokes between ball-pen lines and typewriting.

Using fixed and washed photographic paper as a transfer medium a number of experiments were made on this type of line crossings. It was found that a ball pen line superimposed on a typewritten impression appeared interrupted at the point of intersection on the lifter. Conversely, a continuous ball pen line was lifted when the order of writing was reversed—typewriting over ball-pen. These indications were found to be "fairly constant", and on that basis a qualified opinion was given on an actual case problem submitted to the author's laboratory. (JB)

Evidentiary Value of Textile Fibers—S. Berg, *Archiv fuer Kriminologie*, 127 (3/4): 97-106 (Mar.-Apr. 1961). Fifty samples of "grey" wool suit material were examined and classified for differentiation purposes. By using the five criteria of fiber morphology, composition, optical color comparison, and reaction of the dye stuffs to HCl and NaOH, 85% of the samples could be differentiated. It was found that 32 of the fabrics sampled included brown, blue, red, and green fibers. When considered alone, these inclusions made possible a differentiation of 98% of the samples.

The reported study was prompted partly by the increased submission of microscopic fiber materials to laboratories since the introduction of the tape-method of collecting and preserving such evidence at crime scenes (Frei-Sulzer, 1951). (JB)

"Cattle Guns" as Fatal Weapons—W. Schollmeyer and M. Disse, *Archiv fuer Kriminologie*, 127 (3/4): 85-96 (Mar.-Apr. 1961). An unusual

lethal weapon is the so-called "cattle gun" which is commonly used for slaughtering cattle by butchers and farmers in Europe. Several types of such guns are on the market, but all function on a principle similar to that of the "Ram-set" gun, i.e. a blank cartridge (usually 9mm) drives a steel bolt forward through the muzzle which is pressed in contact with the animal's head. The bolt, which is retracted by a coil spring, is from 10 to 13 mm. in diameter and from 5 to 10 cm in length.

Six suicides and one murder involving such guns are reported from the author's experience. The statistics of 43 fatal incidents are also cited from the literature of the past twenty years. (JB)

Fractures in Dental Enamel—U. Fuchs, W. Pilz and B. Zerndt, *Archiv fuer Kriminologie*, 127 (5/6): 136-155 (May-June 1961). The cranium of a 25-year-old murder victim, exhumed after fifteen months in a shallow grave, displayed a number of unusual dental fractures. Some of the front teeth had diagonal fractures, and a few wedge-shaped fragments were missing. After a study of the etiology of fissures and fractures in dental enamel and after a series of experiments with other crania, it was concluded that the disputed fractures were due to maceration combined with post-mortem chemical and physical changes rather than to ante-mortem violence. The loosening of some fragments was further attributed to improper packaging of the cranium for shipment to the institute. A well-illustrated paper with numerous references. (JB)

Deliberate Mutilation of Auto-loading Pistols—K. Lamprecht, *Archiv fuer Kriminologie*, 127 (3/4): 77-84 (Mar.-Apr. 1961). Two cases are reported involving suspected weapons which showed evidence of deliberate mutilation designed to prevent later identification. In the first case (Dreyse pistol), the firing pin head had been filed, and the detachable breech-face and the extractor had been removed. In addition, the muzzle was so deformed as to prevent test firing. The second weapon (Czech pistol) was in the possession of a murder suspect, and displayed fresh file marks on the firing pin, extractor, and ejector. It was further established by admission of the suspect that the bore surfaces had been altered by pouring sulphuric acid through it. These efforts were almost successful in that no identification could be made by test bullets and cartridge cases on the basis of marks

from the rifling surfaces, ejector, or firing pin. Only the extractor hook had not been sufficiently filed down. A very small area remained on this part which contained enough individual characteristics to enable the laboratory examiner to give a positive opinion. (JB)

Estimating the Time of Death—Ed L. Breazeale and Eugene F. Suarez, *Police*, 6 (2): 49-51 (Nov.-Dec. 1961). The determination of potassium in cisternal spinal fluid is reported to enable time of death to be determined up to 38 to 40 hours. (JDN)

What a Fireman Should Know About Arson—California State Department of Education, Bureau of Industrial Education, *The Fire and Arson Investigator*, 12 (2): 28-57 (Oct.-Dec. 1961). A review of observations to be made on arrival at a fire, during the fire fighting, and during salvage. Detection of arson is stressed in all three phases. (JDN)

Electrical System Fire Hazards—K. A. Harkness, *The Fire and Arson Investigator*, 12 (2): 1-6 (Oct.-Dec. 1961). Capacity of wires and sockets and their proper use is discussed. Causes of fire hazards in electrical systems are mentioned. (JDN)

A Simple Micro-Mull Technique for Obtaining Infra-Red Spectra—C. Szonyi and J. D. Craske, *Analytical Chemistry*, 34 (3): 448 (March 1962). A micro-mull method using 0.3 to 0.5 mg. of sample is described. A droplet of paraffin oil is placed directly on the rock salt window. The specimen, in a volatile solvent (1%), is transferred to the oil droplet by means of a microsyringe. Pressure of a second rock salt plate homogenizes the mixture. Results are comparable to the macro-mull method. (JDN)

"Bleeper": A Police Burglar Alarm—David Bradley, *The Police Journal* (London), 35 (1): 7-11 (Jan.-Feb. 1962). A radio transmitter, actuated by a pressure device or other detecting unit, continuously transmits a signal until shut off. The transmission, on police frequency, consists of high pitched "dots" for 15 seconds followed by 15 seconds of silence, repeated in this cycle. By using small power, this does not interfere with car transmission except at close range. (JDN)