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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Edited by
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Abstractors
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Pneumatic Tires in Criminalistics—J. Holtz and E. Angst, *Kriminalistik*, 14 (5, 6, 7): 198-202, 245-248, 316-320 (1960). An examination of multiple tire marks may reveal the dynamics of the vehicle producing them. Such things as, braking, acceleration, loading, and turning are observable. By measuring tread and wheel base the make of car might be determined. The usual procedures for identification of the specific vehicle are discussed also. (JDN)

Criminal Technical Equipment and Use in Practice—The Gas Chromatograph—M. Frei and J. Meier, *Kriminalistik*, 14 (7): 312-6 (1960). Gas chromatography is discussed in general terms. Its use in the analysis of petroleum products, gaseous poisons, explosive mixtures of gases, perfume and pyrolysis products of surface coatings is suggested. (JDN)

Murder by Suffocation—C. T. Dotter, *Medical Radiography and Photography*, 37 (1): 19 (1961). Death resulted from injuries received in a drunken fight. X-rays revealed that the upper denture had been forced into the posterior oral pharynx. A fragment of a soft drink bottle was found lodged in the denture. (JDN)

International Criminal Police Cooperation—M. Sicot, *Kriminalistik*, 14 (5): 185-91 (1960). A discussion of the purpose, formation, organization and operation of the International Criminal Police Commission (Interpol) in the world community. (JDN)

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Cleveland Department Reports on Relative Penetrating Power of Four Types of Loads in Public Safety Study—Anon., *Remington-Peters Law Enforcement Officers Service Bulletin*, 16 (1): 1-3 (1960). Tests were conducted using the following weapons and ammunition: (1) 12 ga. Remington "Riot" Shotgun and Remington "Express" shells with 00 buckshot, (2) 12 ga. Remington "Riot" Shotgun with one ounce Remington slug, (3) .38 Special, 4" barrel with 200 grain bullets, and (4) .45 caliber Thompson Submachinegun with 230 grain MC bullets. It was concluded that 00 buckshot load proved safest to innocent bystanders, yet, could be as effective as the .38 Special. (JDN)

The Effects of 0.10 Per Cent Blood Alcohol on Driving Ability—J. D. Chastain, Texas Department of Public Safety, Austin, Texas. A report of the driving performance of six subjects before drinking and after attaining 0.1 to 0.12% blood alcohol. All drivers deteriorated in driving performance. (JDN)

Forensic Odontology and Identification—C. Basauri, *International Criminal Police Review*, No. 145: 45-51 (Feb., 1961). A dental form is described by which an individual might be identified. Personal data, symbols for the dental diagram and a chart for the diagram of teeth make up the front of the record card. On the back of the card, any peculiarities of the teeth can be noted. The action of heat on teeth is also discussed. In addition to the use of dental evidence, palate ridge patterns are proposed as a means of identification. (JDN)

Microscopy in the Crime Laboratory—R. J. Kuhn, *The Crystal Front* 2 (1): 8-9 (June, 1961). A brief survey. (JDN)

Theft Detection Chemicals—W. Stedry, *Kriminalistik*, 14 (5): 204-7 (1960). A survey of theft detection powders. The author suggests that combinations of powders of different properties be used. The broad groups suggested are; indicators (phenolphthalein, thymolphthalein), substantive dyes (eosin, fuchsin, rhodamin B, chrysodinebase B, astrachrysoidin R), fluorescing substances (basic fluorescing and acid fluorescing). Caution should be exercised in interpreting findings since some of the chemicals are available to the public and might be acquired innocently. (JDN)

Dactyloscopic Identification—Ernst Steinwender, *Finger Print and Identification Magazine*, 41 (10): 3-16 (April, 1960). A discussion of the minimum requirements for an identification of a single or partial fingerprint found at a crime scene. The author suggests that less "check points" are necessary if deltas and cores are present, than when these characteristics are absent. (JDN)

Color Photography and the Courts—E. C. Conrad, *Finger Print and Identification Magazine*, 42 (10): 3-13 (April, 1961). A review of the present legal position of color photography. As yet, the courts have not erased the prejudice established by over one hundred years of black and white photography. (JDN)

Macrophotography in Industry—J. Giebelhausen, *Grossbild Technik*, 1959 (3): 4-11 (1959). A brief survey of the problems of indoor macrophotography. (JDN)

New Firearm, .32 Cal. HIJO—K. I. Gleason, *Bulletin, Bureau of Criminal Investigation*, New York State Police, 26 (2): 12 (1961). The HIJO, .32 cal. Automatic, is rifled with 6 grooves, right hand twist. Land width, .060"; groove width, .101". Action is blow back with a visible hammer. Weapon is manufactured by Galesi, Brescia, Italy and distributed in America by Sloan's Sporting Goods, New York City. (JDN)

A New Concept in the Development of Latent Fingerprints—H. L. MacDonell, *Bulletin, Bureau of Criminal Investigation*, New York State Police, 26 (2): 7-9 (1961). By use of a magnetic device bearing finely divided magnetic powders, latent fingerprints are developed. These prints are superior in contrast and detail to prints developed by normal powder procedures. Grey and black pow-

ders are available. Prints on ferrous objects cannot be developed. (JDN)

Match Book Game—W. E. Kirwan, *Bulletin, Bureau of Criminal Investigation*, New York State Police, 26 (2): 5-7 (1961). A report on a new gambling game found in cigar stores. The game is called "Pak-O-Match". Numbers are contained on the inside of the book, stapled into the "striker" portion. Tickets, five to a book sell for five for fifty cents. The profit from \$320.00 worth of tickets is \$94.00. (JDN)

Photography with a One Bath Process—Mobile Crime Scene Units might explore the utility of Unibath photo processing. This kit, produced by the Cormac Chemical Corporation, would eliminate the trauma of discovering, too late, that crime scene photographs were less than satisfactory. (JDN)

Quantity of Acid Phosphatase for the Determination of Seminal Stains—A. Boucherde, F. Serusclat, J.-P. Peyle, and J. Dodu, *Annales de médecine légale*, 41: 117-24 (Jan., 1961). Supports the contention of 20 KA units for a positive finding. No discussion of interferences. (JDN)

The Separation of Alkaloids and Related Substances from Urine—The Use of Cation Exchange Resins—S. L. Tompsett, *Acta Pharmacologica et Toxicologica*, 17: 295-303 (1960). Specimens of urine, treated on columns of Dowex 50 x 12 (200-400 mesh), yield alkaloids free from the normal basic constituents of urine. A small column is constructed in a 70 x 10 mm tube with sintered disk using 3 gms of resin. A 100 ml sample can be processed through a small column. For larger samples, up to 1 liter, a column 140 x 15 mm with sintered disk is constructed using 30 gms of resin. The sample is dissolved in 100 ml of 0.1 N HCl and passed through the column, eluted with 80 ml portions of 0.5 N, 2.5 N, 5 N, and 8 N HCl, successively. The portions can be analyzed separately or combined or extracted for additional treatment. The author processed morphine, piperidine, hexazene, codeine, brucine, strychnine, tropine, atropine, nicotine, pethidine, amphetamine, narcotine, paludrine, quinine, and mepacrine. A procedure is also given for the determination of alkaloid content of acid eluates. The acid eluate is made alkaline and extracted with benzene, or neutralized and ex-

tracted with chloroform, isopropanol (3:1) mixture. The extracts are separated on paper. (JDN)

Detection of Parathion Poisoning—*Acta Pharmacologica et Toxicologica*, 17: 304-14 (1960). "Several methods for isolation of parathion from biological materials have been described. Besides by steam distillation parathion has been isolated from strongly acid H₂SO₄ solution or from ethanol extract saturated with CaCl₂ by extraction with organic solvents." (JDN)

Practical Use of Results of Biochemical Tests for Alcohol—S. R. Gerber, *American Bar Association Journal*, 47, 477-81, discusses the need for interpretation of all biochemical test results in cases involving alcohol intoxication. He points out that many individuals who have between 0.05 per cent and 0.15 per cent alcohol by weight in the blood may actually be under the influence of alcohol or intoxicated. Many courts tend to dismiss these cases based entirely upon the fact that the alcohol concentration is below 0.15 per cent. Other observations by medical experts can establish that the individual is or is not intoxicated. (OH)

Melting Point Analysis of Micro-Samples—K. Jarosch and F. Stitz, *Archiv fuer Kriminologie*, 126 (1/2): 12-14 (June-July, 1960). The determination of melting points in micro-samples (down to 1 gamma) in forensic practice is discussed. Two cases are described in which pharmaceuticals were identified with a Kofler apparatus. Illustrated with several photomicrographs. (JB)

Analysis of Inks, Dyestuffs, and Lipstick Samples By Paper Chromatography—S. N. Tewari, *Archiv fuer Kriminologie*, 126 (1/2): 26-32 (June-July, 1960). Twelve fluid and ball pen inks were separated by paper chromatography: n-butanol, acetic acid, water, 4:1:5; ascending method. The results are reported in tabular form giving visible colors, fluorescing colors, and R_f values. Nine lipstick samples were similarly examined. An English translation is appended. (JB)

Homicidal Electrocutation in a Bathtub—W. Schwerd and L. Lautenbach, *Archiv fuer Kriminologie*, 126 (1/2): 33-49 (June-July, 1960). A 53-year old man was convicted of the premeditated murder of his wife while she was sitting in a bathtub. In this stranger-than-fiction case the man admitted applying 220 V house current to the well-

grounded body by means of a "terminal plate" which he ostensibly had used while engaged in the repair of an electric clock. Although the husband's first statements to the police had explained the death as accidental, his wife having fallen in the tub and been scalded by boiling water, his story was soon contradicted by the evidence. The external post mortem findings included several spots on the victim's back which conformed to the outline of the terminal plate with the heads of three large bolts affixed to it. There was also a pale band with bluish edges almost encircling the body horizontally which was attributed to the body's ground contact at the water line. The premeditated nature of the killing was strengthened by the fact of the husband's experience with electrical appliances and by his admission that he had previously experimented with electrocuting—at 220 V and 4,000 V, respectively—two dogs in the bathtub. (JB)

Circular Fractures in Plate Glass—A. Nickenig, *Archiv fuer Kriminologie*, 126 (3/4): 99-100 (September-October, 1960). A hole broken in a thick (4 mm.) plate glass window during a burglary was found to be almost perfectly circular. It was about 3" in diameter and displayed typical concentric "rip-marks" along the edges. According to the burglar, apprehended later, the unusual fracture came about after he repeatedly hammered on the glass with the wooden handle of a screwdriver. The author concludes that such circular fractures, which are practically impossible to duplicate experimentally, are caused accidentally by a combination of force and particular stresses within the glass without regard to the shape of the striking object. (JB)

Security Problems in the Zoo—I. Krumbiegel, *Archiv fuer Kriminologie*, 126 (3/4): 61-69 (September-October, 1960). An interesting discussion of the security problems peculiar to zoological gardens, including sadistic injury, poisoning, deliberate release and theft of animals, and patrons committing suicide in the lion pit. (JB)

To What Extent Can Ball Pen Inks Be Differentiated by Paper Chromatography—K. Bosch and B. Mueller, *Archiv fuer Kriminologie*, 126 (3/4): 77 ff. (September-October, 1960). In an attempt to answer this question, the authors collected 61 blue ink specimens from students' ball pens, all except two of which were identified as to the maker of the ink cartridge. Twenty-eight makes were repre-

sented, practically all of them European, in colors designated as dark blue, ultramarine, light blue, and purple-blue.

The chromatographic technique consisted of slicing out a portion of the ink line, 1 to 3 mm. long, at a dense ink deposit and inserting it in a tiny pocket cut into the filter paper and then burnishing the pocket flap down. The ascending technique was used in a vessel containing 81 parts of benzol to 19 parts of methanol, a solvent combination found most suitable. A running time of 9 minutes was selected.

The resulting chromatograms were broken down into 17 groups according to combination of dye-stuff components. The color groupings, frequency of occurrence, and make of cartridge are reported in tabular form. In the tables it can be seen that inks of similar color can give different chromatograms, and vice versa. Furthermore, some inks from the same make of pen and color group have different chromatograms. The reasons therefore are found in the nature of ball pen manufacturing: One manufacturer may buy ink from more than one ink maker; changes may be made in original ink formulas, or several manufacturers may buy ink from the same ink maker. The authors conclude that only a difference in chromatograms between two ink samples would indicate that they could not have come from the same cartridge. A positive finding, on the other hand, would only have evidentiary value in those cases where a relatively rare dyestuff combination was present. (JB)

Photography Used in Identifying Narcotic Traffickers—Pedro Velez, Jr., *Law and Order*, 9 (4): 13 (April, 1961). Describes use and efficiency of a wide angle lens camera concealed within the spot light of car used by undercover men. Camera can be aimed from inside of car and covers sufficient field to accurately identify the area in which the photo was taken. Its main purpose is for the identification of suspects without exposing agents in pointing out narcotic traffickers prior to the actual arrest. (WEK)

Gunshot Wounds—Herbert P. Lyle, *Journal of Forensic Sciences*, 6 (2): 255-60 (April, 1961). In the investigation of gunshot wound cases, it is necessary to apply the principles of proper collection, identification, and preservation of potential evidence. Class and individual characteristics of recovered projectiles may be mutilated or destroyed by mishandling. A medical investigator's coopera-

tion is essential for an understanding of the correct technic to collect, identify, and preserve the evidence recovered. Clothing bearing residues or defects must be carefully preserved for further investigation. It may at times be necessary for the non-medical investigator to suggest to the medical investigator the proper handling of potential evidence or to request that certain materials be recovered.

The determination of the sequential relationship between wounds may be aided by securing powder grains from each entrance wound for comparison with the powder types of the fired cases in the cylinder of a revolver. The relationships of intersecting fracture lines in the skull must be known in multiple wound cases if sequence is to be determined.

The whole investigation adds up to careful, thorough, meticulous external examination and autopsy by the medical member of the team. Attention to minute detail is essential. Intelligent cooperation between the medical investigator and the non-medical investigators and technicians will yield the desired end results. (WEK)

Carbon Monoxide in Fetal Blood—Report of a Case—Richard S. Woodruff, *Journal of Forensic Sciences*, 6 (2): 249-54 (April, 1961). A case of death of a pregnant mother with death of a 5-months male fetus in utero in which both mother and fetus showed high saturations of blood carbon monoxide is present. The case presents further demonstration of passage of carbon monoxide from maternal to fetal blood. The percentage saturation of carbon monoxide of the fetal blood to that of the maternal blood would appear to indicate a relatively long exposure of the mother to the gas before death. (WEK)

The Medicolegal Autopsy in Suburbia—A Comparative Analysis of 1,000 Cases in the Postwar Period—Reuben M. Cares, *Journal of Forensic Sciences*, 6 (2): 232-248 (April, 1961). A statistical comparison of urban and suburban medicolegal deaths is presented. In several categories of violent and natural deaths, there were significant differences in the frequency between New York City and a typical suburban community—Suffolk.

The suburb is a comparatively younger age community where there is a greater emphasis on natural deaths of medicolegal nature than in older urban centers. Traffic fatalities in the suburb chiefly affect vehicular occupants, mainly drivers. The

horizontal arrangement of the suburb is related to the occurrence of less deaths by accidental or intentional falls from high places. Accidental poisonings are far less frequent than in a city. A larger number of sudden and unexpected deaths in suburban infants reflects the usually higher birth rate compared with the urban centers.

In a growing suburb, as it changes from a rural nature, greater emphasis has to be placed on the services of an experienced medicolegal pathologist. As the population density approaches that of the mother city, modernization of medicolegal facilities becomes essential. During the period of transition to urban standards, medicolegal difficulties in suburbia exist but are not unsurmountable. Experience and the desire to meet the challenge of limited investigative resources are prerequisites. They are not hard to find in any community possessed of trained pathologists. (WEK)

An Apparatus for the Generation of Soft X-Rays—Richard J. Kuhn, *Journal of Forensic Sciences*, 6 (2): 225-231 (April, 1961). The construction of an apparatus for the generation of soft x-rays has been described. The unit can be constructed by anyone familiar with radio or TV service and repair. The unit is safe to use and inexpensive to build. Radiographs of watermarks in paper, made with the apparatus described are shown. (WEK)

Medical Records and Police Investigation—Charles A. Davis, *Journal of Forensic Sciences*, 6 (2): 218-24 (April, 1961). It has been the observation of the author that too often efforts to obtain positive identification in difficult cases are limited. If it is not possible to obtain fingerprints from either the body or the identification files, medical and dental records may prove to be a valuable source of information. In "routine" cases of mutilated or decomposed bodies such information is seldom sought. The responsibility for the failure to utilize this information probably is that of the police investigator. Complete cooperation and understanding between the police investigator and the medical investigator are essential. There is a "no man's land" in these investigations—an area which is neither completely medical nor police; the police investigator must know something of the police investigative elements in order to complete successfully a complex line of endeavor. Teamwork between the police investigator and the medical investigator must be encouraged in order

to utilize information in medical records in the administration of justice. (WEK)

Fundamental Ballistics Pertaining to Investigations Involving Firearms—Burton D. Munhall, *Journal of Forensic Sciences*, 6 (2): 215-17 (April, 1961). The police scientist would be delighted with an accurate equation or table which would reveal the distances at which all types of gun discharge traces would be deposited. Unfortunately, however, powder burning, residue deposits and tattooing are not sufficiently consistent to give us a firm set of rules. Each component of a cartridge or a shotgun shell may have some minute differences from its counterpart in the same box, the sum of which might give ballistic extremes. Possible areas of differences are as follows:

A. Primer

1. Primer cup hardness affecting primary ignition.
2. Flash hole size and position—i.e., properly centered.
3. Primer weight and physical and chemical condition.
4. Primer flame duration, size and temperature.

B. Powder

1. Weight (+0.2 grain).
2. Condition; dry, clean, uniform grain size, loose, caked, or tightly packed.
3. Position in case; to front or rear.

C. Shotgun Shell Wads

1. Relative stiffness.
2. Wad pressure and crimp tightness.

D. Bullet or Shot

1. Condition; dry, lubricated, or oxidized.
2. Weight (+2.0 grains).
3. Diameter.
4. Relative hardness of core jacket or entire bullet.
5. Uniformity of swaging or filling of bore when fired.
6. Uniformity of positioning in relation to axis of bore, i.e., base at right angle.

E. Case

1. Clean or corroded.
2. Relative hardness in regard to chamber sealing properties.

The author's remarks are not intended to condemn the practice of firing comparative tests but merely to inject a greater degree of caution into the interpretation of their results. (WEK)

Responsibilities of the Legal Profession to Forensic Sciences—Responsibilities to the Courtroom Photographer—George S. Heilpern, and Arthur H. Schatz, *Journal of Forensic Sciences*, 6 (2): 207–14 (April, 1961). The authors summarize their discussion by stating, "We had planned to propose an inter-professional code as our inclusion. The Professional Photographers of America, Inc., a national association of the country's professional photographers, is in the process of setting standards to qualify photographers as expert legal photographers. In deference to this distinguished organization we would prefer to see the product of their efforts before suggesting or criticizing their interprofessional conferences sometime in the near future.

So far as we know, nothing is being done on a national level among lawyers to assist this organization in its effort or to indicate to this group the needs of the legal profession. We are not aware of any efforts on the part of the judiciary of this country to assist either profession in this effort. The cooperation of the judiciary is essential to the promulgation of any successful code. Their participation must be secured.

The American Academy of Forensic Sciences can and should participate in a program designed to produce such an interprofessional code. The various sections of the Society have in their membership some of this country's outstanding experts in fields vitally concerned with photographic integrity. Their opinions should be sought for they will be respected and accepted by both professions. We unequivocally recommend immediate efforts to produce and adopt a natural code of ethics between the lawyers and the photographers." (WEK)

Responsibilities of the Legal Profession to Law Enforcement Agents—Richard A. Myren, *Journal of Forensic Sciences*, 6 (2): 197–206 (April, 1961). Within short compass, an attempt has been made to raise some of the more pressing questions arising out of the responsibilities of lawyers to law enforcement agents. Lawyers have such responsibilities in at least five roles: as lawyer citizens, as lawyer prosecutors, as lawyers for the defense, as lawyers on the bench, and as lawyer educators. These responsibilities cannot be taken lightly. Criminal sanctions are the backbone of all public law. Lawyers must take an active interest in the administration of criminal law, since this is a field in which the average layman is lost. This means that lawyers should have a special interest

in the education, choosing, and service of law enforcement agents. (WEK)

Lead Intoxication in Primates—Robert Hausman, Robert A. Sturtevant, and William J. Wilson, Jr., *Journal of Forensic Sciences*, 6 (2): 180–96 (April, 1961). A rapidly progressing ascending paralysis in an orangutan of the San Antonio, Texas, Zoo was found to be due to lead arsenate intoxication. The anatomical substrate consisting of a combined system degeneration of the spinal cord showed a striking resemblance to the lesions found in the gorilla, Bushman, who died in 1951 in the Lincoln Park Zoo in Chicago, Illinois. The similarity in signs and symptoms suggest that lead intoxication as cause of Bushman's illness should be considered amongst the prime probabilities. An instance of proven lead intoxication occurring in a mandrill is described. The paucity of recorded cases of lead intoxication in primates is in striking contrast to the frequency of human cases. The implication of the findings in regards to raising our index of suspicion of intoxication in obscure disorders of primates is briefly discussed. Continuous vigilance and care should be exercised in zoological gardens to prevent exposure of primates to lead and other industrial intoxicants. (WEK)

The Fundus Oculi as a "Post-mortem Clock"—Jack Kevorkian, *Journal of Forensic Sciences*, 6 (2): 261–72 (April, 1961). Post-mortem ophthalmoscopy apparently offers a new and fairly accurate approach to the problem of estimation of time after death in unknown cadavers. In a series of 51 cases with an average time after death of 5.7 hours per case, the average error per case was 1.2 hours or 21%, comparing very favorable with current means now in use, especially in view of the ease, speed, and total lack of expense involved. Perfect estimations (within 10 minutes) were made in 29%; one half of the cases were guessed to within $\frac{1}{2}$ hour of the known time of death. Gross errors of 3 to 5 hours were made in 10%, part of which might be attributed to incorrect recording of the time of unobserved deaths on the ward during early morning hours. The procedure consists of simple ophthalmoscopy through the post-mortem cornea moistened with water and a composite evaluation of various retinal vascular, color, and structural changes which are progressive at variable rates after death. Such examination is usually feasible up to 15 or more hours in most cadavers, and is limited by the occurrence of ir-

reversible corneal parenchymal turbidity. Proficiency with this maneuver depends entirely upon constant practice and can hardly be imparted by instruction. The signs offer the only practicable way to determine with any degree of accuracy the approximate time of death in persons who freeze or who die and remain in an environmental temperature of 96° F. or more; for the signs are evidently independent of temperature variations. Age, too, is of no consequence, and they may also serve, therefore, as a means of checking the approximate time of recent intrauterine death in cases of stillbirth. (WEK)

A Practical Method of Demonstrating Additions to Typewritten Documents—L. Roblin, J. Gauthvert, and P. F. Ceccaldi, *Revue internationale de Criminologie et de Police Technique*, 14 (4): 304-8 (October-December 1960). A problem peculiar to document examination practice in Europe is the multitude of letter-spacings (pitch) built into typewriters used on the Continent. Therefore, when called upon to demonstrate horizontal or vertical misalignment in typewriting caused by a fraudulent insertion, the document examiner would need an extensive set of test plates with ruled grids for each pitch. To meet this problem the authors devised their own system which also overcomes the objection that the ready-made glass plates are fragile.

The basis of the system is a large wooden frame over which is stretched a grid of threads in which the squares can be varied as to size. The grids are photographed on high contrast film material. The photographed grids are then printed and copied on 35 mm. microfilm. A suitable microfilm negative is selected for each case and projected in the enlarger onto a print of the questioned typewriting in exact superimposition. The print is then replaced on the easel by a piece of positive emulsion film which is exposed in the desired number of copies and superimposed on the final demonstration prints.

The article is illustrated by a case where one line had been added to a contract using the same typewriter and achieving very good horizontal realignment with the original text, except for a slight rise of the fraudulent line which was demonstrated by the author's grid system. (JB)

Determining the Age of Fingerprints on Paper—E. Angst, *Kriminalistik*, 15 (2): 1-12 (February 1961). As a result of an extensive series of experi-

ments with the development of latent fingerprints on paper with silver nitrate the author concludes that certain guides were found for determining the age of such developed fingerprints. A number of test prints were deposited by one person on several sheets of the same kind of paper. The prints were stored in two atmospheres—damp and dry, respectively—the temperature and relative humidity of which were recorded over a six-month period. Prints were developed after specified periods of "ageing" and the extent of the image diffusion due to the migration of chloride ions was observed on both the front and reversed sides of the paper. The principle of this test is the same as that proposed by Mezger, Rall, and Hees for determining the age of ink lines on paper (1933). It was found that the prints stored in a damp atmosphere diffused to the point of having no value for identification after one week, while those stored in a dry atmosphere were still useful at about one month for the front sideprint and up to 3-4 months for the reverse side images. A significant finding was the characteristic difference in appearance between the front and reverse side images at various ages. Since the most important variable affecting the rate of the chloride migration is relative humidity, the storage conditions surrounding a paper in question must be known before an estimate can be made of the age of fingerprints thereon.

The article is illustrated with photographs of all the developed prints. The developing process, which is a departure from the usual methods, is described as: (1) place the paper in a solution of 1% silver nitrate and 1% nitric acid for 1 hour; (2) wash thoroughly in distilled water; (3) remove excess chloride in a .5% nitric acid bath for about 2 minutes; (4) wash in distilled water; (5) develop in 40% formaldehyde and 2% sodium hydroxide (1:10) and rinse; (6) wash for about 15 minutes in running water. The complete process, up to the final washing, is carried out in the darkroom under a red safelight. (JB)

Examination of Typewritten Documents—A. Mertens, *International Criminal Police Review*, No. 144: 12-4 (January, 1961). An extension of Schneeberger's formula to include the letter f. Additional characters, M, E, e, g, 7, 2, 5, () are discussed. (JDN)

The Speed of Bullets, Air-Guns—Rene Michon, *International Criminal Police Review*, No. 119: