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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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The Effect of Psychotropic Drugs on Driving—Dr. J. Mabileau, *International Criminal Police Review*, 176: 66-69 (March, 1964). The article deals with a talk on the possible role of psychotropic medicine, such as barbiturates, tranquilizers, and amphetamines, in road accidents. Experience with traffic accidents suggests a definite influence. (OH)

The Examination and Preservation of Burned Documents—Enrique Caldalon Garcia, *International Criminal Police Review*, 176: 70-81 (March, 1964) and 177: 109-117 (April, 1964). The paper discusses the handling of burned documents, their preservation, recommended examination techniques, and results obtained in preservation, reading, and special investigations. (OH)

Forensic Medicine in Death Cases—Boston University School of Law held an International Seminar on Forensic Medicine in Death Cases September 24-26, 1964. (OH)

Suggested Measures for the Prevention of Motor Vehicle Theft—H. Feraud, *International Criminal Police Review* 177: 121 (April, 1964). Two practical measures are emphasized in this brief article—the compulsory fitting of an anti-theft device on all vehicles in use and penalties for those guilty of negligence in parking their vehicles on the public highway. (OH)

Gas Chromatographic Determination of Lower Alcohols in Biologic Samples—Harold Lyons and

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Jacquelyn Bard, *Clinical Chemistry*, 10 (5); 429-432 (May 1964). A procedure is described for the simultaneous determination of methanol, ethanol, and isopropanol in biologic samples using a low cost gas chromatograph. This paper describes a modification of the previously reported extraction technique of Cadman and Johns and Janitski. A combination of the use of anhydrous calcium sulfate absorption of most of the water in the sample followed by a normal butanol extraction of the alcohols from the solid absorbent is employed. A table of correlation comparing this method with dichromate methods for ethanol in biologic fluids is also given. (JDC)

Magnesium Bombs in Arson—Paul T. Kettering, *Law and Order*, 12 (6); 76-77 (June 1964). A short article on the usual makeup of a magnesium bomb describing materials used in the bomb and also some systems of igniting and discussing the burning properties of such device. (JDC)

You Can Make Your Own Major Crime Kit—Sgt. Norris J. Starkey, *Law and Order*, 12 (2); 16-17, (July 1964). A description of the major crime kit designed by the author for the Indianapolis, Indiana, Police Department. This kit goes further than the usual small evidence collection kit and could serve as a guide or check list for other departments to assemble similar kits. (JDC)

Significant Concepts in Scientific Criminal Investigation—James W. Osterberg, *Law and Order*, 12 (7); 26-29 (July 1964). This article deals with the problems of: What is identity? What is associative evidence? It also points out how characterizing details are revealed and special processes used, mentioning several types of laboratory examinations and analyses, such as optical methods, instrumental methods. Also this article points out the research being conducted by neutron

activation analysis which should be of overwhelming value to the police laboratory and criminal investigator. (JDC)

Who Needs Heroin—James W. Rutherford, Alice A. Skranz, *Law and Order*, 12 (8): 15-18 (August 1964). This article concerns a new twist as experienced in the Flint, Michigan area concerning the use of paregoric and pyribenzamine; describes the use of a combination of paregoric and pyribenzamine which is either taken orally or injected as a substitute for heroin; deals with the three primary factors—availability, risk, and cost. (JDC)

The Case for Police Pursuit—E. Scheidt, *RCMP Gazette*, 26 (4): 1-4 (April, 1964) (From: *Traffic Safety*, February, 1964). The writer discusses the police problem of high-speed chases with respect to public criticism. He recommends the following:

1. The police should never publicly state that they will not chase speeders.
2. Pursuit to the brink of danger to innocent people should be permitted.
3. Police should be instructed in pursuit driving. (JDN)

Pistol Bullets and Automobiles—H. L. Campbell, *RCMP Gazette*, 26 (4): 7-10 (April, 1964). Penetration of projectiles into automobile windows and bodies was studied for calibers ranging from .22 to .45 caliber. The metal jacketted .38 Special, .45 automatic, and 9 mm Luger or Parabellum were effective when fired perpendicular to the surface. However, as the angle increased beyond 45° the danger of ricochet became pronounced. (JDN)

Simplified 35 mm Black and White Reversal Transparencies—H. C. Morgan, *Journal of Biology Photographic Association*, 31 (3): 85-8 (August, 1963). A simple direct positive procedure using Panatomic-X film. (JDN)

Individuality of Human Whole Dry Blood—A. F. Landal, B. W. Greenbaum, and P. L. Kirk, *Journal of Forensic Medicine*, 10 (2): 57-64 (July, 1963). Dry blood stains were examined by electrophoresis on cellulose acetate strips. The blood stains were extracted with saline, centrifuged and 3 ml. of the extract used as a test sample. After a 3 hour run the antigens were detected by horse

serum and the precipitin bands stained with Ponceau-S stain. Individual differences were observed. (JDN)

Recent Advances in the Detection of Barbiturates and Phenothiazine—H. V. Street, *Medicine, Science and the Law*, 4 (1): 35 (January, 1964). The resolution of barbiturates by reversed-phase paper chromatography is improved through the use of ester-impregnated paper. Ultraviolet absorption spectra at high and low acid values can be used to identify phenothiazine derivatives. (JDN)

Forensic Microdensitometry—F. M. Flynn, *Identification News*, 14 (3): 6-13 (March, 1964). A description of the Anasco, Model 4, Automatic Recording Microdensitometer. Its application to the comparison of inks, dyes, and other document problems is discussed. With this instrument, subjective problems of visual microscopy are avoided. (JDN)

To Classify or Not to Classify—C. J. Wallace, *Finger Print and Identification Magazine*, 45 (9): 3-7, 16, 17, (March, 1964). Although many small departments file their prints in the arrest file or by name, the author discusses the value of classified prints in identification of latents, search for true identity of persons arrested under an alias, and the identity of "wanted" persons. (JDN)

Determination of Aspirin by Gas Chromatography—R. C. Crippen and H. C. Freimuth, *Analytical Chemistry*, 36 (2): 273-5 (February, 1964). Specimen containing aspirin is extracted with hot methanol, treated with a solution of boron trifluoride in methanol (anhyd), refluxing for 10 to 15 minutes. A measured amount is injected into a column of 30% Carbowax 20M or chromosorb W at 175°C. Methylacetylsalicylate has a retention time of 3.5 minutes. High recoveries and a precision of $\pm 1.68\%$ are reported. (JDN)

Estimation of Creatine Phosphokinase as an Additional Method for Identification of Seminal Stains—P. D. Griffiths and H. Lehmann, *Medicine, Science and the Law*, 4 (1): 32-4 (January, 1964). Dried stains, 1-1.5 cm. square were extracted with 1 ml of normal saline. Creatin Phosphokinase was determined by a modification of the method of Ennor and Rosenberg (Biochem.

Journal, 57: 203 (1954.) using the reaction of creatine phosphate and adenosine diphosphate; creatine estimated colorimetrically. (JDN)

General Assembly, I.C.P.O.—Interpol, Helsinki—*International Criminal Police Review*, No. 173, (December, 1963). As is customary the entire issue is devoted to a report on the General Assembly which was held in August, 1963. Technical matters discussed and reported on included narcotic drugs, identification of fire arms and small arms ammunition which led to a recommendation for the establishment of an international reference system on proof-marks and trade-marks. Also discussed were crime prevention bureaus in police departments and the use of mass media for finding missing persons. (OH)

First I. C. P. O.—Interpol Seminar on Scientific Aspects of Police Work—*International Criminal Police Review*, No. 174: 25-28, (January, 1964). A report of a seminar held in Paris involving the heads of fifty specialized laboratories contains a list of research subjects and the laboratories of various nations which are investigating the problem. Two general problems were raised and all police laboratories were invited to participate in a research problem involving, one, the examination of a weapon to determine how much time had elapsed since it was fired, and two, the value of the paraffin test called the "Gonzalez Test". (OH)

Identifying Skeletal Remains—E. Ilan, *International Criminal Police Review*, No. 175: 42-45, (February, 1964), describes the preparation of a sculptured head based upon anthropologic studies of a skull. The author was successful in creating a sufficient likeness so that the individual was recognized by a former associate and a positive identification by means of medical records and dental records could be made of a partially decayed skeleton. (OH)

Identification and Photography of Paper Edge Serrations Caused by Defective Cutting Knives—Paul A. Osborn, *International Criminal Police Review*, No. 175: 46-52, (February, 1964). The author discusses a case in which it was possible to photograph and study serrations caused by a defective paper cutting knife on the edge of three sheets of letterhead paper. From this evidence, he could establish and demonstrate that three carbon

copies on letterhead were not written over a period of fourteen months, but must have been written on three sheets of paper taken from a small group of sheets in a single box. (OH)

Transporting Valuables Safely—Emin Guven, *International Criminal Police Review*, No. 175: 53 (February, 1964), sets forth a number of firm suggestions for safeguarding the transportation of valuables. He advises radio equipped vehicles, special locking device which can be activated by a button or pedal and only released with a special key, and a strong safe built in the vehicle itself. (OH)

Police Training Curriculum for Handling Juvenile Offenders—A program was instituted in March at the University of Indiana under the sponsorship of the International Association of Chiefs of Police in cooperation with the Department of Police Administration. A two weeks workshop was carried out, and the curriculum devised was intended to be used throughout the country. (OH)

Phase Microscope Technique for Refractive Index Determination of Anisotropic Particles at High Magnification—E. A. Luster, *The Microscope*, 13 (12): 363-74 (May-June, 1963). A phase microscope equipped with cap polarizer and analyzer is used to determine the refractive index of anisotropic particles. Using bright contrast medium objectives, refractive index determinations at 1000x are possible. With standard solids, the refractive index of unknown liquids can be determined. (JDN)

Photomicrography—Exposure Determination—S. Klosevych, *Journal of Biology Photographic Association*, 32 (1): 23-36 (February, 1964). Author discusses the optical conditions necessary for excellence in photomicrographs. Much of the discussion of exposure determination deals with the Photovolt Model 501-M meter. A simple conventional light meter may also be used if volume does not justify an electronically amplified meter. An integrated reading is applicable to most subjects using black and white emulsions, however, the contrast range for color usually requires spot readings of light values. (JDN)

The Electronic Fingerprinting Method—Y. Kimura, *Identification News*, 14 (6): 9-12 (June,

1964). A fingerprinting method based on xerography is described. An inkless method would appeal to non-criminal subjects. Excellent resolution is possible. (JDN)

Documentary Evidence and Identification—S. Goldblatt, *Identification News*, 14 (6): 4-5, 13 (June, 1964). Guide in obtaining questioned documents in crimes and standards from suspects. (JDN)

Sulphoxides of the Phenothiazine Drugs—L. K. Turner, *Journal, The Forensic Science Society*, 4 (1): 39-49 (1963). Ultraviolet and infrared spectra of Chlorpromazine, Trimeprazine, Ethopropazine, Promazine, Promethazine and Trifluorpromazine are given. Thin-layer chromatographic data are also reported as well as a method of identification by oxidation and color tests. (JDN)

Activation Analysis—An Aid to Forensic Investigations—D. Gibbons, *Journal, The Forensic Science Society*, 4 (1): 33-8 (Sept., 1963). Activation analysis, although sensitive, does not show the combination of elements present. Present radiation sources present technical difficulties such as flux density gradients, total variations, as well as inherent sample problems. Some of these problems can be reduced by an "internal standard" technique. Applications are given. (JDN)

Some Genetical Aspects of Fingerprints—S. B. Holt, *Journal, The Forensic Science Society*, 4 (1): 7-17 (Sept., 1963). A discussion of the distortion in fingerprint and palm print patterns as a result of abnormal chromosomes. Statistical bases are given. (JDN)

Self Contained Breathing Apparatus for Police Work—A. V. Broadhurst, *Journal, The Forensic Science Society*, 4 (1): 3-6 (Sept., 1963). A discussion of the use of SCUBA by police in underwater work. (JDN)

Driving Over the Level—S. S. Kind, *Journal, The Forensic Science Society*, 4 (1): 1-2 (Sept., 1963). This editorial comment on the *Alcohol and Road Traffic* report suggests that legislation should be designed to make the act of operating a motor vehicle an offense if the blood alcohol is at x level. This is in contrast to making the effect of alcohol the offense, when connected with a motor vehicle. (JDN)

The Identification of MN Groups in Dried Bloodstains—M. Pereira, *Medicine, Science and the Law*, 3 (4): 268-71 (July, 1963). The absorption-elution method is used to detect M and N factors in dried blood stains. Rabbit immune anti-M and anti-N sera and fresh MM and NN cells, triple washed, are used. The cells are suspended $\frac{1}{2}\%$ in 1% bovine albumin in saline. Tests are performed in silicone treated cavity cells. (JDN)

The Multiple Entry Card Index for the Identification of Synthetic Fibres—B. J. Culliford, *Journal The Forensic Science Society*, 4 (2): 91-7 (December 1963). An edge punch card having 99 perforations is used to catalog synthetic fibers by optical and staining characteristics, as well as, melting point, specific gravity, and physical appearance of longitudinal and cross section shapes. (JDN)

A New Method of Detecting Fingerprints on Paper—R. L. Grant, F. L. Hudson, and J. A. Hockey, *Journal, The Forensic Science Society*, 4 (2): 84-6 (December, 1963). Radioactive sulphur dioxide treatment of latent fingerprints followed by contact with x-ray film for one week produced identifiable images. Metals in the paper interfered. The method is ineffective on old (10+ days) latent prints. (JDN)

Bloodstain Grouping—Elution v. Inhibition—R. A. Outteridge, *Journal, The Forensic Science Society*, 4 (2): 87-90 (December, 1963). On the basis of the author's experience, the elution method is reported superior to the inhibition method as to sensitivity, reliability, and ease of use. (JDN)

A Modified Method of Plaster Casting—H. W. Chee and S. J. Wilson, *Journal, The Forensic Science Society*, 4 (2): 83-4 (December, 1963). Loose soil or sand is lightly sprayed with water until particles are bound together. A fine layer of plaster is sprinkled into the impression, followed by gentle spraying. This is repeated until a shell is formed. After this, the bulk of the plaster is added in the normal manner. (JDN)

Forensic Science or Sciences—(Editorial) S. S. Kind, *Journal, The Forensic Science Society*, 4 (2): 56 (December, 1963). The forensic scientist is concerned with the development of "Information" by means of evidence recovered in connection with a criminal investigation. This endeavor may take

the technician into a number of fields, each of which may be mutually exclusive as to technique, but joined in attitude and purpose. For this end, the author believes that training should be broad and not limited to a narrow specialty. [No mention is made of the necessary self-discipline that must hold a forensic scientist in check until he has performed the basic training regime before he tackles evidence]. (JDN)

Scene of Crime Photography—J. P. Little, *Journal, The Forensic Science Society*, 4 (2): 57-9 (December, 1963). The crime scene photographer must keep in mind the responsibility to produce a picture or series of pictures that conveys the story of criminal activities to the court. He must produce an accurate record of the scene, a record of items connected with the crime, and a pictorial record of the work of technicians. For this he needs a background knowledge of the case and a thorough knowledge of photography, one that can hardly be possessed by the average investigator. (JDN)

Criminal Records and Fingerprint Photography—H. Scott, *Journal, The Forensic Science Society*, 4 (2): 60-4 (December, 1963). A general discussion. Suggests use of Polaroid or 35 mm to photograph arrested persons with officer making the arrest, for later identification. This is particularly useful in mass arrests. (JDN)

Post - Mortem Photography — K. Simpson, *Journal, The Forensic Science Society*, 4 (2): 65-6 (December, 1963). Urges the presence of immediately available photographic equipment to record transient observations. The equipment need not be fancy; however, where possible, distracting background of objects and people should be removed or screened out. Even if this material is not used in court, its value for training and research cannot be minimized. (JDN)

Jewelry and the Expert Witness—R. Webster, *Medicine, Science and the Law*, 3 (4): 228-46 (July, 1963). A discussion of the means by which jewelry is identified. These include hallmarks, metal, cut of gemstones, as well as the identification of gems. (JDN)

The Plastic and Elastic Deformation of Skeletal Muscle in Rigor Mortis—B. Forster, *Journal of Forensic Medicine*, 10 (3): 91-110 (July-Sept.,

1963). The muscles of animals killed by CO were studied as to elasticity and plasticity at room temperature at intervals of 30 minutes, 2 hours, and 6 hours. Further studies were made at 38°C and at 2 to 4 degrees C. It was found that elasticity decreased to a minimum, whereas, plastic deformation increased and then decreased. (JDN)

The Phillips Case—A New Dimension in Murder—John W. Miner, *Journal of Forensic Sciences*, 9 (1): 1-10 (January, 1964). A unique law suit in which a jury found guilty of murder a man who killed a child with words alone. Autopsy revealed cause of death to be undifferentiated sarcoma of the left orbit. Under the facts of the case, Dr. Phillips, a chiropractor, committed grand theft. What makes this one of the most significant medico-legal cases in legal history is that to convict the chiropractor of murder, it must be proved that his fraudulent representation to the Eppings (parents) caused Linda to die when she did. That is the issue of proximate cause. In part, the trial jury was instructed as follows:

“The proximate cause of a death is that cause which in natural and continuous sequence, unbroken by any efficient intervening cause, produces the death, and without which the death would not have occurred at the time it occurred. It is the efficient cause—the one that necessarily sets in operation the factors that accomplish the death.”

“Medical quackery is a peculiarly vicious social evil. It preys on those who because of ignorance or wishful thinking are left defenseless against the glib promises of cures of everything from pimples to terminal cancer. Inevitably, the quack takes the lives of those unfortunates who, to use the *Time Magazine's* language, are talked out of getting the proper medical treatment needed to cure or alleviate their illness.”

“Until the Phillips' case, the worst the quacks had to fear was a theft conviction, and if they were unlucky, as much as a year in prison. If *People v. Phillips* is affirmed, the law will have forged its strongest weapon to strike down the quack. Justice needs that weapon.” (WEK)

The Significance of Diatoms in the Diagnosis of Death by Drowning—Werner U. Spitz and Volkmar Schneider, *Journal of Forensic Sciences*, 9 (1): 11-18 (January, 1964). It is easily understood that diatoms and other plankton elements may

enter the lungs together with the water during the process of drowning.

It is apparent that diatoms are no rarity in the air. Since diatoms were found in significant numbers in human livers of nondrowning individuals, this series of investigations renders the diagnosis of death based on the finding of diatoms in the tissues of drowning victims as doubtful.

This appears somewhat unfortunate, as the diagnosis of death by drowning founded on the presence of diatoms appeared to be an ideal solution of one of the most hazardous problems in the practice of forensic pathology. Although experiments performed on rats cannot without serious limitations be transcribed to human cases, we do nevertheless think that they too are in a certain way enlightening. (WEK)

On Finding Spermatozoa in Suspected Seminal Stains—Edgar W. Kivela, *Journal of Forensic Sciences*, 9 (1): 139-9 (January, 1964). Removal of sperm from stained clothing by use of sonic vibration is a technique that not only reduces the time consumed in examining specimens, but also produces a cleaner preparation and increases the number of sperm recovered. (WEK)

Fatal Poisoning with Certain Drug Combinations—Risto Eerola and Antti Alha, *Journal of Forensic Sciences*, 9 (1): 53-62 (January, 1964). In the recent years forensic investigations of poisoning cases have revealed several drugs in the same individual more often than previously. In the Division of Forensic Chemistry, Department of Forensic Medicine, University of Helsinki two or more drugs were found in altogether 87 cases in the year 1960. These cases formed the basis of the present study. Thirty-four cases had a detailed case history, of these patients 23 had an additional factor which might have contributed to death, in the remaining 9 cases, which are reported in detail, the combined effect of two or more drugs seems to have been the cause of death, even if in many cases the chemical analysis revealed only sublethal amounts of individual drugs. It is noteworthy that death occurred quickly after the ingestion of the drugs. (WEK)

The Detection and Estimation of m-Dinitrophenyl Type of Pesticides in Biological Material—G. Cimbura and R. C. Gupta, *Journal of Forensic Sciences*, 9 (1): 47-52 (January, 1964). Following

the extraction from biological media, m-dinitrophenolic compounds (pesticides) were polarographed in a buffer pH 7.8, the polarography being based on the electroreducible nature of a nitro group. The method was found rapid, sensitive and specific. Five microgrammes of the active material could be detected, the whole procedure required less than one hour (blood and urine), and the overall recovery from blood averaged 75%. The procedure was found suitable for toxicological work by applying it to two actual cases. (WEK)

Analysis of Biological Specimens for Volatile Compounds by Gas Chromatography—L. R. Goldbaum, T. J. Domanski, and E. L. Schoegel, *Journal of Forensic Sciences*, 9 (1): 63-71 (January, 1964). The described procedure relies upon the rapid partition which takes place between a volatile compound in solution and the air above it. This procedure for the determination of volatile poisons has the advantage of being inexpensive, rapid and applicable to a routine screening of all toxicological specimens. The equilibrated air above blood specimens is removed by puncture of the rubber cap using a disposable hypodermic needle. The specimen is then separated in a fire brick column impregnated with 2,2'(2-ethylhexamide) diethyl di(2 ethylhexoate), diisodecyl phthalate and polyethylene glycol 600. Satisfactory separation of most volatiles will occur in 30 minutes, ethanol in 2.5 (8.5 min. at 75°C.) This method may be used for the quantitative analysis of alcohol in blood. (WEK)

Thallotoxicosis, A Social Menace—Robert Hausman and William J. Wilson, *Journal of Forensic Sciences*, 9 (1): 72-88 (January, 1964). Fifty-two cases of thallium intoxication were culled from the records over the past 8 years of the three largest civilian hospitals in San Antonio, Texas. These hospitalized cases are analyzed in regards to manner of intoxication. Twenty-nine accidental poisonings occurred, mainly in infants and young children, with one fatality. Of the seventeen cases of suicidal poisoning, thirteen were women with two deaths registered in this group. Finally, two probable cases of homicidal poisoning with one death and four proven murders by aqueous thallosulfate are related in detail. A rapid and accurate toxicological method for the quantitative assay of thallium in urine and tissue with the flame photometer is described. A short

description of clinical symptoms of intoxication emphasizes the triad of pain in the legs, exquisite tenderness of the soles of the feet and mental symptoms in severe acute poisoning. Important facets in the discovery and investigation of the thallium murders are briefly discussed. (WEK)

Infrared Luminescence, Using Glass Filters—Herbert L. Hoover and Herbert L. MacDonell, *Journal of Forensic Sciences*, 9 (1): 89-99 (January, 1964). The physical principles of photoluminescence, of which infrared luminescence is a part, are reviewed to provide a framework for discussing the technique of infrared luminescence photography, particularly as it is applied to the examination of questioned documents. The implementation of the technique with selections of light sources, filters, and infrared-sensitive films is illustrated with diagrams of the spectral sensitivities of these materials, and with photographic records that were made with various combinations of these materials.

Three glass filters are described that can be used in place of a liquid filter of CuSO_4 -solution, and that have different long wavelength cut-offs. A heat absorbing filter for protecting the color filters against thermal damage also is described. A part of the wide selection of the sharp-cut filters that are available for differentiating luminescence bands of intermingled substances is illustrated, and the principles of their use are reviewed. Three filters that might be especially useful with longer wavelength sensitive infrared films are listed.

The use of photoflash bulbs to reduce exposure times and to eliminate thermal damage to filters is shown to be practicable. The potential value of using electronic flash as a light source also is discussed. (WEK)

Selective Wavelength Examination Applied to Ink Differentiation Problems—Royston J. Packard, *Journal of Forensic Sciences*, 9 (1): 100-106 (January, 1964). While the manner in which a nondestructive method of dyestuff differentiation operates is obscure, the method does offer a number of advantages. A described dichroic filter assembly readily permits differentiation of many dyestuffs and pigments and is of particular value for the examination of inks upon documents suspected of bearing alterations, obliterations, and/or additions. Inks so examined often appear

in a distinct color contrast to the background support. The selective wavelength examination technique is simple, economical, and apparently harmless to the document.

It is anticipated that the described technique will encourage document examiners to experiment further with such methods of non-destructive examination, for it appears most likely that superior methods can be evolved. (WEK)

Histochemical Distinction Between Antemortem and Postmortem Skin Wounds—J. Raekallio, *Journal of Forensic Sciences*, 9 (1): 107-18 (January, 1964). An experimental study was made on 48 guinea pigs and 48 albino rats, by excising circles of the dorsal skin. The animals were killed $\frac{1}{2}$, 1, 2, 4, 8, 16, 32, 48, 72, 96, and 120 hours after wounding. To every wound 20 histochemical and histologic technics were applied. The postmortem demonstrability of the vital changes and the exclusion of possible postmortem phenomena, simulating vital reactions, were investigated analogously, by using each animal as its own control.

In the central wound zone, 200 to 500 microns in depth, there was a gradual loss of stainability. This was demonstrable from one to 32 hours after the vital injury, depending on the enzyme or the other substance studied. Since no such decrease was observed in the wounds made after death, the regressive phenomena in the central zone were called negative vital reactions.

In the 100 to 300 microns deep peripheral zone a vital intensification of enzyme activity began from one to eight hours after injury. These increases in stainability in the peripheral zone were called positive vital reactions, since there were no such changes in postmortem wounds.

Both types of vital reactions were recognizable for five days after death.

The histochemical methods for esterases, adenosine triphosphatase, and B-glucuronidase revealed in animal experiments vital reactions, appearing after one eighth of the time required for those demonstrable by conventional histologic technics. These aforementioned histochemical methods may, thus, prove of value for the medicolegal distinction between vital and postmortem skin wounds also in man. The other methods used might give supplementary evidence, and allow the construction of a biological time-table which would be useful in the reconstruction of homicide cases. (WEK)

Neuron Activation Analysis in Scientific Crime Detection—Some Recent Developments—Rodney R. Ruch, John D. Buchanan, Vincent P. Guinn, Sandra C. Bellance, and Raymond H. Pinker. *Journal of Forensic Sciences*, 9 (1): 119–33 (January, 1964). High flux neutron activation analysis offers considerable promise of extending present conventional methods of forensic elemental analysis to previously unattainable regions of extremely small samples (micrograms) and extremely low trace concentrations (parts per billion). In addition, the purely instrumental form of the method, where applicable, is a nondestructive method, thus preserving samples of evidence for possible presentation in court.

The present study has, to date, involved only a preliminary survey of the possibilities of trace element neutron activation analysis characterization of many kinds of material of interest in criminalistics investigations: Plastics, rubber, greases, wood, glass, paper, ink, and soil. With the exception of ink (on paper), these preliminary results are very encouraging, and they will be extended much further in the near future (and paint and metal samples will also be included).

In addition to the material trace element characterization study, an activation analysis technique for the detection of gunpowder residues on the hand, via the traces of antimony and barium deposited from the bullet primer, has been worked out to a considerable degree. The method involves the removal of any residues from the hand of a suspect, activation of the swabbings in a nuclear reactor, rapid radiochemical separation of the Sb^{122} and Ba^{139} , and gamma ray spectrometry of the separated species. (WEK)

An Unusual Case Illustrating the Application of Tests for Blood Factor hr in Disputed Parentage—A. S. Wiener, *Journal of Forensic Sciences*, 9 (1): 134–7 (January, 1964). An unusual case is described in which a married man, who questioned his paternity of the youngest of his eight children, was found to be type rh while the baby was type $Rh_r Rh_0$. Tests for factor hr proved the baby to be hr positive and therefore of the rare phenotype $Rh_r rh$. The mother and the man suspected by the husband to be the baby's father were not available to be tested, but the tests on the other seven children showed three to be type rh and four of the rare type $Rh_r rh$. These unusual findings not only do not exclude paternity, but suggest instead

that the husband is the father of the baby as well as his other seven children.

Submachine Gun Identification Notes—V. Krcma, *Journal of Forensic Sciences*, 9 (1): 148–152 (January, 1964). The content of this paper may be of assistance to firearms investigators and registrars working on rare cases involving submachine guns. Drawings of breech block faces of 41 submachine guns from 16 countries are presented. (WEK)

Traumatic Coronary Artery Intussusceptive Occlusion—Manuel A. Bergnes, *Journal of Forensic Sciences*, 9 (1): 163–67 (January, 1964). Traumatic disruption and post-traumatic occlusion of a coronary artery has been infrequently described. In those cases that have been reported, the involved artery has been the right coronary artery, the injury of the blunt crushing type to the chest, and there have been other evidences of cardiac and intrathoracic trauma as in this report. The mechanism of previously reported incidents has been one of arterial laceration and postlaceration thrombosis. Considerable literature relates to the question of causal relationship between chest trauma and subsequent myocardial infarction.

The mechanism suggested by the findings in the right coronary artery in this report indicate compression, contusion, focal laceration, elongation and torsion of the vessel with avulsion and recoil of a segment of intima and media toward the coronary ostium. The findings in the ventricular septum and in the atrial chambers are consistent with this mechanism. (WEK)

The Application of Soft X-Rays in Criminalistics—Identification of Wood Chips—S. N. Gupta and F. B. Cerar, *Journal of Forensic Sciences*, 9 (1): 140–47 (January, 1964). The use of soft X-rays for the identification of woods has been investigated. Essentially the technique consists of contact microradiography of a small chip of wood a few cubic millimeters in size with 5kV X-rays on high resolution plates, and subsequent microscopic examination of the microradiogram. Different woods give different patterns, and it is usually possible to identify the genus from which the wood comes. The technique appears to be useful for the examination of chips too small to be handled by the usual microscopic techniques. Contact microradiograms of seventeen wood species have been prepared to serve as reference material for identification. (WEK)