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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

Joseph D. Nicol*

A Comparison of the Sensitivity of Methods Used for the Detection of Carbon Monoxide in Blood—H. L. Wikoff and G. B. Carson concluded that human blood must contain at least 4% of the saturation level of CO in blood before the most sensitive qualitative tests will give positive results. They found that pyrotannic acid and 1% tannic acid are the most sensitive reagents. The ordinary biological spectroscope, so often used in this determination, requires at least 30% of saturation before carbon monoxide can be detected. The above material is contained in the July, 1948 issue of the *American Journal of Clinical Pathology*, 18:548-50.

A Test for Cannabis Sativa Resin, A Modified "Acid Beam" Test—Specimens suspected of containing cannabis may be tested by a modification of the Beam Test, as reported by E. Rathenasinkam in the *Analyst*, 73:509 (Sept. 1948). The sample is treated in the manner described by L. C. Nicolls (extraction with petroleum ether, filtered, filtrate extracted with dilute NaOH; acidify extract and extract again with petroleum ether; evaporate). The residual resin is dissolved in one milliliter of glacial acetic acid, one drop of concentrated sulfuric acid is added with thorough mixing. A rose-pink color develops which deepens on standing.

Training Program for Chemical Testing for Intoxication—The National Safety Council has announced tentative plans to conduct courses at California, New York, Northwestern and Tulane Universities in chemical testing for alcohol. The present plans call for five courses of fifty hour duration designed to train technicians and police officers in the proper procedures in chemical alcohol tests.

New License Plates—*Vox-Cop*, 6: (Oct. 1948) reports that Connecticut has adopted a new plastic tape capable of reflecting light as the medium for their license numbers. This will facilitate their being read at night even though the automobile carries no license light.

A Liquid - Liquid Microextractor—Paul L. Kirk and Maryann Danielson describe a microextractor in the *Analytical Chemistry*, 20: 1122-3 (Nov. 1948) which permits multiple extraction of aqueous solutions by solvents lighter than water. It is applicable to volumes as small as one-half milliliter of either phase. Since the apparatus must be specially constructed, the readers are directed to the original article in the *Analytical Chemistry* for the necessary details.

Barbiturate - Opiate Intoxication—The results of an investigation by G. A. Jervis and F. T. Joyce of barbiturate-opiate poisoning are related in the *Archives of Pathology*, 45:319-26 (March, 1948). A woman took "at least fifteen" 1½ gr. capsules of pentobarbital sodium on one day and the following day took one "capsule after another." Simultane-

* Firearms Identification Technician, Chicago Police Sci. Crime Detection Lab.

ously, she administered by hypodermic ten shots of one-sixteenth grain of dihydromorphenone hydrochloride. After admission to a hospital she lingered for several weeks during which time she declined nervously and mentally. The conclusions of the post mortem examination are as follows: Toxic doses of morphine or barbiturate may bring wide spread degenerative changes of the nerve cells, vascular lesions, and occasionally focal necrosis; in this case necrosis of the basal ganglion of the brain. Barbiturates seem to produce anoxia, as in CO poisoning, and cause necrosis of globus pallidus.

Electronic Life Detector—Although the device described by Leslie W. Orton in the *Radio News*, 32:70-6 (Nov., 1944) was designed for use in bombed cities, it has value in rescue work in explosions, fires, or any other place where victims may be trapped and still alive. The life detector consists of a high-gain amplifier and two directional microphones. These microphones should be as sensitive as possible. In practice the area in which trapped victims might be found is scanned by the two microphones, and a fix taken on the spot indicated by the intersection of the axes of the two microphones. Sounds made by victim inaudible to the unaided ear are detectable by this device. In addition to the two microphones a "locator" is described. The locator consists of a phonograph pick-up suspended on a tripod by a spring. The pressure of the needle on objects is adjustable for maximum sensitivity. The scraping or movement of victims can be detected.

An Unusual Firearms Case—In a recent murder case seven fired .38 automatic cartridge cases were recovered, and it was established that the seven cartridge cases had been fired in the same weapon. The positive identifications were made on the basis of the individual characteristics on the primer. In each case, the primer material flowed back into the firing pin hole, and when the cartridge case was extracted this material was sheared off. As a result of this flow back and shearing, a very shallow firing pin indentation remained. No other breach block markings were observed. Later a weapon was recovered, and four test shots were fired. When compared it was observed that a circular piece of the primer material had blown out of the firing pin indentation of test one and was stuck in the firing pin hole in the breech face. Subsequent tests bore no breech block markings and had an impression of this circular piece in the primer. These tests did not match the evidence cartridge cases previously submitted. However, after removing the circular piece from the firing pin hole additional tests were fired which compared favorably with the evidence cartridge cases. It is possible that the piece of the primer material could have lodged in the firing pin hole on the firing of the first evidence shot and remained there during the six succeeding shots. It is possible that sometime before the gun was test fired this piece of material could have fallen out so that when tests shots were compared a different overall appearance would have been observed. Thus a positive identification could be missed due to the above circumstances. (Submitted by Charles J. Panush, Chicago Police Scientific Crime Detection Laboratory.)

Detection of Cyanides and Ferricyanides in Wine—The treatment of wine with potassium ferrocyanide sometimes leaves traces of ferro-

cyanide which slowly decomposes into hydrocyanic acid in the acid medium of the wine. C. E. Hubach used the method proposed by Gettler and Goldbaum to detect small quantities of cyanide in wine. Room temperature is used instead of the 90° as indicated by Gettler, and the natural acidity of the wine is sufficient for the reaction. The 4mm. flange is recommended as best for quantities near the lower limit of sensitivity of the test. Hubach's observations are reported in the *Analytical Chemistry*, 20:1115-6 (Nov., 1948).

Committee on Tests for Intoxication—The Committee on Tests for Intoxication has announced the appointment of Jack Whittall as full-time staff secretary. Mr. Whittall's business address is the National Safety Council, 20 N. Wacker, Chicago, Illinois. The Technical Sub-Committee has as its chairman Dr. C. W. Muehlberger of the Michigan State Department of Health, Lansing, Michigan.

Pathological Changes Produced by Monochlorobromomethane—With the proposed use of monochlorobromomethane in fire extinguishers B. Highman, J. L. Svirbely, W. F. von Oettingen, W. C. Alford, and L. J. Pecora investigated the effects of this compound on mice when administered orally and by inhalation. They found that inhalation produced marked visceral congestion; fatty degeneration of the liver, kidneys, and occasionally of the heart; lipid depletion of the adrenal cortex; and interstitial pneumonitis. It was observed that dead animals showed opacity of the eyes. Necrosis or cirrhosis of the liver, similar to that found with carbon tetrachloride poisoning, was not observed. Oral administration showed the same symptoms except that opacity of the eyes was uncommon. Hydropic degeneration and subcapular necrosis of liver occurred frequently between twenty-four and seventy-two hours after initial dose. This is an abstract of the article appearing in the March, 1948 issue of *Archives of Pathology*, 45: 299-305.

The Life Hazards and Nature of the Products Formed when Chlorobromomethane Extinguisher Liquid is Applied to Fires—In line with the work of B. Highman, et al, A. F. Matson and R. E. Dufour investigated the effects of using chlorobromomethane on fires. Their observations, reported in the *Bulletin of Research No. 42*, August, 1948 of the Underwriter's Laboratories, indicate that the same hazards attendant with the use of other halogenated compounds as fire extinguishers are also present here. The decomposition products of chlorobromomethane when used with gasoline fires, wood fires, hot iron surfaces, and electric arcs are hydrochloric acid, hydrobromic acid, carbonyl halides, and some free chlorine and bromine. Therefore, there is a definite degree of hazard when fires are fought with this compound in confined and poorly ventilated areas and the by-product fumes inhaled for any prolonged period.

Position Available as Examiner of Questioned Documents and Firearms Identification Technician, in the Employ of the Government of Pakistan—See ad on inside of back cover of this Journal.