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Police Science Notes

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POLICE SCIENCE NOTES

Chicago Police Problems.—The Institute of Public Administration recently published a report entitled "Chicago Police Problems—An Approach to Their Solution," by Bruce Smith, in which the author relates the story of Chicago's police reorganization since 1929. A previous report, containing the results of some eighteen months of continuous study of the Chicago Police Department and its operation, was followed by an extensive reorganization of the force. The nature, extent, and the result of these changes are recorded in the present publication.

Various tables are included in this report showing the number of crimes committed over an eleven year period, and the disposition of cases arising therefrom. They indicate that the "general trend of crime in Chicago has been downward during the past two and one-half years," although there has been a recent increase in negligent homicides, and in minor larcenies. Murders and robberies diminished considerably, and so did the number of rapes, assaults, burglaries, major larcenies, and auto thefts.

The total number of gang murders for each of the years 1932 and 1933 was 36% lower than that for the peak year 1930. It was likewise lower than for any year since racket-murders first appeared in Chicago. As to the number of convictions obtained in such cases, it is interesting to learn that over an eleven year period there have been only four convictions out of approximately four hundred gang murders, two of them being ob-

tained in 1933. "Not a single death penalty has been meted out for a gang murder at any time during the eleven-year period."

In comparing Chicago trends from 1931-1933 with those of twenty-one other large cities in the United States, the author finds the comparison favorable to Chicago. Major larcenies declined to almost exactly the same extent as in other cities, but Chicago shows declines for four offenses (i. e., murder and manslaughter, homicide by negligence, rape, and burglary) which increased in other cities. The rise of minor larcenies in Chicago was materially smaller than in other cities. Chicago registered declines in robberies, aggravated assaults, and auto thefts much more pronounced than those in other cities. The author states that "Even though the general level of homicide, robbery, burglary, and auto theft is still unduly high, one cannot fail to be impressed by the improvement effected during the past two years."

Three charts are presented to explain the organization of the police department prior to 1930, when it was a system of "diffused responsibility for the performance of intimately related functions," as compared with the organization in 1930 and 1931, which was one of "extreme administrative decentralization," and the organization at the present time—a system containing a grouping of related functions whereby provision is made for the definite allocation of administrative responsibility.

The remainder of the report concerns itself with a number of criti-

cisms and suggestions. Typical of these is the criticism of the one-year residence rule as a hindrance to the improvement in the recruit personnel; of the delay in making appointments as a discouragement to the best qualified applicants; of the present so-called "mental" examination, for which the author would substitute aptitude or intelligence tests. Even the excessive weight in policemen comes in for its share of criticism. The author finds that the permitted range of weight for any given height is too generous, and suggests that the rule as to the height-weight ratio should provide a narrower range of weight for any given height in order that the natural increase of weight, which often accompanies the performance of police duty, may not carry recruits far beyond any reasonable limits within a few years after they have joined the force.

In the concluding chapter of this report the author makes the following remarks as to what has been done toward the improvement of the police force and what remains to be done:

"Roughly expressed in arithmetical terms, we can say that over 85 per cent of the police recommendations contained in our original report have been adopted, either in the form in which we then offered them, or with minor variations to meet changed conditions. It is perhaps unnecessary to add that the police department does not thereby approach a state of perfection. Some of the surviving patterns which we recommended for change, and to which we have referred at the appropriate points in this report, reach to the very heart of police administration. Moreover, only a relatively small part of our proposals concerning civil service control of po-

lice personnel have been adopted. Until positive action concerning them is taken, the results of police operations will continue to be heavily discounted at the source."

Legal Medicine.—Although legal medicine has long been recognized in Europe as an important branch of medicine, the publication of papers on this subject has been spread throughout the entire field of American medical journals. In Europe and in South America, several periodicals restrict their field to legal medicine alone. No so in North America. It is a refreshing sign, therefore, to note that one of our foremost journals of pathology, the *American Journal of Clinical Pathology*, has devoted its entire first issue of the year (January, 1934) to a consideration of problems of legal medicine, particularly so far as these pertain to conditions in the United States.

The main point under discussion was the technique of the medico-legal necropsy and was the subject of three of the seven papers. Whereas in the ordinary necropsy conducted in a hospital the purpose is to satisfy the intellectual curiosity of the attending physicians as to the cause of death, in the medico-legal necropsy, the investigation must be so complete and so thorough as to clearly demonstrate not only the exact cause or causes of death beyond all shadow of a doubt, but also to show that other possible causes did not contribute to death. The actual technique of making these investigations was elucidated by Dr. Charles Norris, Medical Examiner of New York City, and Dr. A. V. St. George.

A paper by Dr. Oscar Schultz discussed the medico-legal systems

in the United States, with particular reference to the comparison of the coroner system with that of the medical examiner system. He also discussed legal points pertaining to necropsies. Careless conducting of necropsies frequently leads to suits for damage in which the physician or coroner may find himself in a position where heavy penalties may be assessed for carelessness or thoughtlessness.

The pathological anatomy of death by drowning was elucidated in a paper by Dr. Miloslavich, formerly of Milwaukee, Wisconsin, in which it was pointed out that contrary to the popular idea, lungs in drowning cases need not necessarily contain excessive amounts of water. The swollen condition of the lungs is an excellent index as to whether or not the deceased was drowned. If the drowning occurred in turbid or muddy water, the finding of dirt and debris in the small lung passages is confirmatory evidence of drowning.

Dr. A. O. Gettler, Toxicologist of the Medical Examiner's Office in New York City, discussed the chemical analysis of vital organs removed at the necropsy and the interpretation of the chemical findings in demonstrating the cause of death.

The general discussion of the medical examiner's findings in cases of death from shooting, stabbing, strangling or choking was the subject of a paper by Dr. H. S. Martland, Medical Examiner of Essex County, New Jersey. Dr. Martland's paper of nearly 100 pages was profusely illustrated with experiences from his investigations during recent years and also numerous photographs illustrating the various points to be observed. His discussion of bullet wounds is one

of the best to be found anywhere in the literature of legal medicine and his case reports make very interesting and even exciting reading.

C. W. M.

Individual Characteristics of Human Blood.—Until quite recently, chemical and biological tests for blood were able to differentiate only between human blood and the blood of other animals. There were no satisfactory or certain methods for finer classification of human blood into individual groups. Immunologists have recently succeeded in dividing human blood into four main groups (classified as A, B, AB, O), which are useful in selecting blood donors where transfusions are needed in the treatment of certain diseases. One of these four groups (A) has been further subdivided into two divisions and three additional individual factors classified as (M, N, and P) have been isolated. The placing of this type of experimentation on a sufficiently positive foundation to permit its use in legal medicine has been the work of numerous investigators, including Dr. Landsteiner and his co-workers in New York, and Prof. L. Lattes. The utility of these methods for the classification of blood in blood stains and also to some extent in the individual classification of other bodily fluids such as saliva, urine and seminal fluid, is reported in the April, 1934, issue of *Annales de Medecine Legale, de Criminologie et de Police Scientifique*. The utility of the technique in tracing heredity, with particular reference to non-paternity, is indicated.

With the continuation of such experimentation, the classification of human blood into individual groups will undoubtedly become as common

and important a medicolegal procedure as the "precipitin" test for human blood as used at the present time. Dr. Lattes' paper supplements the experimentation previously published in his books, "The Individuality of the Blood in Biology and Clinical Medicine" (translated by L. W. Howard Bertie), Oxford University Press, 1932.

C. W. M.

Federal Technical Laboratory.— In a pamphlet released March 20, 1934, by J. Edgar Hoover of the Division of Investigation of the United States Department of Justice, an explanation was given of the purpose and scope of the Division's Technical Laboratory, which was established in the latter part of 1932. The establishment of the Laboratory was planned by the division with the assistance and advice of Dr. Wilmar Souder of the Bureau of Standards, a well-known and recognized authority in the field of scientific endeavor.

"Some of the instruments used in the technical work include the comparison microscope, in which the images of two separate bullets are brought within a single eyepiece for comparison; the binocular microscope which uses low magnification for the examination of handwriting, typewriting and other specimens with which it is an advantage to utilize the stereoscopic principle; the research microscope which enables magnification up to 1400 times to be obtained; the ultra-violet lamp for the examination of the fluorescent and phosphorescent appearances of objects and substances through which they may be identified; special cameras for photographing specimens; chemical apparatus for the examination of

blood stains, qualitative and quantitative analyses; delicate balances, and similar instruments.

"At the present, examinations are made in the Laboratory of documents or letters to determine the identity of the typewriting or the handwriting appearing thereon, the existence of watermarks and any other information which may prove helpful in the investigation of the case. In addition, ballistics is considered an important phase of the scientific work and comparisons are made whenever the occasion demands of bullets and exploded shells. Moulage is another feature which the Laboratory is equipped to undertake. This consists of the making of casts of parts of the human body and these casts are frequently of value in the trial of a case to show the exact location of the wound or for identification purposes. Micro-analyses of hairs and fibres are likewise considered as an essential and important part of the technical duties, and chemical analyses of stains including blood tests are performed from time to time.

"At this time considerable Laboratory research is being conducted. Further there are being obtained complete collections of watermarks, tire tread patterns, bullets, cartridges and powders and typewriting specimens to assist in the performance of the Laboratory examinations as outlined above. These standard specimens will be located in the Laboratory and will be made available to all law enforcement officials desiring to utilize them."

Finger-Print Powders.— In an article by Henry T. F. Rhodes, on the "Development and Photography of Fingerprints," published in the Shanghai Police Gazette of March,

1934 as a reprint from the "Revue Internationale de Criminologie," the author describes what he considers the best powders to use in the development of latent fingerprints. He states that "in general it has been found that only powders whose bases are the heavy metals are of any use for the development of fingerprints." Owing to their density, he observes, the particles of powder from heavy metals adhere tenaciously to the oily deposit of the ridges while this property does not make their removal from the furrows difficult.

For the development of the ridge pattern, the author found that red lead and lead carbonate gave the best results, but that barium peroxide and barium carbonate, owing to their "balling" effect were particularly easy to use in practice. For the development of the pores mercuric oxide gave the most satisfactory results, since it was amenable to the most intimate grinding and yet a powder of high density.

Single Finger-Print System.—In a pamphlet released January 2, 1934 by J. Edgar Hoover of the Division of Investigation of the United States Department of Justice, an announcement was made to the effect that in February, 1933, the Division of Investigation installed a single finger-print system.

"Due to the voluminous fingerprint file now in existence in the Division, where the fingerprints of 2,200 criminals are received daily, it became necessary to confine this study to the fingerprints of a certain limited class or classes of criminals in order that the single fingerprint file thus developed might be most comprehensive without becoming too large while in its construc-

five stages. After consideration, known gangsters and persons charged with the crimes of kidnaping and extortion were selected as being of sufficient general interest to serve a practical purpose and yet prevent the file from growing too rapidly while in the experimental stage. In these fields of crime recently entered by gangsters and their ilk, latent fingerprints often will be found to be quite prevalent, on extortion letters, at the scene of the crime, upon the abandoned automobile, at the rendezvous where the victim was held if it be subsequently located, etc. On December 31st, 1933 this file contained the single fingerprints of 3,860 criminals, whose names have been connected at some time in the past with racketeering or crimes of kidnaping or extortion. This means that 38,600 single fingerprints have already been classified and individually filed under the system.

"Heretofore it has not been possible for the Division of Investigation to receive latent fingerprints for comparison or search in its files unless the names of suspects in connection with the crime involved have been furnished and it has been possible to locate their fingerprints. The main fingerprint files of the Division contain 4,060,174 fingerprint cards and it would, of course, be impracticable to attempt to examine the majority of these cards, classified and filed under the Henry System, in order to attempt to find a fingerprint impression identical with a single latent print.

"With the installation of a single fingerprint file it is now possible for the Division to receive for search through this file latent fingerprints found at the scene of a crime, particularly when such crime is of a kidnaping or extortion nature, and

the Division invites the contribution for search through this file of latent fingerprint impressions. When such prints are submitted it is preferred, if possible, that they be positive photographs reproducing the latent prints in their actual size and accompanied by a brief description of the nature of the surface upon which the latent prints were found, color of the background, and information regarding the nature of the powders or chemicals which may have been used in the development of the latent prints. Such latent fingerprints will be searched through the single fingerprint files, and if not identified but susceptible of classification they will be filed in the Division for possible future identification as new criminal suspects are added to the file. If the crime is not one of kidnaping or extortion the Division will be pleased to receive latent fingerprints in connection therewith, provided the names or fingerprints of suspects are furnished in order that the latent impressions may be compared with the fingerprints of such suspects.

"Law-enforcement officials who from their files can furnish names of gangsters or individuals who in the past have been associated with crimes of kidnaping and extortion are urged to submit to the Division for entry in its single fingerprint file the names, arrest or commitment numbers, and fingerprint classifications of these individuals, in order that the Division's file may be maintained as comprehensively as possible, on a truly national scope."

Voluntary Finger-Printing.—As a result of the efforts of the Michigan State Police, civil identification through finger-printing has had its

official start in that state. According to an article appearing in "The State Trooper" for April, 1934, members of this police force recently gave hundreds of addresses before clubs, schools, etc., in an attempt to convince the public in general that finger-printing has its wonders to work in civil life as well as in the police world; and that the association of finger-printing with crime and criminals should not detract from its widespread use in civil matters. Immediately the efforts began to bear fruit: one hundred and twenty-five members of the Ann Arbor Rotary Club requested the state identification bureau for a fingerprint expert to fingerprint each and every member. This was done, and now the cards are on file in the state bureau. Other organizations are expected to follow this precedent.

Perhaps the most convincing argument used by the speakers representing the Michigan State Police was the result of the Federal Government's practice, adopted four years ago, of fingerprinting all Civil Service employees and applicants for employment, and then clearing such prints through the department of justice bureau. In one year, 1929, one person in every thirteen fingerprinted by the civil service commission was found to have been arrested and fingerprinted somewhere in the United States because of unlawful conduct. In a large number of cases it was determined that the persons whose offenses were detected through fingerprints had given untruthful answers to questions on the application blanks.

The principal interest of the police in this practice, apparently, is its value as an aid in the identification of unidentified dead.

Police Radio.—The Michigan State Police radio network now includes eight states, according to an article in the April number of "The State Trooper." Through a co-operative arrangement set-up between the Michigan State Police and the Massachusetts State Police, teletype connections are available with six eastern states. Ohio, Michigan, and Massachusetts operate in close co-operation. By this means of instantaneous police communication "hundreds of communications in these states can be dispatched with a speed measured in seconds instead of days."

Two-Way Police Radio.—According to a communication from Professor August Vollmer to the Journal, the Police Department of Piedmont, California, has recently installed a two-way radio telephone equipment, which provides an economical method of communication, within limited areas (1) between two fixed points, (2) between fixed points and mobile units such as automobiles, boats or airplanes, and (3) between the mobile units themselves. Professor Vollmer expressed the opinion that although some of the difficulties associated with this system of communication will have to be overcome, it is now sufficiently serviceable for all practical purposes and will eventually merit universal application.

The particular equipment used by the Piedmont Police department is a product of Universal Communications, Inc. In a bulletin issued by this corporation it is stated that the system operates on frequencies between thirty and fifty thousand kilocycles, thereby utilizing thousands

of new wave channels for communication, in contrast to the present limited wave bands which are very much overcrowded. Among the other noteworthy features of this equipment are listed the following: "Sets Stay in Tune Without Shifting Frequency"; "Experienced Operators Not Required"; "Will Carry Through Buildings, Hills or Other Objects"; "Compact"; etc.

Students of Police Science.—Corporal A. I. Elkins of the New York State Police, Troop C, recently received a brief period of intensive instruction in firearms identification from Major Seth Wiard, Instructor in Police Science, at the Scientific Crime Detection Laboratory of Northwestern University School of Law.

Officer Anthony Bledsoe, of the Police Department of Berkeley, California, was sent by that department to the Scientific Crime Detection Laboratory to receive a period of instruction from Professor Leonarde Keeler in the use and operation of the Polygraph or so-called "Lie-Detector."

Suggestion.—Although one complete section of this Journal is devoted to Police Science, the reader will find, in practically every issue, related material appearing elsewhere in the Journal. For instance, the section on "Recent Criminal Cases" frequently will contain comments on cases wherein scientific methods were used to obtain convictions. And in the section on "Book Reviews" the reader will doubtless find one or more reviews of books of particular interest to the criminal investigator.