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Police Science Notes

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POLICE SCIENCE NOTES

A Crime Detection Laboratory for Scotland Yard— The Metropolitan Police College at Hendon is to be equipped with a scientific laboratory under the direction of an expert pathologist, according to an editorial which appeared in the November 30th issue of the "Police Review" of London.

"The students of the college will be instructed in scientific methods of crime detection. Similar courses are in contemplation for Police recruits during their period of training and for other members of the Force. The laboratory will also be used for research work in criminology, and the services of the Director will be available for helping detectives when actually engaged on cases.

"The establishment of this 'crime laboratory' is, of course, not an innovation, but a natural development of what has been going on for some time in other parts of the country. As an integral part of the Police College curriculum, it means that in course of time all officers holding high rank in the Metropolitan Police will have received a systematic course of instruction, practical as well as theoretical, in the application of science to criminal problems. In so far as the instruction is extended to Constables and Sergeants studying for the promotion examinations—and this is already the case in certain Provincial Forces—it means that in the future a practical acquaintance with and an understanding of the scientific approach to criminal investigation will be general among the Police.

"This is all to the good. One of the essentials of an efficient Police Officer of whatever rank, and whether he is in uniform or not, is that he should be a good observer. The cultivation of the powers of observation is part of a Policeman's training for his job. In order to be an effective observer it is necessary first of all that one should know what to look for, and, more important still, what significance or value to attach to what one finds. Knowledge is necessary for this, and by its aid the man who is first on the scene of the crime may be able to give the specialists invaluable help and guidance when they arrive to take up the trail and pursue the investigation. For all Policemen to be grounded in the general principles of criminal investigation is definitely desirable. For the specialists to know all that science can tell them about the way to set about their job is absolutely essential for effective detection.

"At the same time, it should be recognized that a great deal of criminal investigation is not of the kind that calls for laboratory treatment. Its main qualification is a knowledge, partly intuitive, but largely the outcome of experience, of criminal human nature, and a practical acquaintance with the habits of criminals. Without this the scientific investigator, with all the laboratory equipment in the world, will miss the mark. Experience counts, and the methods pursued by those trained in the old school with such untiring persistence, dogged tenacity and infinite patience, are not going

to be dispensed with, though they will undoubtedly be better guided by the help of the crime laboratory.

"Nor must it be forgotten that, important though the detection of crime undoubtedly is, the primary object of the Police Force is to prevent it. The maintenance of law and order is the big responsibility that is cast upon the Police, and to make themselves thoroughly efficient in this respect is their first obligation. It is necessary to insist on this in order to maintain a right perspective. The crime laboratory has its place in the scheme of Police education and in the provision to be made for the investigation of crime. But the more effective the Police Force is in preventing the commission of crime, the better will it serve Society, and the more credit will it bring to the Force. Certainty of detection is of itself a potent preventive, and in this way the two, prevention and detection, work together, though prevention is the ultimate aim."

The National Police Institute of China—Dr. Frank Yee, of the Chekiang Police Academy in Hangchow, China, is author of the following comments on the National Police Institute of China:

"The Chekiang Police Academy has been amalgamated with the Central Military College, and is the national police institute. The Academy has been in operation since September 1, 1934, and students have come from all over the country, the total enrollment being about 350 students. A number have been eliminated who did not survive the mental and physical tests. At the present time experiments are being conducted with the Army Alpha test for the purpose

of ascertaining the mental fitness of the men.

"Students receive two years intensive theoretical and practical training, and during this period they are required to patrol beats and enforce the 'New Life' movement initiated by General Chiang. The courses for the first year are compulsory for all students, and include: target practice, swimming, self-defense, military science, use of emergency equipment, political training, municipal government and administration, Chinese composition, police report writing, public speaking, foreign language (English, French, German, Japanese, or Russian), social problems, social investigation, criminology, criminal investigation, psychology, group psychology, public health, general laws, criminal law and procedure, city ordinance and police regulation, administrative law, police administration and organization, police methods and procedure, political police, physics, chemistry, economics, first aid, finger-prints. In the second year the students will be allowed to choose a major from four departments: Administration, Criminal Investigation, Foreign Service, and Police-woman.

"Advanced courses in the Administration Department include: safety police, Anglo-Saxon police systems, European police systems, Japanese police systems, country police, distribution of police force, police personnel, traffic accident prevention, fire police, census taking, police records, reporting, police radio, crime prevention, foreign language (continued), political training (continued).

"The courses offered during the second year in Criminal Investigation are forensic chemistry, forensic medicine, photography, criminal

identification, police dogs, cryptography, police records, crime prevention, foreign police systems, radio, psychiatry, and political training, reporting, and foreign language continued.

"Courses for the Foreign Service Department are: international law, treaties with foreign countries, foreign police systems, police records, criminal identification, crime prevention, census taking, recent European history, recent world diplomacy, economic policy, cryptography, radio, psychiatry.

"In the Policewoman Department we have courses concerning the duties of the policewoman, police records, criminal identification, forensic chemistry, forensic medicine, psychiatry, safety police, cryptography, radio and photography.

"We are buying books for our library and to equip a police laboratory. We are modernizing the whole Chinese police administration."

Scale Structure of Animal Fibres—The December 1, 1934, issue of "Fugitives" (Vol. 3, No. 12), published by the Division of Investigation of the United States Department of Justice, contains a very interesting and valuable article written by J. I. Hardy, a National Research Fellow in Biological Sciences (U. S. A.). It is a reprint from the January, 1932, issue of the "Journal of the Textile Institute," Manchester, England, and the title is, "A Method for Studying the Scale Structure of Medullated and Pigmented Animal Fibres." Appropriate photomicrographs accompany the article. The author describes his method as follows:

"The difficulties encountered in the study of the surface structure

of animal fibres have been largely overcome, in the case of white, unmedullated fibres, by correct mounting and illumination. Where pigmented or medullated fibres occur they interfere seriously with these methods. Accurate examination of the scale structure of such heavily pigmented or medullated fibres has presented difficulties and the photography of the surface structure has not been successfully accomplished. Saxinger and Herzog pressed fibres partially into plastic materials, using the negative impression thus secured for examination and study. These methods furnish an inverted image of only a portion of the circumference of the fibres, and are inadequate for biological studies upon the structure of entire fibres.

"The purpose of this article is to present a method in which a plastic material is used, but which is applicable in the accurate examination of the scale structure of all animal fibres, with ordinary laboratory equipment. This method is similar in principle to the impression methods already cited but furnishes a positive impression of the fibres and presents the entire circumference for examination. Its novelty lies in the fact that it gives a complete cast of the fibres, as shown by photomicrographs published with this paper.

"The fibres are first cleaned with water, alcohol and ether, and thoroughly dried. They are then mounted on a microscope slide, with the fibres all pointing in the same direction. The mounting consists of securing the ends of the fibres to the slide by means of wax or adhesive plaster. The fibres should be so spaced that they do not touch or overlap each other. Adhesive tape about $\frac{1}{2}$ cm. wide is stuck on the slide, two layers thick, and arranged

so as to leave the fibres to be examined exposed in an open space about 1 cm. x 2 cm. in size. Into this open frame sufficient celluloid solution is poured to fill the opening to a little above the level of the plaster. This solution consists of about 20 gms. of celluloid in 100 gms. of acetone, and should be about the consistency of syrup. With certain kinds of celluloid a 30% solution may be necessary to give the required consistency. In damp climates where impressions from this solution tend to become milky while drying, a less volatile clear drying solvent may be substituted for the acetone. Oil Red BN may be added to advantage when the impressions are to be used primarily for microscopical examination, although it is not an advantage in their photography. After the solution is poured into the plaster frame, it is scraped level with the surface of the plaster by means of a second microscope slide. When a frame is not used for the celluloid it dries too rapidly around the edges, making the removal of some kinds of fibres more difficult. This action also serves to press the celluloid closely about the fibres, leaving them completely enveloped. The mount is then permitted to dry sufficiently to allow the plaster to be peeled off the slide, bringing with it the celluloid cast of the entire circumference of each fibre, but leaving the fibres themselves attached to the slide. In doing this, a fissure is produced by each fibre on the lower side of the film. See Plate I(e). (Cross sections may now be made from these fibres, at the same points at which the impressions were made.) The thin sheet of celluloid containing the impressions is cut from the plaster frame and placed on a thin microscope slide, under a cover glass

which is held in place by means of a frame of gummed paper. With fibres of small diameter, it is difficult to remove the celluloid from all at the same time without breaking some of them. In this case, it is best to detach the fibres from the slide and remove them with the celluloid. Each fibre may then be withdrawn individually from the film. The ends of the fibre held under the plaster have been protected from the celluloid and may be easily grasped with tweezers and removed. Very short fibres may be handled by fastening their ends directly upon the adhesive surface of the frame, which is in turn placed upon the slide. Fibres having low tensile strength should be drawn from the celluloid before it hardens completely. Two or three trial tests will readily establish the best time for withdrawal.

"When mounting the celluloid impression, the surface having the fissures through which the fibres were withdrawn should be next to the slide. Some may prefer to mount these impressions between two cover-slips cemented together, and it is then immaterial which side up the impressions are mounted. In either case the impressions of the fibres may be examined through either side, making it possible to study the entire surface. For some fibre studies, the fissure produced in removing the fibres may be a disadvantage. In such cases, they may be drawn out of their celluloid cases, in the direction of their root ends, for varying distances, depending on their strength and elasticity. Strong fibres like horse mane or tail hair, or human hair, may be completely removed for a distance of at least 2 cm. Delicate wool fibres may be pulled for a distance of at least 2mm. This is ample for

microscopical examination or for photography. Before withdrawal, the desired length of fibre should be cut off in the celluloid.

"In addition to showing the pattern of the scales upon the fibres, all these methods of making impressions reveal the saw-tooth projections of the scales from the fibre.

"This method has been used in the author's studies on the felting quality of wool, carried out in the Textile Department of the University of Leeds, England, and in the Institut für Tierzucht und Molkereiwesen, University of Halle, Germany. Varying degrees of damage to the surface structure of wool may readily be seen by this method, and their visibility is in no way interfered with by the presence of medulla, pigment or dyes. The method serves equally well with flat-lying or projecting scales, impressions of fibres taken in this way are readily examined under an ordinary microscope or projected through a projection microscope, and they are easily photographed."

Recent Handwriting Case—The United States Circuit Court of Appeals (Eighth Circuit) recently rendered a decision involving the admissibility of photostatic copies of a questioned document as the basis for a document examiner's comparison with original standards. *Hartzell v. United States*, 72 Fed. (2d) 569 (1934).

The defendant was prosecuted for using the mails to defraud. At the trial a document examiner, who had used photostats of questioned letters as the basis for his comparison, was permitted to testify concerning the similarity of these photostats with the original standards. It appeared that the original letters

had been destroyed by their recipient. Over the defendant's objection the document examiner was permitted to testify. The appellate court affirmed this ruling, being of the opinion that photographic copy was a sufficiently accurate reproduction.

This case also involved a ruling on the admissibility of typewriting identification testimony. The objection interposed by the defense was that such testimony was "incompetent, irrelevant, and immaterial, no proper foundation having been laid, and calling for speculation and surmise," and also that "an attempt to usurp the function of the jury on a matter on which expert testimony is not proper." This objection was also overruled.

The Attorney General's Conference on Crime—Nine resolutions were adopted by the delegates to the Attorney General's Conference on Crime, held in Washington, D. C., on December 10-13, one of which provides that a national scientific and educational center be established in Washington for the better training of carefully selected personnel in the broad field of criminal law administration and the treatment of crime and criminals.

Further detailed information concerning this conference may be found elsewhere in this *Journal*. Also see 21 Am. Bar Ass'n Jour, No. 1 (1934).

An Act Creating a State Bureau of Criminal Identification, Investigation, and Statistics—The Committee on Uniform Crime Records of the International Association of Chiefs of Police (William P. Rutledge, Chairman) recently published the draft

of an act creating a state bureau of Criminal Identification, Investigation, and Statistics. This draft was prepared for the benefit of those states in which such bureaus do not exist at the present time. Copies of it may be obtained from the Committee at 850 East 58th Street, Chicago.

The first section of the Act provides for the appointment by the Governor of a Superintendent, who "shall be a person trained and experienced in the field of personal identification and in the compilation of statistics. He shall be removable by the Governor only for cause and shall have the right to be provided with a certain statement of the charges against him and to a public hearing thereon." The section also empowers the Superintendent to appoint and remove the personnel of such a bureau.

Another section provides that "every sheriff and every chief police

officer of the state and of any local government unit shall transmit to the Bureau" the names, finger-prints, photographs, and other designated data of all persons arrested for, or suspected of various crimes enumerated in the Act.

Details regarding the various functions of the Bureau, and its method of operation are covered in other sections. Section 16 concerns itself with the establishment of scientific crime detection laboratory facilities.

Wiltberger in Charge of Police Training School—William A. Wiltberger, a graduate of Professor August Vollmer's Police Department at Berkeley, California, and later Chief of Police of Evanston, Illinois, is now head of the Police Training School at San Jose, California.