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Police Science Notes

POLICE SCIENCE NOTES

Medicolegal Aspects of Alcoholism—For the past several years there has been an increasing interest in scientific tests of alcoholic intoxication. These have been particularly important in connection with the influence of alcoholism upon motor accidents. A recent brief review of the literature of the subject is published by Dr. F. Kozelka in the November, 1935 issue of the Wisconsin Medical Journal under the title, "Medicolegal Aspects of Alcoholism." The author, who is the toxicologist at the University of Wisconsin Medical School is well qualified to summarize and evaluate the results of the various investigations which have been published thus far.

Much of the discrepancy which is to be found among the reports of various investigators centers around their varying standards as to what constitutes "intoxication" or "drunkenness." It is pointed out that according to some standards (Heise and Miles), any perceptible abnormality of function produced by alcohol, constitutes "intoxication." On the other hand, the other extreme represented by Turner and the British Liquor Control Board, seem to require that a person be largely deprived of his ordinary physical and mental faculties before he is to be designated as "intoxicated" or "drunk." A more reasonable position seems to fall between these two extremes. It is suggested that with regard to motor accidents, the person who is probably the greatest menace, is the one who has taken just enough alcohol to impair his judgment and slow down his reaction-time, but not sufficient to prevent his driving an automobile.

It is pointed out that the variation in susceptibility to alcohol which is shown by various individuals is traceable to their habituation to alcoholic liquors or to a natural tolerance to their effects. This results in an increased ability of the body to oxidize or "burn" alcohol, thus tending to keep the concentration of alcohol in the blood stream at a lower level. Regardless of habituation or natural tolerance, persons having equal concentrations of alcohol in their blood stream, are equally drunk. The author calls attention to certain conflicting statements in the various published researches. Among these is the opinion held by Gettler and his co-workers, that the alcohol content of brain and cerebrospinal fluid constitutes the most reliable chemical index of alcohol intoxication. This has been shown to be in error (particularly with respect to the spinal fluid) by careful researches of other workers. Dr. Kozelka comes to the final conclusion that alcohol content of blood and urine gives the most reliable indication of the extent of drunkenness. The chemical analysis of these body fluids furnishes a most useful, objective and reliable check upon the purely clinical findings in determining whether or not a particular individual was under the influence of alcohol, and further, the extent to which that influence is manifest.

C. W. M.

Bloodhound Evidence — On November 9, 1935, Mr. John D. Germann, State's Attorney of Green County, Wisconsin, appeared at the Scientific Crime Detection Laboratory with a suspect in a burglary case, which person Mr. Germann requested to have examined by the Polygraph detection of deception technique. Bloodhounds, taken to the burglarized premises, had followed a course for approximately half a mile and led police authorities to the home of the suspect referred to above. For that reason the suspect was taken into custody for questioning. His alibi was none too good, and in an effort to ascertain the truthfulness or untruthfulness of the suspect's statements he was taken by the State's Attorney to the Laboratory to be subjected to a Polygraph or so-called "lie-detector" test.

The suspect's Polygraph records indicated, in the examiner's opinion, that the alibi statements were truthful and that the suspect was innocent of the crime in question. A report to this effect was made to the State's Attorney, and shortly thereafter the suspect was released from custody. Nothing further developed until February 18, 1936, when Mr. Germann called upon the Laboratory for assistance in another burglary case, one in which he requested the Polygraph testing of two suspects. During the course of their interrogation both boys confessed to a series of burglaries, one of which was the very offense for which the suspect of November 9th of the previous year had been arrested, as the result of the appearance at his home of the bloodhounds mentioned previously. Sufficient evidence has been obtained to confirm the confessions, so that there can be no doubt but that the bloodhounds were "in error."

It appears that the original suspect—the one of November 9th—had upon several occasions petted the bloodhounds, who belonged to an acquaintance. Moreover, upon one occasion the suspect had gone to the home of the owner of the bloodhounds. These facts may possibly explain the reason for leading the police authorities to the innocent man's home, even though this person had not recently passed near the burglarized premises.

Effects of Carbonization of the Skin and Its Appendages—The October, 1935 number of the *Archivos de Medicina Legal e Identificação* (Brazil) contains a brief paper summarizing the results obtained in a series of experiments conducted at the University of Paris on the effects of various temperatures on the skin, hair, nails, and teeth. This résumé, under the title, "De la carbonisation de la peau et de ses annexes, poils, ongles et dents," was prepared by Dr. M. Derobert, Director of the Laboratory of Legal Medicine.

The lesions which are produced in the various structures at several temperature levels are outlined, and, according to the author, these may be used as indicators for determining the approximate temperature to which a body has been subjected. Furthermore, it is noted that although certain elements may be destroyed by burning, others persist and make it possible to determine whether or not the body is that of a human being. It was found that at 400 degrees the skin, nails, and hair were completely carbonized, but the teeth withstood a temperature of 1100 degrees, with the histological

structure preserved almost intact. Hair subjected to temperatures not higher than 215 degrees retained the medullary index unchanged, and could still be accurately identified.

M. E. O.

Firearms Identification: Admissibility of Evidence Bullet Found Week After Homicide—In *Jones* v. *State*, 86 S. W. (2d) 7 (Ark., 1935), a recent murder case decided by the Supreme Court of Arkansas, counsel for the defense objected to the introduction in evidence of a bullet found at the scene of the crime one week after its commission. The purpose of the state in submitting this bullet was to permit the jury to consider it in determining whether or not it had been fired from the defendant's pistol. The trial court overruled defense counsel's objection, and upon appeal the Supreme Court affirmed the trial court's ruling, saying: "The mere fact that the bullet had been found a week after the killing did not render its introduction inadmissible. This fact was a circumstance for the jury to consider in weighing the evidence. The parties who found it testified to having done so, and the manner and kind of search they made for it. It became a question for the jury to say under these circumstances whether it had been fired by appellant through the head of deceased or whether it had been deposited in the ground after the killing by some interested party."

Comparative Micrography of Vegetable Structures—One of the most important phases of scientific criminal investigation, and one frequently productive of proof of an almost absolute nature, is that concerned with the comparison of two or more distinct objects having similar structure, characteristic markings, or other features which indicate close similarity or identity—a branch of investigation which may be termed, for convenience, *comparative micrography*. A comparative procedure familiar to all is that used in the identification of fired bullets. Other objects lend themselves to studies of this nature and, when they exhibit more or less individual peculiarities, may be of considerable importance in establishing the bond between a suspect and a given crime. Objects or materials which have been studied in this manner include knives, chisels, screwdrivers, scissors, and the various surfaces upon which they have left imprints of their characteristic imperfections; also paper, wood, cloth, wire, rope, glass, etc., which may be matched to show that the distinct parts originally were continuous, constituting a single piece.

An article presenting an unusual application of comparative micrography (and one of potential importance not indicated by the title) appeared in the November 1, 1935, number of the Police Review (England). This article, bearing the title, "A Method for the Identification of Stolen Cabbages," was written by Dr. Wilson R. Harrison, Scientific Consultant to the Cardiff City Police, and describes principles and methods which would be applicable in many cases involving plants, where it is necessary to prove that any two structures were once continuous.

The author describes the circumstances leading to the investigation as follows: "At Cardiff, in the spring of the year, allotments [land assigned to a farm laborer for private cultivation] were being robbed of cabbages. A certain allotment

holder was suspected and ultimately he was challenged when walking off with what were alleged to be stolen cabbages. He asserted they were from his own allotment, where he had in fact cabbages of the same variety and in the same stage of growth. His accusers would not detract; consequently the Divisional Police explained the position to the author and inquired whether it was possible to prove that the cabbages in question had been taken from the raided garden."

The plants in question and all of the stalks remaining in the garden were taken to the Cardiff Police Laboratory for examination. From the investigations made it was found possible to prove to the satisfaction of the court that all the plants had, in fact come from the garden of the complaining witness. A plea of guilty, and a conviction, resulted.

In the laboratory examination of the exhibits, three different methods were employed, depending upon the form and structure of the stem and the nature of the particular cut. Wherever jagged cuts were found, the two parts were placed in proximity to each other in the obviously original position and a photograph made showing the coincidence of irregularities as seen in surface view. In those instances in which the cut was clean and sharp, two other methods were employed. If the stem was found to be of irregular form with a distinctive cross-sectional outline, meshed photographs were taken of both the top of the stalk and the base of the plant, and by means of these the similarity in size and shape could be demonstrated. If the stem showed no distinctive lines, the cut surfaces to be compared were treated with reagents to bring out the fibro-vascular elements, photographs of these were made, and the complicated fibre patterns of cabbage and stump shown to be identical; because of the enormous variations which are found in fibre characteristics, even in plants of the same variety growing in the same place, the comparison of two specimens by this method affords evidence of a most positive character.

M. E. O.

Moulage Materials—An article entitled, "The Technic of Molding and Casting for the Medical Sciences," by Mr. C. D. Clarke of the Art Department of the University of Maryland Medical School, should be of interest to all police laboratory technicians utilizing molding and casting processes, and especially those who prefer to use compositions of their own manufacture. The paper appeared in the Journal of Laboratory and Clinical Medicine, Vol. 21, October, 1935.

Although the procedures of molding and casting are only briefly discussed, the author describes at some length the properties and action of the ingredients of several compositions, and also methods of compounding negative and positive preparations of his own invention. A few formulas devised by other workers, including those of Poller, are reviewed and criticized. Altogether, the paper will be found most useful to moulage experimenters, or to experts who wish to improve their technique through a better knowledge of the properties of materials of the type now in general use.

M. E. O.

Expert Testimony Regarding Shoe Prints—In the case of *People* v. *Taylor,* 50 Pac. (2d) 796 (Calif.,

1935), one in which the defendant was being tried for burglary, the investigators had recovered on the floor of the burglarized premises a piece of paper, an invoice, upon which there was the imprint of the rubber heel of a man's shoe. This paper the prosecution introduced in evidence to show the similarity between the imprints and the shoe found in the defendant's possession. The prosecution also introduced in evidence a photograph of the imprint on the paper and another photograph of an imprint made by one of the shoes found in the defendant's possession. "An expert criminologist took the stand," states the appellate court in its opinion, "to testify to the result of his study and comparison of the imprint on the invoice. He testified that in studying the case he had enlarged the photograph of the imprint on the invoice and made other additional photographs and prints, and also created a composite picture from portions of the prints placed in juxtaposition. Without detailing the course of his reasons, as brought out by his thorough examination, it is sufficient to say that he pointed to correspondence between the objects before him and announced his opinion that the imprint on the invoice was made by said rubber heel from the shoes found in appellant's apartment. All of this was admitted without objection. Therefore, we are concerned, not with its admissibility, but only with its effect.

"In those states where the subject has been considered, the trend of authority seems to be to the effect that by reason of the great practical differences between finger prints and shoe prints, in that the shoe prints are so large and the points of similarity so obvious, the comparison of shoe prints is a matter of non-expert, rather than expert testimony. And where it was held that expert testimony may be given, concerning measurements of footprints and shoes, and their correspondence with each other, it has been held that the witness may not express the direct opinion that the shoe made the tracks.

"The implication is that the expert's opinion, when given, even if uncontradicted, is not conclusive of the fact, but the jury may consider the opinion evidence together with its own inspection of the physical evidence and this is, we think, the correct rule."

X-Ray Photograph Used as Basis for Identification of Dead Body—Among other facts in the case of *Catrell* v. *State,* 86 S. W. (2d) 777 (Texas, 1935), pointing to the identity of a cadaver, for the death of which the defendant was being tried, a physician who had previously treated the alleged victim for gunshot wounds was permitted to testify that an X-ray made of the patient showed a hole through a leg bone corresponding with a hole in a leg bone of the cadaver, and that in his opinion they were the same. Upon appeal the appellate court held the physician's testimony to have been properly admitted as evidence.