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# Police Science Notes

# POLICE SCIENCE NOTES

## TECHNICAL ABSTRACTS

By M. Edwin O'Neill†

**Detection of Altered Writing**—One of the most difficult problems of the document examiner is that involving the detection of an alteration made by addition of writing strokes to parts of the original text, or by the covering up of writing by striking over or blotting out with a medium of the same type as that used in executing the document. The problem is greatly simplified when the added matter happens to be made with a writing material of different composition; in such a case a number of methods are available for detecting and demonstrating the fact that an alteration has been made and also for ascertaining the context of the original writing. An investigation in a case of this latter type is described in a recent issue of The Police Journal (London) by C. Harold Edlin, Staff Physicist of the Forensic Science Laboratory of Nottingham.[1] The case reported is of considerable interest in that three different procedures were employed, each of which was valuable in bringing the examination to a successful conclusion.

The circumstances of the case are described by the author as follows:

"Mr. X was in the habit of ordering periodical supplies of a certain commodity, and on the delivery of each supply he wrote out a receipt on a slip of notepaper, postponing payment until the end of the month. At the end of one December he was presented with an account backed by a receipt in his handwriting dated '18.XII.35.' Mr. X was quite satisfied in his own mind that he had received a similar supply on the 18.XI.35 for which he had already paid. He did not deny that the document was in his own handwriting, and that it was his own signature at the foot of it. However, he refused to pay, suspecting that the receipt which he had given for the month 'XI' had been altered so as to apply to the month 'XII,' and eventually it fell to the present writer to make an examination of the alleged alteration." (See Fig. 1.).

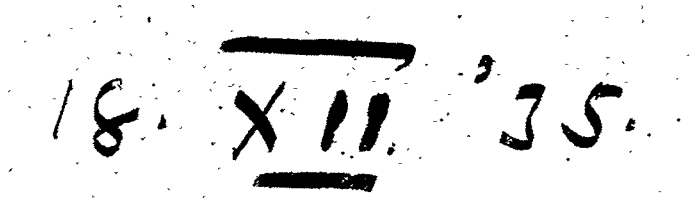

Figure 1. Ordinary photograph of disputed date on receipt. (Slightly enlarged).

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1 Edlin, C. H., "A Case of an Altered Document," The Police Journal, *11* (1): 179-181 (1938).

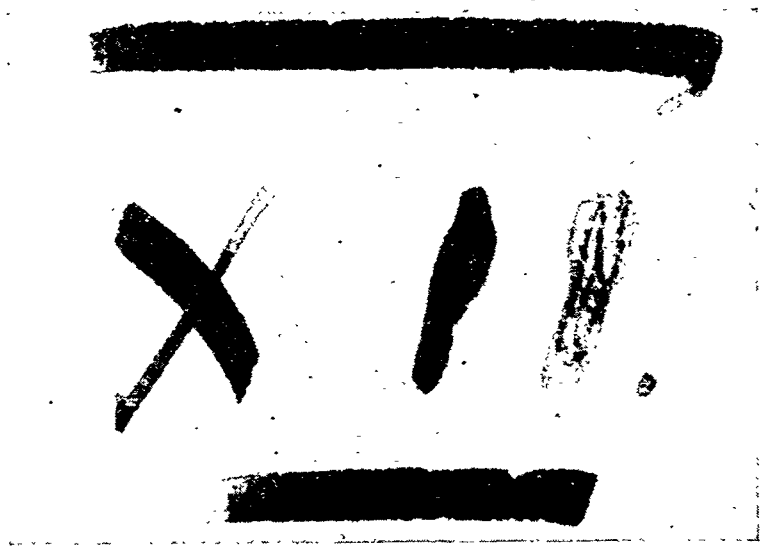

FIGURE 2. Infra-red photograph of part of date showing added ink strokes (X 4).

FIGURE 3. Ordinary photomicrograph of part of date (X II).

[These illustrations are reproduced from the Police Journal with the kind permission of its editor, Mr. P. B. M. Allan.]

The first method employed in the examination consisted of photographing the disputed figures with the aid of infra-red radiation. Because of the different degrees of absorption of infra-red rays of some writing inks this method is sometimes useful in restoring an obliteration, or in demonstrating the presence of inks of different type. In the case described the infra-red photograph indicated clearly that the final "I" and part of the first "I" in the figure "XII" had been added to the original writing. (Fig. 2).

Microchemical spot-tests were also made on various parts of the numeral XII in the disputed date and these also revealed that two entirely different kinds of ink had been used. The horizontal strokes, the "X" and the original "I" consisted of iron gall ink, whereas the final "I" and the added parts of the first "I" were written with logwood ink.

The third method consisted in the examination of the disputed writing with a low-power microscope which not only revealed that an alteration had been made, but also that the added portions in the date had been made with repeated strokes of a fine nibbed pen, instead of with a broad-nibbed pen as in the other parts of writing in question. (Fig. 3).

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**The Identification of the Hair of Colored Races**—A contribution to the diagnosis of race of an individual from a microscopic study of hairs was published recently in the Annales de Médecine Légale (Paris).[2] The authors, Drs. Desoille and Grinfeder, point out that the expert runs the risk of confusing the head hairs of a negro with those from the pubic region in the white race, especially when only one or two hairs are submitted for examination. Although both the head hairs and pubic hairs of the negro are usually found to be more curly than the pubic hairs of Europeans, this difference is insufficient from the standpoint of accurate diagnosis.

In the study reported, observations were made of samples of head and pubic hair from various tribes of African negroes, especially in regard to pigmentation, diameter, and appearance of the root or bulb as seen under the microscope. The pigment in hairs from both regions appears uniformly black like that in a horse hair and with great enlargement the pigment granules are seen to be numerous, dense, and thick, and masking the medullary canal in many places. In the head hairs the bulb or root is especially important. In the hair of Europeans the root is almost straight, but in the negro, in addition to some almost straight roots, there are others that appear doubled up, or in the form of a helical spiral, or bent in the form of a hook, somewhat resembling a fish hook. The hair roots in a white person with very curly hair may show somewhat similar appearances, but the hairs may be distinguished by the differences in pigment. In the pubic hair of the negro the roots have the same appearance as those in head hair but to a much less pronounced extent. Certain differences were observed in the average

[2] Desoille and Grinfeder, "Sur L'Identification des Poils Provenant de Sujets de Race Noire," Annales de Médecine Légale, *18* (4): 306-312 (1938).

diameter of the hair shaft in the two races. In the pubic hair of the negro, for example, the diameter near the root is between 90-100 microns, whereas that found in Europeans (according to the work of Lambert and Balthazard) averages 120 microns.

## LEGAL DECISIONS

By Fred E. Inbau

**Self-Incrimination—Legality of Tests for Alcoholic Intoxication** — The Ohio Court of Appeals for the Ninth Judicial District recently rendered an interesting decision bearing upon the question whether or not a motorist accused of driving an automobile while intoxicated could be compelled to submit to a scientific test for alcoholic intoxication. See *State* v. *Gatton,* case No. 1043, decided May 12, 1938 (unreported as yet). The facts of the case were as follows: After the defendant had been arrested and accused of operating a motor vehicle upon a public highway while under the influence of alcohol a deputy sheriff requested him to submit to a blood test or urinalysis for alcoholic intoxication. The defendant refused. At his trial, evidence was admitted as to the request to submit and to defendant's refusal; and this was followed by argument of the prosecutor to the jury that they should consider the defendant's refusal to submit to the tests as an inference of his guilt. The defendant objected to the admissibility of this evidence and to the prosecutor's comments, alleging that this constituted a violation of his privilege against self-incrimination. His objection was overruled, a conviction resulted, and the defendant appealed.

Upon appeal the court considered the problem as follows: "We are required to inquire into and ascertain what is meant by the provision of the constitution 'No person shall be compelled, in any criminal case, to be a witness against himself.' Did the court, when it permitted the state to show that demand had been made upon the defendant to submit to examination, and defendant's refusal to submit, compel the defendant to be a witness against himself?" As to the prosecutor's comments, the appellate court considered this feature of the objection as merged with the other, because "if such evidence was admissible, then, of course, there was no error in the prosecutor's comment thereon" but "if it was inadmissible, the comment of the prosecutor aggravated the error of its admission."

In upholding the conviction the appellate court said: "It will be observed in the instant case that the evidence offered was not required to be given by the defendant himself, but was given by the deputy sheriff and the doctor called by the deputy to make the examination of defendant. We are unable to observe any merit in the defendant's claim that the introduction of such evidence violated his constitutional rights, and we believe, and hold, that the constitutional inhibition against self-incrimination relates only to disclosure by utterance. No such disclosure was required of defendant in this case.

"The evidence offered was admissible, and the right of the prosecutor to comment thereon within reasonable limits invaded none of the defendant's constitutional rights.

"There has been an increasing tendency in recent years upon the part of courts of many jurisdictions to extend the scope of the self-crimination constitutional provisions to entirely unwarranted lengths. Modern-day transportation which enables criminals to travel with great rapidity from one part of a state to another, or from one state to another state, together with improvements in lethal instruments, has made the path of the law-enforcement officer exceedingly rough; and it seems to the members of this court to be high time to discontinue such an attitude towards those accused of criminal offenses, and to secure to them such rights as are clearly guaranteed by constitutional provisions, but no more. Maudlin sentimentality in favor of those accused of crime should not be encouraged."

For a detailed discussion of the question of what an accused person can be compelled to do see volume 28 of this Journal, pages 261-293 (1937).

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**Detection of Deception—Admissibility of "Lie-Detector" Evidence—** The citation to the recent New York Kings County Court decision concerning "lie-detector" evidence, referred to in the last issue of the Journal before the official report of the case appeared, is *People* v. *Forte,* 4 N. Y. Supp. (2d) 913 (1938). This was the case in which the court refused to permit a "pathometer" test to be made upon the defendant by Father Summers of Fordham University. Following are excerpts from the court's opinion:

"It would be a rash prophet who would dogmatically assert that as a result of scientific research, a device that would be of inestimable value in accurately and unerringly ascertaining the truthfulness of testimony, is impossible of perfection. The extraordinary strides made in so many fields of human endeavor, as a result of scientific study, would stamp as foolhardy any such contention. Whether such a device now actually exists is beyond the question. * * *

"There is neither unanimity, nor even approximate agreement, among writers upon the question whether such a device has been perfected.

"The Court expresses no opinion on that subject.

"To justify the use of any such test 'there must first be proof of general scientific recognition that they are valid and feasible.' * * *

"Even if such tests were generally accepted by scientific men as valid and feasible, innumerable details of procedure would remain to be determined.

"In the instant case the defendant, while tried, did not testify, nor has he even stated under oath his innocence. If a test were authorized and proved unfavorable to defendant, would testimony of the test be admissible over defendant's objection and refusal to testify? Some writers express the opinion that use against the defendant of the result of such tests would not violate the inhibition against self-incrimination.

"It seems to the Court, that if such tests were authorized, definite rules should be authoritatively established for their conduct. Who would determine the questions to be asked of defendants? If there should be disagreement between the district attorney and counsel for defendant as to any question, how, when and where should the controversy be determined? Innumerable other difficulties may easily be pictured, all of which, in my opinion, should be regulated before such an innovation is introduced in the law.

"The application is to have the defendant taken from the custody of the Commissioner of Corrections and committed to the custody of some individual police officer and conducted to Fordham University in Bronx County for the test.

"The custody of persons charged with crime is fixed by law.

"Under certain circumstances persons in custody may be temporarily transferred to other custody.

"Courts have no inherent powers to control the custody of persons held to answer charges, or convicted of crime. The Court knows of no statute which empowers it to take the defendant from the custody of the Commissioner of Corrections, and to commit him to the custody of a county detective attached to the office of the District Attorney of Kings County and to authorize such detective to remove the defendant from this county for any purpose.

"For the foregoing reasons the motion is denied. * * *

"Waiving the question of the power of the Court to direct the defendant to be taken from the county to be examined as requested, and waiving further the propriety of reopening the case, after the completion by both sides of the summation, the Court is of the opinion that if the facts stated were established, the evidence would still be insufficient to establish that the apparatus proposed, or any other in use, has such general scientific recognition as valid and feasible methods as to justify the procedure proposed."

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**Third Annual "Short Course or Seminar for Prosecuting Attorneys" Recently Conducted by Northwestern University School of Law**—During the first week of August, Northwestern University School of Law conducted its third annual seminar for prosecuting attorneys, with an attendance of thirty-two prosecuting attorneys from sixteen states.

The object of the course was to gather together a number of prosecuting attorneys from various parts of the country for the purpose of making available to them all of the Law School's facilities pertaining to criminal investigation and prosecution, and at the same time establish a national forum for the mutual exchange of ideas and opinions among the attendants themselves.

Since the Law School's Scientific Crime Detection Laboratory had been sold to the Chicago Police Department shortly before the scheduled seminar, and since most of the staff members who were participating in the program were then employed by the Police Department, the seminar was not only the contribution of the Law School to the field

of law enforcement but that of the Chicago Police Department as well.

The major portion of the program consisted of the following series of illustrated lectures: "Firearms Identification," and "Comparative Micrography" (by Charles M. Wilson); "Medicolegal Problems," "Forensic Chemistry and Toxicology," and "Bombs and Explosions" (by C. W. Muehlberger); "Document Examination" (by Katherine Keeler); "Microanalysis," "Personal Identification," "Comparative Micrography," and "The Reproduction and Preservation of Perishable Evidence" (by M. Edwin O'Neill); "Criminal Investigation" and "Detection of Deception" (by Leonarde Keeler). These lectures were supplemented with demonstrations and experiments at the Laboratory. For instance, individual instruction was offered in the making of casts (moulage) of perishable evidence, and in the development of latent fingerprints. Also, there were laboratory demonstrations of "The Restoration of Obliterated Writing," of "Blood Tests," and of "Tests for Alcoholic Intoxication."

Much attention was devoted to the preparation, for trial, of a case involving scientific evidence, and also to the legal status and application of such evidence. Several lectures were delivered upon this subject by Fred E. Inbau, who also, together with Dr. Muehlberger and Mr. Wilson, gave a demonstration in "The Examination and Cross-Examination of Expert Witnesses." Mr. Inbau also discussed "Some Practical and Legal Aspects of the Interrogation of Suspects and Witnesses."

Group discussions concerning the general problem of the office of prosecuting attorney were conducted by Mal J. Coghlan, Assistant State's Attorney, Cook County, Illinois, and by Rush C. Clark, County Attorney, Scottsbluff, Nebraska.

Dean Emeritus John H. Wigmore delivered an address on "Science in the Law of Evidence." Dean Leon Green opened the seminar with a discussion of "The Office of Prosecuting Attorney."

Each attendant received a copy of the Laboratory's "Outline of Scientific Criminal Investigation" (79 pages, lithoprinted), for use as an instructional guide and also as a source of future reference concerning the scientific principles and explanations of the various types of scientific evidence as well as their legal status and application. (The cost of this "Outline" was included in the nominal registration and tuition fee of twenty dollars.).

A club-hotel, located within the vicinity of the Law School and the Laboratory, offered special and very reasonable rates for its excellent accommodations to the prosecutors and their wives. It served as headquarters for the group for the duration of the course.

The transfer of the Scientific Crime Detection Laboratory to the Chicago Police Department by no means signifies an abandonment of future seminars of this nature. Such seminars will be continued in future years by Northwestern University School of Law in cooperation with the Chicago Police Department. For this purpose the facilities offered by the Laboratory and the contributions of its staff will be available to the same extent as in previous years.

The date for the fourth annual "Short Course or Seminar for Prosecuting Attorneys" is tentatively set for the first week of August, 1939.