

Winter 1936

Police Science Notes

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

Police Science Notes, 26 *Am. Inst. Crim. L. & Criminology* 752 (1935-1936)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in *Journal of Criminal Law and Criminology* by an authorized editor of Northwestern University School of Law Scholarly Commons.

POLICE SCIENCE NOTES

Identification by Means of Blood Vessel Pattern of the Eye—In the last issue of the *Journal* there appeared in the *Police Science Notes* (pp. 608-610) a brief article written by Mr. M. E. O'Neill of the Scientific Crime Detection Laboratory in which he discussed and criticized a paper entitled "A New Method of Identification," which had been presented by Dr. Carleton Simon and Dr. Isidore Goldstein at the recent convention of the International Association of Chiefs of Police. In reply to Mr. O'Neill's comments Dr. Simon and Dr. Goldstein submitted the following letter, addressed to the Editor, for publication in these columns:

"In the November issue of the *Journal of Criminal Law and Criminology*, there appeared some comments by Mr. M. E. O'Neill on the system of retinal blood vessel pattern identification, recently presented by us. He pointed out the similarity of our procedure with what had been attempted in this direction by others, designating these men and also giving an outline of their work, as shown by various documents which were also noted.

"Since reading his observations, and translating these French and German monographs, we find that the reference made to them and their context is substantially correct. We desire to express our thanks to Mr. O'Neill for calling our attention to the prior work.

"We regret that we have had no notice of this antecedent research, but we are somewhat encouraged by the knowledge that our conclusions

find some support in the work of Levinsohn, without a retinal camera, and the later studies of Haber and Blaschek.

"A reading of the documents to which reference was made, gives rise to two basic propositions. The first, that the retinal blood vessel patterns, from birth until death, are different in every individual, none being identical; and that this fact may be made the foundation of a scientifically accurate means of identification. This same conclusion was reached by us and was the incentive that prompted our work, which fact was stressed in our own presentation. The second, that no system of classification and filing of these retinal patterns had been perfected so as to make it of practical value. Upon this particular phase of the problem we have been and are still engaged.

"In these monographs, reference was made to the use of a screen by which means classification might be accomplished. This technique was followed by Haber and was also attempted by us with a great many forms, designs and dimension variations. Its selection by us was suggested by the success achieved some years ago by Dr. Isidore Goldstein (one of the undersigned), in the measurement of the width of blood vessels of the eye by indirect ophthalmoscopy, with the aid of a lens having etched on its surface a grill or screen, whose meshes were of one millimeter dimension. A similar screen has since been incorporated into ophthalmoscopes.

"Though we used a screen in our

initial work, we have encountered difficulties involving axes and planes. Unless certain mechanical defects are solved, we will be compelled to discard the employment of a screen in favor of a more accurate method.

"It is also interesting to note that Blaschek found it expedient to use the optic nerve as a central point for measurement. This is however an obvious approach, anatomically and theoretically, to secure a fixed or pivotal point from which any calculation must be made. We have likewise discarded the manner in which the blood vessels entered or emerged from the papilla, this being, like Blaschek's efforts, our first objective. We never contemplated using the arteries in our method, as their vagueness in outline in many instances tended to induce errors and complications. We also aimed to make our method as simple as possible, so as to require a minimum of medical or anatomical knowledge for its general interpretation.

"In comparing our work and noting the various paths of inquiry and similarity of inductive reasoning, we fail to find in these papers any mention of the employment of any instrument or protractor whereby the measurement of the angles of blood vessels could be utilized. We have advocated this approach as essential in any accurate, direct or simplified methods of classification. We still adhere to this viewpoint and our results justify our belief that no practical classification is possible without its employment.

"We believe that in a modification of the type of protractor we first utilized and in the development of which we are now engaged, we may obtain a system of angulation and classification which does not

of necessity depend on the bifurcation of blood vessels.

"We welcome every constructive criticism. Since the publication of our paper, a number of suggestions have been offered, that have been of considerable aid in our attempts to simplify both coding and filing.

"We are conducting investigations in the field of retinal post-mortem photography and of the retina of twins and triplets, the latter solely in the interest of anthropology. Included in this work is also the creation of devices whereby individual photographic negatives can be automatically registered for filing purposes.

"In conclusion, we wish to reiterate that criminal problems confronting us differ greatly from those in the past. The criminal mind tries to circumvent each new safeguard that society develops for its protection, and endeavors to take advantage of every scientific advancement for its own benefit. This is the history of the endless struggle between crime and our social order. The progress made in plastic surgery since the World War, which enables the surgeon to alter facial appearance, may be criminally directed against our present skin ridge identification system. This advance in surgery has not only been due to increased skill but also to new and improved surgical instruments. Some of these include implements we need not mention specifically. To what extent they may be employed to nullify, mutilate, obliterate or alter skin ridges, no one can predict. For this reason, if for no other, an unalterable method of identification as an adjunct to our present facilities should be of utmost importance.

"We have had to overcome many technical obstacles and believe that

our independent contribution constitutes a progressive step, which offers great possibilities in the realm of criminal science and anthropology. Fortified by the experimentation of others in the past, which was not further pursued because inconsistent with the needs of that period, we feel confident that retinal blood vessel pattern identification will become a routine procedure and a valuable auxiliary to our finger-print system."

Reasons and Reasoning in Expert Testimony—Every expert in the field of scientific evidence, and every member of the legal profession who is interested in judicial reform concerning expert testimony, should read an article written by Mr. Albert S. Osborn and recently published in *Law and Contemporary Problems* (Vol. 2, pp. 488-495, October, 1935). The title is "Reasons and Reasoning in Expert Testimony."

Mr. Osborn very convincingly points out the absurdity of the many court decisions which hold that although an expert can give "reasons" for his opinion he cannot give "definite, oral reasoning as a part of the actual testimony." "When testimony is improperly restricted," writes Mr. Osborn, "it is, of course, impossible for anyone to say whether it is good or bad, and it then, as in the old days, becomes an appeal, not to the intelligence of a hearer, but simply to his credulity." The following example is given to illustrate the point: "There are many system qualities in handwriting, unknown to the ordinary observer, that are as distinctive as a German or Italian accent in speech, and a forgery may violate some of these fundamental qualities. If a

witness is not permitted to show the history and significance of these qualities, then the most persuasive part of the testimony is excluded."

The purpose of permitting an expert to state fully the reasoning behind his opinion is "not only that correct testimony may be convincingly presented, but also in order that the frail and unsound basis of incorrect testimony may thus be directly exposed." That is, "the presumptuous, or corrupt, witness does not desire to expose the illogical reasoning by which he attempts to bolster up his incorrect opinion."

Mr. Osborn gives an explanation which partially accounts for the attitude of many courts: "As is well known, the ancient view of all expert testimony was that the expert's mere opinion was to be accepted or rejected wholly on the reputation and qualifications of the witness. This necessarily still is the rule regarding those classes of expert testimony that are not susceptible of illustration and explanation so as to be weighed by the ordinary hearer. This is the class of testimony that can be rendered almost valueless in case of a conflict and in many instances deserves the severest criticism."

A quotation is given by Mr. Osborn from the case of *Magnuson v. State*, 187 Wis. 122, 203 N. W. 749 (1925), which expresses quite clearly the rule for which he so forcefully contends in this article: "A rule of law that would permit an expert to take the stand and state his conclusion without doing any more would place the least qualified, most prejudiced expert on the same level as the best qualified and most conscientious expert. Particularly is this true in regard to the testimony of a handwriting expert, which rests very largely for

its convincing power upon the similarities and peculiarities which enable the expert to arrive at his conclusion."

Another subject discussed by Mr. Osborn is that of expert qualifications, or more specifically the method and procedure of qualifying of an expert in court. Here again some well deserved criticism is directed at the judiciary, but not without suggesting a very practical and effective remedy for the present ills and shortcomings.

"The 'qualifying of an expert' is a performance which is supposed to prove to the judge that the witness offered is in fact an expert. This procedure in many American courts has become a mere formality that precedes the presentation of expert testimony by anyone who assumes to be an expert or whom the lawyer presents as an expert. Stricter rules would prevent the advocate against the facts from bringing into court any old dead cat of an expert that he has found in a back alley. It usually is not a lack of legal right, or lack of courage, in the judge that allows almost anyone to testify as an expert, but an act in conformity with an almost universal custom."

"It would no doubt contribute to justice if the requirement was made that a written statement of a proposed expert's qualifications should be presented to the presiding judge in advance of the trial so that his qualifications, his record and experience could be carefully investigated. Like the new law regarding advance notice of a proposed alibi, this requirement would promote justice by limiting expert testimony."

Hair as an Indicator of Age—Recent reports of researches on human hair with reference to criminal

investigation have carried the implication that certain very distinctive features are determinable from one or a few strands found in connection with a crime, and that these can be used in the comparison with known samples to show identity or at least something more than the usual points of similarity, such as color, waviness, breadth, etc., used in making comparisons. Reports that such characteristics as age, nationality, drug addiction and other personal habits may be discovered by an examination of the hair appear more frequently in newspapers and popular or semi-scientific magazines than in scientific publications, and have led in many instances to a belief that hair comparisons can be utilized with almost the same certainty as fingerprints in establishing identity. Such exaggerated claims not only bring discredit to this field of investigation and seriously retard its progress, but may have more grave consequences if the methods are used in actual investigations or trials.

The following illustration of this type of pseudo-science in crime detection is selected as a typical example: During the latter part of 1932 one researcher in forensic microscopy announced the invention of a method for estimating rather accurately the age of an individual from a count of "rings" which were said to exist in the hair shaft, and which might be seen in the longitudinal aspect under proper conditions of illumination, the number of rings per unit of length being correlated with the age of the person from which the hair came. For example, in the hair of a person forty years of age there was said to be twelve rings per 0.1 mm, whereas the hair of a person twenty years of age would have six rings

in the same unit of length. To the best knowledge of the present writer this method was never demonstrated in practice nor was the existence of any annular structure or marking satisfactorily established. It is significant that several other workers, some of many years experience in the study of hair, were unable to duplicate the results reported by the inventor of the procedure, and none seems to have even located the ring-like markings which form the basis of the system.

It has been reported also that the use of tobacco and alcohol by a person will produce certain changes in the hair which are detectable by microscopic examination. No comment of this absurdity seems necessary, but with such miracles being performed by certain magicians of the microscope it should not be expecting too much of them to determine from a study of samples of hair the age, weight, and idiosyncrasies of the barber who last cut it.

In regard to age determination it is sometimes possible to differentiate the hair of a child from that of an adult, but at the present time there is no reliable procedure available for more definite analysis.

M. E. O.

Firearms Identification—Powder Patterns: A Recent Decision—An important issue in *Rowe v. State*, 163 So. 22 (Fla., 1935), concerned a determination of whether or not an empty shell found at the scene of a homicide came from the deceased's shotgun or from the defendant's. Apparently no testimony regarding a comparison microscope test had been introduced at the trial, for it appears that an attempt was made to solve this problem by introducing the testimony of a sher-

iff who stated, in effect, that the shell was in a position different from where it would have been had it been fired from the deceased's gun. But this testimony the appellate court held to be incompetent on the ground that the sheriff was unwarranted in assuming that at the time the shell was ejected the gun was in the same position as when the witness found it.

Another point in this case involved an approximation as to the distance at which the deceased had been shot. The state placed a deputy sheriff on the stand and asked him a general question as to "how far an ordinary smooth-bore, twelve-gauge shotgun, firing a shell of that type, would make a powder burn on a man's face," to which the deputy sheriff answered, over defendant's objection, "Not to exceed three feet." Upon appeal this testimony was also declared inadmissible, since the witness "had not qualified as an expert in that particular line," he, himself, having "admitted he had no experience in measuring distances at which powder burns would be inflicted on human flesh."

Identification of Wire—The November 8, 1935, number of *The Police Chronicle* (England) contains a brief article by Mr. C. T. Symons, Government Analyst of Ceylon, describing a technique which was used in the identification of samples of copper wire. The author states that the procedure was successfully employed following several thefts of Government owned telephone wire, comparisons being made of standard Government samples, samples of wire found in the home of the suspects, and samples from the source from which the accused stated their wire had been obtained.

The composition of the various samples was determined by spectrographic analysis which revealed the presence of impurities in the Government wire (including the stolen wire) not found in the other wires examined. However, it was found necessary, according to the author, to determine "whether a particular length of wire had been cut down from a particular section of the line." The explanation of how this was accomplished is as follows:

"In order to examine two pieces of wire suspected to have come from the two sides of one cut, a comparison microscope was used to bring the two objects optically side by side, in the same way as such an instrument is used in the comparison of rifling marks on bullets. Examination of a number of samples showed, as was to be expected, that the same patterns of markings were not to be found on all the samples of Government wire, but that these varied from piece to piece, although possibly the same larger marks might be present, as is found to be the case with bullets fired through the same make of barrel, so far as the actual gross rifling is concerned. But these larger markings combined with the smaller parallel marks, arranged in a particular manner for each piece of wire, were very characteristic of each section of the wire. Photographs could be taken showing the magnified surface markings optically side by side, and would thus be available for demonstration in court."

It is interesting to note that the same procedure for comparing samples of wire was developed, quite independently, by Mr. C. M. Wilson of the Scientific Crime Detection Laboratory in September, 1935, and used to show identity of

pieces of wire recovered from a bomb with certain samples taken from the home of a suspect.¹

M. E. O.

Infra-red Photography—A somewhat unusual application of infra-red rays is described in an article by Mr. Olaf Bloch, entitled "Some Modern Applications of Police Photography," which appeared in the November 29, 1935, issue of *The Police Chronicle* (England).

"An office was broken into, and in the course of operations a card, red on one side, was knocked on to the floor, red side down. This was subsequently trodden on, with the result that dirt was picked up by the card from the carpet giving an impression, in what must have been very faint relief, of the sole of the boot, including the nails, etc. This was photographed by the infra-red process which accentuated strongly the difference in reflective power between the dust and the background of red card. It was found possible to secure the boots of the suspected burglar, and upon careful measurement the prints showed exact correspondence between the two. As a result the suspect was charged with the offense."

The author suggests a method of utilizing reflected and filtered infra-red for the taking of photographs in a room which is "in practical darkness so far as its inhabitants are concerned." The schemes for making moving pictures by such a method, with the infra-red rays being switched on automatically by the entrance of someone through doors or windows, are, in the opinion of Mr. Bloch, possible, though somewhat fantastic.—M. E. O.

¹A detailed description of the technique will appear in a forthcoming number of this journal.

Polygraph Records and Testimony Admitted as Evidence—As the result of a stipulation and agreement entered into between prosecution and defense counsel in a recent Wisconsin case (*State v. Rowe*, tried in Fond du Lac County on January 6, 1936), Judge Clayton F. Van Pelt of the Eighteenth Judicial Circuit of that state admitted in evidence, for the second time within the past eleven months, so-called "lie-detector" records, together with testimony concerning their interpretation. The instrument used in making the tests upon the defendant, who was charged with statutory rape, is known as the Keeler Polygraph, and the examination was made by Mr. Fred E. Inbau of the Scientific Crime Detection Laboratory, who also testified and explained the records to the jury.

The Polygraph testimony formed part of the prosecution's case, since the defendant's Polygrams indicated, in the examiner's opinion, that the defendant was not telling the truth when he denied having had sexual relations with the complaining witness. Other evidence, such as the testimony of the complaining witness and of another witness whose statements were to the effect of refuting the defendant's alibi, was introduced also, so that the Polygraph records and testimony were utilized for corroborative purposes and not as a sole indication of guilt. The jury found the defendant guilty.

For a complete discussion regarding the admissibility of Polygraph evidence in cases involving stipulations and agreements, and also for a detailed account of the previous Wisconsin case referred to above (*State v. Loniello and Grignano*), see Volume 26 of this *Journal*, pages 261-271.

Expert Testimony—In addition to the article by Mr. Albert S. Osborn, discussed in a previous note, the symposium on "Expert Testimony" published in the October, 1935, issue of *Law and Contemporary Problems* included the following articles: "The Development of the Use of Expert Testimony," by Lloyd L. Rosenthal; "An Alternative to the Battle of Experts: Hospital Examination of Criminal Defendants Before Trial," by Henry Weihofen; "The History and Operation of the Briggs Law of Massachusetts," by Winifred Overholser; "Psychiatric Testimony in Probate Proceedings," by Harold S. Hulbert; "The Qualification of Psychiatrists as Experts in Legal Proceedings," by Israel Strauss; "Medical Testimony in Personal Injury Cases," by Frederic E. Elliott and Ramsay Spillman; "Expert Medical Testimony in Compensation Proceedings," by Ruth A. Yerion; "The Admissibility of Scientific Evidence in Criminal Cases," by Fred E. Inbau; "The Expert Witness in Criminal Cases in France, Germany, and Italy," by Morris Ploscowe; "The Compensation of Expert Witnesses," by Horace L. Bomar, Jr. Copies of this journal may be obtained from Professor David F. Cavers, Editor, *Law and Contemporary Problems*, Duke Station, Durham, N. C.

New S. C. D. L. Staff Member—Mr. Charles A. Roseberry has been appointed to the staff of the Scientific Crime Detection Laboratory as Associate Document Examiner. Mr. Roseberry was formerly in charge of the Police Laboratory of the Wichita Police Department, Wichita, Kansas.