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## Police Science Notes

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## POLICE SCIENCE NOTES

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**Recent Decisions on Document Examination**—The appellate courts of California and Kansas recently rendered two decisions involving expert testimony as applied to document examination. In the California case, *People v. Gaines*, 34 Pac. 146 (1934), which involved a forgery, the document examiner for the defense was asked at the trial whether or not he had come to any conclusion regarding the questioned documents, particularly as to whether or not they had been written by the defendant or another. He answered that because of lack of sufficient time within which to make a proper examination (a continuance of the case having been refused) he could not express "a definite conclusion." A further question as to whether or not he had come to any conclusion with regard to the characteristics of the handwriting of either party was answered in the affirmative. Thereupon he was asked by counsel for the defense to point out to the jury the various characteristics in the respective handwritings which would indicate, or would not indicate, that a certain individual may have been the author thereof. This was objected to by the prosecution on the ground that the witness had already stated that he had not come to any conclusion about the document, which objection was sustained by the trial court. Thereafter the court persistently refused to permit the witness to answer similar questions along the same line of examination by counsel for defendant in an attempt to have him indicate some of the "various characteristics" in

the handwriting of this particular individual, thereby introducing evidence directed toward establishing a reasonable doubt as to the defendant's guilt. The trial court said, in sustaining the objections: "It is not the proper function of an expert to come here and point out a lot of similarities, and dissimilarities, without expressing an opinion. Anyone can do that." Upon appeal the Supreme Court of California stated that a comparison may be made without expressing an opinion regarding the result of such comparison. However, the Supreme Court concluded that no prejudicial error had been committed, for the following reasons: "The predominating characteristics of the handwriting of these signatures are plainly visible. Comparison of them could have been made as well by the jury as by the expert witness. Inasmuch as the latter had reached no definite conclusion in the matter, his testimony would probably have been largely cumulative and of no substantial value."

The Kansas case, *State v. Parsons*, 33 Pac. (2d) 1096 (1934), concerned the competency of two expert witnesses. A postmaster and a rural mail carrier, "both with considerable experience in reading and examining handwriting," were permitted to testify as experts. The appellate court approved of the trial court's ruling qualifying them as experts. "The testimony of these two witnesses was not incompetent, although their experience may have been somewhat limited."

Another ruling of the appellate

court in the foregoing case was its interpretation of a Kansas statute stating that "When persons of skill, or experts, be called to testify as to the genuineness of a note, three witnesses shall be required to prove the fact." The court said: "But this rule does not apply when there is other evidence as to the genuineness of the instrument than that of the testimony of the experts."

#### The Merits of Scientific Evidence—

At the last Meeting of the International Association of Chiefs of Police in Washington on August 27, Dr. Wilmer Souder, Chief of the Identification Laboratory, National Bureau of Standards, presented a paper entitled, "The Merits of Scientific Evidence."

Dr. Souder discussed the merits of scientific evidence, "first, as to its inherent accuracy, and second, as to its value as evidence before the court or as a directive tool in investigations."

One of the most interesting parts of Dr. Souder's paper is that treating of the "theory of probability":

"Very briefly I shall attempt to give you the formula by which the findings of the expert are weighed. I shall apply the formula to two imaginary typewritten documents showing the following characteristics or agreements between the questioned and known writings. Suppose we have discovered 5 departures from normal, as follows: (1) The letter o prints heavy at the upper left; (2) Combinations of r and e are closer than normal—combinations of e and r are wider than normal; (3) The vertical shaft of the h is rotated 3° counter clockwise; (4) The base of the i is injured so that it does not make a horizontal line but appears to be pushed up at

the left end of the base; (5) The s prints high and does not line up with the base line formed by other letters.

"There are no other peculiarities or deviations in either document.

"Obviously the agreement is excellent, but what are the chances of the existence of two typewriters having these same defects? Since there are no deviations in the style of letters, both documents must have been written on the same make and style of machine. We have now only to consider the one style of one manufacturer's product, perhaps less than 1,000,000 machines.

"We are now ready to begin our analysis of the probability of the existence of two or more machines having all five defects listed above. The probability of an event recurring is equal to the number of times the event happens divided by the number of times the event could happen. To explain in this instance: the probability that we shall find another typewriter printing an o with the upper left heavy is equal to the fraction whose denominator is the number of existing machines of this style, namely, 1,000,000, and whose numerator is the number of machines in this style having o's which print heavy at the upper left to the extent displayed here. Here the expert must use his judgment. From his experience and observation he must estimate how often typewriters produce o's which are heavy at the upper left. He may decide that 1 in every 20 is likely to have this defect. (This would be equivalent to 50,000 in the million typewriters with which we are dealing in this case.) In other words the mathematical probability of our finding the event recurring is equal to 1/20. This appears to be a very conservative estimate. However, if

we use conservative figures there can be no doubt about the positiveness of our conclusion. Without further details let us evaluate the probability fractions for item 2 above as  $1/50$ , for 3 as  $1/40$  for 4 as  $1/100$  and for 5 as  $1/10$ . If these evaluations are proper we have only to multiply  $1/20 \times 1/50 \times 1/40 \times 1/100 \times 1/10$  to determine the probability of our finding a second typewriter which will show all the defects of the first. The answer is  $1/40,000,000$ .

"Interpreted, this means that we would not expect to find two typewriters which will produce similar documents until we search a lot of  $40,000,000$ . Since our initial assumption admitted only  $1,000,000$  such machines in existence, we find our conclusion, that both documents were written on the same machine (though not absolute), established beyond a mathematical doubt. To me this expression "beyond a mathematical doubt" transcends the expression "beyond a reasonable doubt" in that it is capable of detailed analysis and when so analyzed is perfectly understood by all.

"Suppose the report does not establish such an extremely remote possibility of recurrence. Suppose the final fraction for recurrence of the typed characteristics had come out only  $1/100$ . Is such a report of value? Yes, if the number of typewriters upon which the document could have been written can be limited to 100 or less, the report is vital. Similarly, in handwriting we do not have to push the tests until we get a fraction represented by unity divided by the population of the world. Obviously the denominator can always be reduced to those who can write and further to those having the capacity to produce the work in question. In a special case,

it may be possible to prove that one of three individuals must have produced the document. Our report, even though it shows a mathematical probability of only one in one hundred, would then irresistibly establish the conclusion.

"There are, however, certain restrictions which must be observed in setting up these probability fractions for limited numbers of suspects. If, for example, all three suspects write the Mills system of handwriting, this fact must not be considered as a characteristic. Possibilities of disguise by one or more of the suspects must also be given proper consideration. The application of data to limited numbers is a special phase of scientific identification, and when correctly applied usually produces satisfactory results. The narrowed field of operation in such cases makes more intensive work possible. Our experiences in the practical operation of such reports have been unusually satisfactory."

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**Municipal Police in Canada**—Mr. A. J. Murray, managing editor of the "Policeman's Review," a Canadian publication, is the author of a very interesting and instructive article appearing in the September, 1934, issue of that journal, entitled "Municipal Police in Canada." In it he describes the police system of Canada, criticizes its defects, and suggests a plan for improvement.

There are three main police organizations in Canada: the federal, the provincial, and the municipal. As described by Mr. Murray, the federal police organization, known as the Royal Canadian Mounted Police, is directly responsible to the Federal Government. Neither the provincial nor the municipal governments have any direct control over

this force. Its duties consist of the enforcement of the Opium and Narcotic Drug Act, the Custom laws and other federal statutes. The provincial governments are responsible for the enforcement of all criminal laws within their respective jurisdictions. The provincial police are organized by the different provincial governments, to whom they are directly responsible; and their duty consists in policing the rural parts of the provinces, although, in some of the provinces, such as in British Columbia, they police villages, towns, and some of the smaller cities. The municipal police forces are created by the cities and towns, to whom is delegated the power by the provincial governments of organizing police units for the enforcement of provincial laws within such cities and towns.

Mr. Murray's main objection to the municipal police forces is the fact that "there is no means provided whereby a municipality can be compelled to provide an adequate force to enforce the law." And he is of the opinion that "This lack of authority to require the municipality to provide adequate police protection is a great weakness in our police system." "Each municipality expects the cooperation and assistance of the police of other municipalities, yet, if its own force is undermanned or inadequately equipped, it is unable to render appropriate assistance in return. When there is no central authority success depends entirely on voluntary cooperation among the different police organizations."

Subjection to local influence, Mr. Murray finds, is inevitable where provincial law enforcement is entrusted, without any external control, to municipal police. He adds: "Our judiciary, which is patterned

after the British judicial system, has never been the subject of criticism for the reason that our judges are free to discharge their duties without fear or favor; and if the police of this country had, like the judiciary been modeled on the British police system instead of on the system adopted in many cities of the United States, our organizations for the enforcement of law would have been placed on a more permanent and satisfactory basis."

In addition to the foregoing, Mr. Murray criticizes other features of the Canadian police system. He then proceeds to offer a remedy for many of the evils of the present system:

"In my opinion the best possible system of police administration is that which exists in Great Britain, where the municipal police are subject to government inspection, and where it is provided by legislation that in every case where the report of the officer inspecting the force is favorable, a subvention shall be paid to the municipality by the government. This system has stood the test of time—the system of municipal control has not.

"A somewhat similar system could easily be adopted in this province. For instance, all cities with a population of 10,000 or over could be permitted to have their own police forces controlled by police commissions and subject to inspection by officers appointed by the provincial government. Provision could be made by the government to grant a subvention, when on inspection it was found that the force was kept up to the required standard of efficiency. This would give the government the necessary authority to insure proper administration in the larger cities, and at the same time allow the municipal authorities adequate rep-

resentation on the commission controlling the force.

"As already stated this in my opinion is the best possible system. It would give due recognition to the rights of the province to enforce all laws. It would stabilize police organizations, the lack of stability being one of our chief difficulties. It would remove the doubt that exists in the minds of many citizens as to which government is responsible to the law."

**A Federal-State-Municipal Cooperative Police System**—The Journal is in receipt of a pamphlet, from Captain H. M. Niles of Portland, Oregon, entitled, "A Federal-State-Municipal Cooperative Police System," by Eugene E. Smith. In order to accomplish a coöperative police system throughout the United States and to overcome constitutional objections, Mr. Smith proposes the following plan:

"1. That the federal government pay 50 per cent of the annual cost of the police department of any state, and of any city of 10,000 population and over as certified by the decennial reports of the United States Census Bureau.

"2. That such federal aid shall not exceed \$0.25 per capita per state for its department, nor \$2.00 per capita per city for its department, as then certified by the current decennial report of the United States Census Bureau.

"3. That federal aid so granted shall be contingent upon a state or a city desiring same conducting its police department in accord with certain requirements made mandatory by Congress and regulations authorized by Congress formulated and issued by the United States Department of Justice.

"4. That no such requirements or regulations shall in their purpose or application extend the federal or restrict the state and municipal police power as now exercised or change the existent legal basis of either.

"5. That acceptance or rejection of such federal aid be entirely optional with cities and states and that rejection of same may be made for any reason sufficient unto their respective governments.

"6. That any and all requirements and regulations for such federal aid shall be uniform for all departments as classified and shall include: (a) Provision that the chief of police of any state or city department, by whatsoever title known, be approved by the United States Department of Justice prior to and during the period of federal aid; it being further provided that such approval or withholding of same may not be for political or other reasons except those of character and ability to efficiently discharge the duties of that office. (Note—The average tenure of office of American chiefs of police is under two years); (b) Provisions covering minimum numerical departmental strength; personnel selection, age limits, retirement, training and promotion; personnel and departmental equipment; departmental discipline, policing methods, records, reports and public relations; (c) Provision for regulations standardizing police uniforms, badges, insignia, general personnel equipment and discipline for all state and city departments receiving federal aid.

"7. That a section of the federal act embodying the plan make it a federal offense and so punishable to bribe, unlawfully coerce, impersonate, violently resist or assault any police officer who is a regular member of any police department receiving federal aid."

**Courses in Legal Medicine**—The September, 1934, issue of "The Journal of the American Medical Colleges" contains an article by Drs. Samuel A. Levinson and Clarence W. Muehlberger, entitled, "An Introductory Course in Legal Medicine for Medical Students." In it the authors explain the status of "legal medicine" in the universities of this country. First of all, however, the writers define three terms which are often used as though they were synonymous: "Medical jurisprudence is the consideration of the laws of the land so far as they bear on medical subjects; it is primarily law rather than medicine. Matters pertaining to the contractual relations of physician and patient, the legal right, duties and liabilities of the physician with regard to his patient and the general public are, therefore, properly classified as problems of medical jurisprudence.

"Legal medicine, or forensic medicine, on the other hand, is that portion of medical knowledge which may be of assistance in serving the needs of law and justice. It is often thought of as concerning the medical aspects of criminal offenses, but it is also called on to render assistance in the adjudication of cases involving life and accident insurance, industrial compensation, soldiers' rehabilitation and other civil court actions."

Drs. Levinson and Muehlberger find that of 77 medical schools, whose catalogues were examined, 6.5 per cent offer a course in legal, or forensic medicine, 58 per cent give lectures on medical jurisprudence, and 35 per cent do not mention anything upon these subjects in their catalogues.

**Short Course for Peace Officers**—From October 22 to October 26, in-

clusive, a "Short Course for Peace Officers" was held at the Agricultural and Mechanical College of Texas (College Station, Texas), with the coöperation of the League of Texas Municipalities. The program consisted, in part, of the following lectures: "Police Tactics" (a series), by V. A. Leonard, Supt., B. of I., Fort Worth; "Police Science" (a series), by G. J. Lacy of Houston; "Obtaining Evidence at the Scene of the Crime," by H. E. Keller, Supt., B. of I., Houston; "Presenting Evidence in Court," by Jesse Martin, District Attorney, Fort Worth; "Police Records and Their Use," by P. R. Halleron, Supt., B. of I., San Antonio.

**Elizabeth Police Laboratory**—The October, 1934, number of the Fraternal Order of Police Journal contains an article by Callahan J. McCarthy on the Elizabeth Police Laboratory of Elizabeth, New Jersey. Following are excerpts from Mr. McCarthy's article:

"The Elizabeth Police Laboratory was incorporated August 5, 1933, by Gustave R. Steffens, Roy S. Tinney, Winslow P. Humphrey, Morgan J. Naught and Otto G. Sickert. . . .

"These five incorporators, by combining their knowledge of law, police and court procedure, medicine, military practice, engineering, chemistry, ballistics, mechanics and business, created the laboratory to assist police departments and law-enforcing agencies in the solution of all types of crime.

"The organizers of the Elizabeth Police Laboratory, realizing that the courts usually exercise extreme caution in admitting expert testimony as evidence for a jury to consider, followed this precedent and have been extremely careful in the selec-

tion of members of the Laboratory staff, and have obtained, therefore, the services of men who have had a higher education and, also, a vast amount of experience in their chosen profession . . .”

The Scientific Crime Detection Laboratory offers its congratulations and best wishes to the group of men who were instrumental in forming the Elizabeth Police Laboratory. Under the supervision of an experienced and educated police officer, Sergeant Steffens, the Laboratory should make considerable progress in this field of applying scientific principles to criminal investigations.

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**New Police Commissioner of New York City**—Captain J. Valentine, of the New York Police Department, was recently appointed Commis-

sioner of Police of that city. During the Seabury investigation Captain Valentine told a very startling story of the sordid schemes of political grafters. He did much to help the investigators effect a change. (See New York Times for October 7, 1934.)

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**I. A. I. President**—Mr. T. P. Sullivan, Superintendent of the Illinois State Bureau of Criminal Identification and Investigation, was recently elected President of the International Association for Identification at the Twentieth Annual Convention held in Long Beach, California. Mr. Carl Wallace of Ventura, California, was elected First Vice-President, and Mr. William Toler of Richmond, Virginia, was elected Second Vice-President. Mr. Le Roy Goodwin, of Youngstown, Ohio, was re-elected Secretary.