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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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Comparison Standards—Effective Homicide Investigations Aid San Diego Police—W. A. Burgess, *F.B.I. Bulletin*, 32 (2): 3 (Feb., 1963). Death masks are made of victim's face, and then positives are cast using fiber glass reinforced Epoxy resin. This gives a resilient, life-like mask having the correct geometry. The positives are mounted in front of the suspect weapon so that the angle of bullet travel corresponds to that in the case. Masks are replaced for each change in distance until a matching pattern is obtained. (JDN)

The Diploe in Adults of Different Age Groups—A. J. E. Cave and F. L. D. Steel, *Medicine, Science and the Law*, 3 (2): 83-87 (Jan., 1963). A study of diploe configuration and disposition showed no variation that could be attributed to age or sex. (JDN)

Gas-Chromatographic Identification of Rue Oil (Oleum Rutaee) and Peppermint Oil (Oleum Menthae Piperitae)—H. Jansen and H. vander Kolk, *Medicine, Science and the Law*, 3 (2): 77-82 (Jan., 1963). Rue oil is occasionally used as an abortifacient and is found in therapeutic preparations mixed with peppermint oil. These oils can be separated and identified on a polyethylene glycol-400 column at 175°C. Nitrogen is used as the carrier gas. (JDN)

Sudden Death Due to Angioneurotic Oedema—Physical Allergy—F. J. Pick, *Medicine, Science and the Law*, 3 (2): 88-99 (Jan., 1963). Sudden death due to angioneurotic oedema with a hereditary (familial) hypersensitivity to trauma is dis-

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cussed. In the cases reported, death was apparently the result of oedema produced by physical injury. (JDN).

Police Firearms Training—B. Rummel, *The American Rifleman*, 111 (8): 17-22 (Aug., 1963). A discussion of the legal responsibility of municipalities for acts of their policemen when such acts can be traced to improper training in the use of firearms and other equipment. (JDN)

A Controlled Investigation of the Characteristics of Adult Pedestrians Fatally Injured by Motor Vehicles in Manhattan—W. Haddon, Jr., P. Valien, J. R. McCarroll, and C. J. Umberger, *Traffic Safety*, 62 (6): 5-18 (June, 1963). At each site of a fatal pedestrian accident, a control group was interviewed and tested at the same time and day as the accident. 74% of fatally injured had alcohol in some degree, whereas 33% of the control group showed some blood alcohol. (JDN)

Lie Detection Under Hypnosis—O. J. Tocchio, *Police*, 8 (1): 9-11 (Sept-Oct., 1963). A report of experiments conducted on the polygraph before and during post-hypnotic suggestion. In an academic situation, hypnosis enhanced some aspects of lie detection. No reports of actual criminal cases are included. (JDN)

The Judge and the Expert Witness—H. Lefrenz, *Excerpta Criminologica*, 2 (1): 5-8 (Jan., Feb., 1963). The relationship between the judge and the psychological expert is discussed. (JDN)

Voiceprint Identification—L. G. Kersta, *Fingerprint and Identification Magazine*, 45 (1): 3-7 (July, 1963). Identity of voices over a telephone have frustrated investigations in threats of bombings, extortion, and vice. Bell Telephone Labora-

itory research on voice patterns has resulted in the development of a voice spectrograph. By plotting the output of time vs. frequency on horizontal and vertical axes and showing intensity by blackness, the way one person pronounces common words can be shown to be personally unique. The pattern developed is called a contour voiceprint. Mimicking or disguise does not effect this pattern. Accuracy of identification is of the order of 90%. (JDN)

Anonymous Letters—W. A. Shulenberger, *Identification News*, 13 (6): 4-6 (June, 1963). A discussion of the handling of anonymous letters. (JDN)

If You Can See It, You Can Photograph It—A. E. Heathcote, *The Police Journal*, 36 (4): 171 (April, 1963). Lighting and the use of mirrors are described. These proved useful in recording fingerprints in different photographic positions. (JDN)

Driving Under the Influence—Stanton Addams, *Police*, 7 (6): 27 (July-Aug. 1963). A survey of reports on incidents of alcohol in accidents. (JDN)

Photo-Robot—A. A. Moenssens, *Fingerprint and Identification Magazine*, 45 (2): 3-7, 23 (Aug., 1963). An assembly of facial elements so that components may be selected. Can be made from mug shots and gives a better likeness than Identi-kit. (JDN)

There Are Strange Things Done—In The Midnight Sun—E. G. Forrest, *R.C.M.P. Gazette*, 25 (9): 13 (Sept., 1963). An old eskimo was aided by younger men in the act of committing suicide. They loaded and cocked the gun. He shot himself four times under the chin with a .22 and then died a lingering death. (JDN)

Tips on Making Casts of Shoe and Tire Prints—Anon., *F.B.I. Bulletin*, 32 (10): 18-22 (Oct., 1963). General suggestions and cautions to be observed when recording impressions by photography, casts or lifts. (JDN)

Acute Phosphorous Poisoning—J. M. Cameron and E. Rentoul, *Medicine, Science and the Law*, 3 (2): 71-6 (Jan., 1963). Symptoms, pathological observations, and photographs of micro sections in cases of phosphorous poisoning. (JDN)

Serological Identification of Seminal Stains—R. R. A. Coombs, C. B. Richards, and B. Dodd, *Medicine, Science and the Law*, 3 (2): 65-70 (Jan., 1963). A description of the preparation of rabbit antiserum specific for human seminal protein and the subsequent testing of suspected stains by agar gel precipitin technique. The authors point to the fact that the method is specific. (JDN)

The Detection of Abnormal and Foetal Haemoglobin in Blood Stains—R. G. Huntsman and H. Lehmann, *Medicine, Science and the Law*, 3 (2): 59-64 (Jan., 1963). Suspected stains are extracted ferricyanide/potassium cyanide reagent, changed to carboxyhaemoglobin, extracted with CCl_4 and dialyzed. The concentrate is examined by electrophoresis in a barbiturate buffer pH 8.6. Spectral absorption curves at 288-290 will show a notch not present in adult pigment. (JDN)

Experimental Studies on the Determination of the GM Groups in Blood Stains—J. C. Nielson and K. Henningsen; *Medicine, Science and the Law*, 3 (2): 49-58 (Jan., 1963). An inhibition technique is used to demonstrate the presence of the GM factor tested for. Stains as old as eleven weeks gave proper results if stored under dry conditions. Moisture impairs tests after two weeks of storage. Preliminary experiments do not disclose these factors in other secretions. (JDN)

Alcohol and Crime—John McGeorge, *Medicine, Science and the Law*, 3 (2): 27-48 (Jan., 1963). The relationship between alcohol and various crimes is discussed. Seemingly normal individuals will commit crimes under the influence of alcohol. Between 14% to 59% of the persons responsible for murder, assault and robbery, breaking and entering, false pretense, and sex offences against females are addicted to alcohol. A large proportion of the prison population is incarcerated because of alcohol. The unpredictable psychopath may commit crimes when under the influence of alcohol. The author supports alcohol education rather than prohibition as the answer to the problem. (JDN)

The Forensic Scientist in Court—F. M. Miller, *Journal of Forensic Sciences*, 8 (3): 315-24 (July, 1963). The purpose of this paper is to discuss some of the problems the forensic scientist encounters in court and the manner in which they may be resolved. The courtroom atmosphere for the

rendering of expert testimony has not always been as favorable as it is today. This is true of all the forensic sciences, but especially so of handwriting testimony.

The author emphasizes a few things of particular importance to those who have the responsibility of serving as expert witnesses.

1. We must strive constantly to improve our professional standing.
2. We must be certain of our technical conclusions. Unless our findings will stand up under the withering cross-examination of our associates, we are treading on dangerous ground.
3. We must avoid outside influences. Our conclusions must be based solely and entirely on the findings deduced from the examinations performed.
4. We must be fair and impartial on the witness stand. It is our duty to present the facts as they exist. Cross-examination by opposing counsel should be welcomed, not feared. Obviously there is not much to be gained by challenging the qualifications of a well-established expert. The same holds true if his testimony is direct, competent, and well demonstrated. The same is not true, however, if the expert is obviously weak, unskilled, and ill-qualified. In such instances much may be gained by conducting a vigorous, probing, and searching cross-examination.
5. We must protect the innocent. By far, the most important decisions we make are made in the laboratory, not in the courtroom.

The persons we clear in the laboratory are never brought to trial. We must never lose sight of the important fact that we must not only work to convict the guilty, but we must strive with equal vigor to clear the innocent. (WEK)

Credibility of a Witness—M. Tuchler, *Journal of Forensic Sciences*, 8 (3): 325-38 (July, 1963). The examination of a witness by qualified psychiatrists has been established before the federal court, and further use of the psychiatrist can be anticipated during the coming decade.

The examination and the study of credibility of the witness will probably assume a far more important role before the federal courts and the state courts in the ensuing years.

The testimony of two psychiatric witnesses, each well qualified as experts, was presented for the

first time during the second trial, *Government vs. Hiss*. The experts testified that the data available was sufficient for a valid diagnosis and did establish a diagnosis of psychopathic personality of a specific type. On an intensive and critical review of the entire testimony of the witness, and on a re-reading of the testimony of the psychiatrists based on the data in evidence, the diagnosis appears accurate, correct, and well established.

If the employment of a psychiatrist to determine credibility progresses, as it must, a sub-specialty board in forensic psychiatry will probably be developed, and this trend towards certification of a specialist who appears before the courts deserves much support, for it is already long overdue. (WEK)

Legal Commentaries on the Forensic Scientist in Court—J. Joling, *Journal of Forensic Sciences* 8 (3): 339-54 (July, 1963). The credibility of a witness has been shown in some instances by use of psychiatric "expert" testimony resulting from court room observation and hypothetical questions propounded to the expert.

"Lay" testimony, based on observation, concerning the competency of an individual, should be held worthless.

To attack the credibility of a witness by court room psychiatric observation and "expert" testimony based upon a hypothetical question cannot be said to be based on a properly-obtained scientific diagnosis.

It is possible to enlarge a photograph by first making a contact print from the original negative, small in size, then enlarging the print on a new negative from which the final print is made. This process permits non-detectable changes. In presenting a matter in evidence, the original negative, document, handwritten instrument, etc., should always be produced. Properly authenticated enlarged photographs, photomicrographs, color photographs, and color slide projection slides should be allowed in evidence. The same rules of law apply to the admission of any photograph, whether color or black and white. The trial court's discretion relative to the admissibility of photographs in evidence should be directed to authentication of the photograph, its probative value, and its relevancy to the issues being tried.

Peculiarities in handwriting found in ransom notes are of great significance and importance.

Prior markings placed on photographic evidence

proposed for use during trial may make its admission in evidence reversible error.

The "expert" witness should be capable of demonstrating reasons for the conclusions reached.

The forensic scientist is not an advocate; he is a searcher and relator of factual truth, and his conclusions are never based on conjecture or speculation. (WEK)

An Introduction to Demonstrative Evidence—M. Belli, *Journal of Forensic Sciences*, 8 (3): 355-82 (July, 1963). The author, one of this country's outstanding trial attorneys, eloquently explains the valuable use of demonstrative evidence in trial procedure. Demonstrative evidence, the empathy of jurors, laymen, and of those who want to know is the modus operandi of the doctors, investigators, and professional men of learning. Each new day gives birth to new wonders, new demonstrative evidence. Demonstrative evidence is the bridge between the scientific men of learning and the unlearned who are just as entitled to know. Scientists can even tell us how many people had stood in a now-empty room, how many cars had been parked in a now-deserted lot. You can take pictures of 10 minutes ago by heat wave photography! Science is about to measure androgens and endrogens, qualify genes and chromosomes, touching the very balance of life itself.

Demonstrative evidence is not new. Cicero, Diogenes, Solomon, and the other ancients showed as well as told. Demonstrative evidence has a tremendous storehouse, the key to which is your and my imagination and ingenuity.

While doctors, criminalists, pathologists, toxicologists, investigators, photographers, lawyers, and all of us scientists and professional men are developing materials better to teach mentally healthy, curious men who would know, jurors and our clients in all walks of life, we must remember the scientific lesson of working together. The end of demonstrative evidence is fiat lux. Our goal is truth and justice. (WEK)

Medical Records and the Questioned Document Examiner—J. Harris, and D. H. Mills, *Journal of Forensic Sciences*, 8(3): 453-61 (July, 1963). There are instances of injudicious and fraudulent alterations of medical records which can be detected by the document examiner and can be supported by physical evidence. There are actually many instances in which the document examiner

can detect actual or suspected alterations in medical records; however, because of varied and unusual medical recording customs, the great majority of these situations are not significant. There are unusual instances where the detection of an irregularity in a medical record may require medical knowledge rather than the skill of a document examiner.

Evidence which may lead to an opinion that entries in a record have been altered or enlarged:

1. Crowding, squeezing in, or writing words around existing entries.
2. Change in slant, pressure, and uniformity of handwriting.
3. Presence of erasure, eradication, or obliteration.
4. Use of two or more inks to write one entry which normally would be written with one pen and the same ink.
5. Added notations on different dates all written with the same pen and ink while original entries are written with different pens and inks.
6. Reaction of lines intersecting folds, holes, or tears in the paper which is different than that found in the original part of the entry.
7. Improper sequence of intersecting ink lines.
8. Impressions, or lack of impressions of writing instrument on next page (shadow writing).
9. Ink offsets or lack of offsets on backside of previous page.
10. Use of two typewriters to make one entry.
11. Typewritten notations out of alignment, difference in ribbon color and/or condition of type faces.

Evidence which may lead to an opinion that a page or the entire record has been substituted or wholly rewritten:

1. Unnatural order of writing and undue uniformity of handwriting, ink, margins, spacing, arrangement, and alignment of ditto marks.
2. Intersecting fountain pen entries of different dates that bleed into one another.
3. Variation of folds, stains, offsets, impressions, number of paper fastener holes, and tears when comparing one page with another.
4. Use of later year (1963 for 1962), especially if it appears several times and has been corrected.
5. Several typewritten entries in perfect align-

ment covering an extended period of time.

6. Use of medical forms not printed or purchased until after the date of the entries on the record. (WEK)

Useful Tests to Identify Phenothiazine Tranquillizers—H. W. Lucas and C. Fabierkiewicz, *Journal of Forensic Sciences*, 8(3): 462-76 (July, 1963). The tests which are described in this paper, have proved useful for the purpose of identifying phenothiazine and its many derivatives. By employing a combination of them it is possible to differentiate the various members of this large family of very important drugs.

Further investigations are necessary to learn how to remove more successfully the substances which interfere with the brominesulphuric acid reaction and which are found in the urine of some patients on medication with phenothiazine derivatives.

Finally, it is apparent that further investigations are necessary to establish the relationship between the parent drug and its metabolites in the urine of patients on medication with this group of tranquillizing drugs. (WEK)

Modified Absorption-Elution Method of Siracusa for Abo and MN Grouping of Bloodstains—A. Fiori, M. Marigo, and P. Benciolini, *Journal of Forensic Sciences* 8(3): 419-45 (July, 1963). This is Part I of a 2 part article to be continued in the October issue. Part I discusses the historical background of the three possible procedures for the detection of resulting antigen-antibody reactions:

1. Qualitative determination of the agglutinating power in the previously absorbed antiserum, or quantitative titration test to ascertain if the titre of the absorbed antiserum is decreased (absorption inhibition test).
2. Mixed agglutination between bloodstained fibrils or blood crusts, to which antibodies are absorbed, and A or B erythrocyte suspensions.
3. Elution from blood stains of previously absorbed antibodies and testing for agglutination with respectively A, B, O. etc. erythrocytes.

The article continues with a description of the experimental studies. Complete abstract will be reported after publication of the October issue. (WEK)

Identification of Nasal Inhaler Fragments by Gas Chromatography—C. Crompt, *Journal of Forensic Sciences*, 8(3): 477-80 (July, 1963). This analytical scheme was developed as a direct result of two recent cases involving the smuggling of nasal inhalers into local jail facilities, and the subsequent use of the sympathomimetic amines obtained from these inhalers to satisfy inmate's drug habits. In each case part of the evidence consisted of small fragments of the absorbent material from the interiors of the inhalers. This scheme was designed to determine the nature of these fragments and to compare them with known inhalers to effect an identification. A gas chromatogram of the aromatic components and the sympathomimetic amine was obtained from an ether extract of the material. Then an acid extract of the ether solution was made. This acid extract was made basic and re-extracted with ether to obtain the sympathomimetic amine relatively free of the aromatics, and a second gas chromatogram of the sympathomimetic amine alone was made. These chromatograms were compared with a series of standard chromatograms made from fourteen available inhalers. With the exception of two inhalers which contained menthol only, the gas chromatograms of all the inhalers were sufficiently different to distinguish one from the other readily. This method yields a satisfactory and selective means of identifying a particular type of inhaler. (WEK)

Medicine and Criminalistics—S. Olbrycht, *Journal of Forensic Sciences*, 8(3): 383-91 (July, 1963). Forensic Medicine has only been able to develop since the time when factual evidence was introduced into legal proceedings. A just verdict can only be reached when it is based on material truth; and it is towards the discovery of this material truth that the collection of evidence serves.

In forensic practice the statements of witnesses (personal evidence) continue to hold a privileged position. It should be strongly emphasized that, in general, personal evidence is overestimated and material evidence passed over with indifference, though the value of the latter may best be described by saying that it has not those defects which personal evidence has or may have.

The main good aspect of material evidence, in contradistinction to personal evidence, is that it can be kept for a long time, without running any risk of factual or legal alteration. On the other

hand, it is impossible to isolate a witness; hence the danger of suggestion. Witnesses sometimes lack properly functioning special senses or intellect; there are often conditions unsuitable for their observations; emotional factors exert an unfavorable influence on the quality of their observations; and there is also the danger that the witness's senses have led him astray. The expert creates suitable conditions for his observation and work, he applies proper and accurate methods of investigation, and he uses appropriate scientific apparatus. His examinations of the material evidence may be checked by other experts. (WEK)

Kent State University Police Course—The Department of Political Science at Kent State

University, Kent, Ohio, is offering a four year course leading to a B.A. degree in Law Enforcement Administration and Public Safety. The course was introduced in the fall semester 1963, and will offer both academic and technical courses. (OH)

Doctor of Criminology Degree—The University of California, Berkeley, has awarded its first Doctorate of Criminology to Donald Frederick Nelson, Principal Scientific Officer of the Dominion Laboratory, New Zealand. His dissertation is entitled *Pyrolysis-Gas Chromatography in the Identification of Barbituric Acid Derivatives*. (OH)

FOREIGN LANGUAGE PERIODICALS AND ARTICLES OF INTEREST IN THE FIELD OF POLICE SCIENCE*

Compiled by

Kurt Schwerint†

CHRONIQUES INTERNATIONALES DE POLICE—INTERNATIONAL POLICE CHRONICLE. Paris. Tenth year, nos. 53–54, March/April–May/June, 1962.

M. Baroin, *For an international code of police deontology* (pt. 3), (pp. 11–21); P. Villetorte, *Sanctions for serious offenses against traffic law* (pp. 23–34); A. Chosalland, *Copenhagen police: A brief sketch of the technical organization* (pp. 35–41). The articles are in French and English.

KRIMINALISTIK. Hamburg. Vol. 17, no. 3, March, 1963.

Konrad Händel, *Polizei und Justiz in den*

* All periodicals listed are available in the Northwestern University Law Library, 357 East Chicago Avenue, Chicago, Illinois.

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Vereinigten Staaten: Eindrücke von einer Studienreise (Police and justice in the USA: Impressions from a study trip) (pp. 97–103).

DIE POLIZEI. Cologne. Vol. 53, no. 4, April 8, 1962.

Obituary for Herbert Kalicinski, Director of the Police Institute, Hilstrup, Westphalia, who died on March 17, 1962. This issue also includes an article by H. Kalicinski, written shortly before his death: *Der Polizeioffizier im Wandel der Zeit (The police officer in the change of time)* (pp. 99–102).

REVUE DE LA SURETÉ NATIONALE. Paris. No. 44, Aug./Oct. 1962.

La police en Belgique (The police in Belgium) (pp. 4–15).