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Police Science Technical Abstracts and Notes

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POLICE SCIENCE TECHNICAL ABSTRACTS AND NOTES

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An Unusual Suicide—The New York State Police at Oneida, New York, investigated the report of a body in a tannery boiler. All evidence would normally indicate that the case was one of murder and not suicide. However, investigation disclosed that the deceased had attempted suicide by throwing himself into various machines in the tannery. Although these attempts were thwarted, later in the day he succeeded in crawling into the fire box of the tannery boiler and committing suicide. In the absence of witnesses a logical deduction of murder might have been forthcoming. This case is reported in the *Bulletin of the Bureau of Criminal Investigation*, New York State Police 12: 8-9 (July-August, 1947.)

Identification of Glass Fragments—The usual procedure for positively identifying glass fragments in hit-and-run cases involves matching of the various edges until a piece from the scene is found to match a piece recovered from a suspect car. This offers two visible lines of comparison, and where a large and varied contour is available this is sufficient to show the common origin. In those instances involving small pieces where some doubt may exist as to the positiveness of the match, the fine, random radial lines on the fractured surfaces offer a solution to the problem. The radial lines on one glass fragment have negative counterparts on the other fracture surface. By dusting the fractured surface with graphite and examining them with a comparison microscope. The radial lines on one fragment may be found to match those on the other fragment. Due to curvature variation only small increments can be compared at a time.

Police Science Training at University of Missouri—The University of Missouri and the Missouri State Highway Patrol are cooperating in a new educational program in the field of police science. This educational activity will be under the direction of G. J. Koch and will deal with all of the major phases of police work. The program will consist of a short residence instruction and a series of extension classes in various communities. (Submitted by Ralph F. Turner, Michigan State College.)

Traffic Statistics for California—The annual statistical report (1948) of the California Highway Patrol consists of 60 pages of raw data giving information on Traffic Accidents, People in Accidents, Location of Accidents, Enforcement, and Vehicle Registration. All subjects are broken down under various subheadings adding to the usefulness of the statistics. While the report contains some charts, no attempt is made to analyze the significance of the statistics, a serious drawback for the great majority of readers. Those interested in a copy of the report can obtain

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it from the Bureau of Statistics, California Highway Patrol, Sacramento, California. (O.H.)

Detection of Hydrocyanic Acid in Decomposed Viscera—Hydrocyanic acid is changed to thiocyanic acid in decomposed viscera. According to investigations conducted by E. Rothenasinkam, reported in *The Analyst*, 73:394-5 (July, 1948), this conversion is not quantitative. In every test of aged viscera no hydrocyanic acid was found by the direct method, and the quantity found by Chelle's method was less than that amount originally introduced into the sample.

Reproduction of Characteristics from Metallic Surfaces.—A method developed by the Faxfilm Company of Cleveland, Ohio, using a simple embossing process makes possible reproduction of surface irregularities or stampings. This is used by the writer to reproduce automobile engine serial numbers that are not accessible for microscopic examination. The process involves the use of clear plastic film and a solvent that is applied to the area to be reproduced. The film is suitable for the reproduction, preservation and comparison of tool marks,¹ typewriter key impressions, and the marks of other instruments. Enlargements and photomicrographs can be made from the film using standard commercial plates and paper. (Submitted by Charles W. Zmuda of the Chicago Police Scientific Crime Detection Laboratory.)

Tests for Intoxication—Michigan State College, Department of Police Administration, has received \$5,000 from the National Safety Council for research in chemical tests for intoxication. The grant was administered through the Council's Committee on Tests for Intoxication. Work will be directed by Dr. C. W. Muehlberger, Chairman of the Technical Sub-Committee, and Ralph F. Turner, Assistant Professor of Police Administration in cooperation with the Department of Chemistry. It will be divided into three sections: (1) A comparison of chemical techniques for determining alcohol in blood, urine, breath and saliva; (2) inter-comparison of results of chemical tests of blood, urine, breath, and saliva to determine the constancy factors of inter-correlation; and (3) an evaluation of the factors which go to produce tolerance in the human subject. It is expected that the project will begin around October 1, 1948. (Submitted by Ralph F. Turner, Michigan State College.)

The Use of Tear Smoke (Gas) by Police—The changing pattern of public attitude regarding the use of force by law enforcement officers in handling or dispersing mobs places more and more emphasis on the proper use of tear gas. *The Police Journal* (London), 21:208-15 (July-Sept., 1948) discusses the various tactics most adaptable to police use. The advantages of projected shells in introducing gas into buildings occupied by armed criminals is related as well as the optimum conditions for use of gas grenades in open areas. The operations where tear gas is to be used must be closely supervised and coordinated by one commanding officer. It is better to use too much tear gas than too little.

¹ See David L. Cowles and James K. Dodge, "A Method for Comparison of Tool Marks" Jr. *Crim. Law & Criminol.* 29 (2) (July-Aug. 1948) 262-4.

Adequate precautions against counter measures must be taken, and the officers should be supplied with gas masks in order to ensure a rapid follow up of the tear gas attack.

Lectures in Public Protection—Ralph F. Turner, Assistant Professor of Police Administration at Michigan State College, has become an Associate Editor of American Lectures in Public Protection, which is one of over thirty major subjects presented by the American Lecture Series monographs that are published by the house of Charles C. Thomas, Publisher, of Springfield, Illinois. This division of American Lectures in Public Protection will publish items of special interest to police officers, crime investigators, military and civil administrators, biochemists, and pathologists, all of whom are interested in crime detection and investigation. Quite a number of monographs are in preparation in the Series, and the first items to be published will shortly appear. It is expected that the Series will prove a great asset as authoritative sources of references for all interested in police work. Mr. Turner is also an Associate Editor of this Journal. (Submitted by Charles C. Thomas.)

Document Examiners Meet—The American Society of Questioned Document Examiners held its annual meeting during the week of August 22-27. The first two days were devoted to paper problems, and the sessions were held in Appleton, Wis., where the Society met jointly with members of the Institute of Paper Chemistry and representatives of paper mills and dandy roll plants of that city. Visits were made to the Institute and participating mills and plants. The balance of the formal sessions convened in Milwaukee and consisted of discussions of traced forgery and typewriting identification problems and Society business. On the final day the group traveled to Woodstock, Illinois, where the members inspected the Woodstock Typewriter Company's factory. Among the more important decisions made during the business meeting was the establishment of a central library for the Society to be known as the Albert S. Osborn Memorial Library, in honor of its first president. This circulating library is to be a collection of professional books dealing with all phases of questioned documents. It has been proposed that the library facilities should not only be available to the membership but upon special arrangements with the librarian to other students and research workers. (O.H.)

Ball-Point Pens—In the May, 1948 issue of the *American Bar Association Journal* there appears two articles which should be of interest to Document Examiners and police investigators as well as the lawyers for whom the article was written. The first article was written by Elbridge W. Stein and Ordway Hilton and is entitled, "Questions Raised by Examiners of Signatures and Documents." This article by Messrs. Stein and Hilton puts forth the defects they encountered in their study of the work of these pens and the consequences that might occur from the use of them.

There is a full description of the mechanical construction and the inks contained in these pens as well as the manner in which they differ from the conventional nib-point pens. It was found that in the original ball-point pens the inks faded badly, but some of the manufacturers have since improved this to a large degree. However, there are no means

of knowing in advance which inks are fugitive. Another common criticism of this ink is the possibility of making an offset transfer of a signature, but the authors believe that such a specimen could not be passed as genuine unless it was retraced in order to reink its outline. Also the housing which holds the ball point in place may affect the writing of some people who are in the habit of holding the pen at a low angle to the writing surface. It causes them to change to a more vertical position which in turn restricts the freedom of their writing. The defects in pen strokes made with this type of pen are listed as: blotches, dark spots, irregular ink deposits throughout the strokes, and skipping of ink where the pen fails to write. Besides these defects the authors point out that it does not record the differences of pressure on the pen which causes the delicate shading, nor the manner in which the pen was held, the indication of speed, vigor, and skill with which the writing was written. It is pointed out that it may be possible to stop anywhere on a line and start again without evidence of hesitation being shown in the results. In any instance where there is a tell-tale sign of hesitancy or retouching a ball-point pen stroke it is similar in appearance to the defective writing quality so common to the ball-point pen as a class. If a pen is to protect a writer's signature from forgery, it must do more than be ready to write at any moment, is the author's belief.

The second article was written by C. H. Lindsly and Robert S. Casey, research experts for the W. A. Sheaffer Pen Company and is entitled, "Ball-Point Pens and Inks as Seen by a Principal Manufacturer." They suggest that Document Examiners have not had an opportunity to develop techniques for studying and differentiating the writing made with ball-point pens. They list the defects encountered in these pens and suggest that they may be used as marks of individual differences. They also list the defects that the pens acquire during use such as dropping and foreign matter as points of individual differences. It is pointed out that the writing life of these pens varies greatly among the pens on the market. The life of a pen may be from a few pages up to perhaps two hundred and fifty pages. The writing life depends upon two factors: The rate of feed of the individual pen and the amount of ink placed in the unit by the manufacturer. When the ball-point pen inks are well developed they are far superior to those of ordinary writing inks for their resistance to soaking in water, exposure to light, and eradication with bleaching chemicals. Various solvents are suggested to evaluate the inks by simple test methods. These solvents, alcohol, acetone, carbon tetrachloride, morpholine, pyridine, and ethyl acetate, may affect removal or diffusion of the vehicle in the ink and part or all of the coloring matters. They may permit soluble dyes to diffuse outward through the paper while the insoluble pigments remain in their original position. It is suggested that the coloring constituents may be then individually tested by the ordinary reagents used for aqueous base inks. (Note submitted by David J. Purtell of the Chicago Police Department Scientific Crime Detection Laboratory.)

American Medico-Legal Congress—The Steering Committee of the American Medico-Legal Congress met at the Hotel Pierre, New York City, October 18, 1948. Twenty-five members were present. The Steer-

ing Committee had been appointed by Dr. R. B. H. Gradwohl in accord with a resolution adopted at the St. Louis meeting.¹

The group, representative of various branches of forensic science, discussed the general aims and purposes of the projected organization in the light of the thoughts and opinions expressed at the St. Louis meeting. The following points were agreed upon: 1) The Steering Committee moved to form an organization on a national scale for the purpose of promoting the advancement of forensic science; 2) The tentative name of the organization is to be The Academy of Forensic Sciences; 3) A general meeting is to be held, possibly during the spring of 1949, to formally create the permanent organization; 4) The temporary officers, Dr. R. B. H. Gradwohl, Chairman, and Ralph F. Turner, Secretary, shall continue in their present capacity until the next meeting; 5) The Chairman will appoint necessary committees to prepare recommendations for discussion at the next meeting. The committees will concern themselves with the details of organization which include the charter, membership qualifications, sections, programs, publications, finances, and affiliation. Additional committees will be appointed at the discretion of the Chairman. (Submitted by Ralph F. Turner.)

¹ Turner, Ralph F., "The First American Medico-Legal Congress," *Jr. of Crim. Law & Criminol.* 39 (1): 104-110 (1948).