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Rinaldo F. Palla

Leonard F. Wiebe

DEVELOPMENT OF LATENT FINGERPRINTS ON GREASY SURFACES

Rinaldo F. Palla and Leonard F. Wiebe

Both authors are members of the San Francisco Police Department, Rinaldo F. Palla being assigned to the Bureau of Identification and Leonard F. Wiebe to the Criminology Laboratory. Mr. Palla is a qualified photographer, appointed to the police department after experience in civilian photographic work and duty in the Army Air Corps and Signal Corps photographic sections. During the latter part of the war he was the Officer-in-Charge of a photographic laboratory in the European theater. Upon release from active duty he joined the department and assumed his present duties in the fall of 1947. Mr. Wiebe is a graduate of Leland Stanford Jr. University (B. A.). Prior to his police appointment in 1942 he served in the San Francisco Public Health Laboratories. From 1943-46 he was on military leave with the Army Medical Corps as a Bacteriologist. Upon returning to the police department he was assigned to the Bureau of Identification and since November 1947 to the Criminology Laboratory as Chemical and Serological specialist.—EDITOR.

The problem of developing latent fingerprints on an oily surface was encountered when a bottle was recently brought to the Bureau of Identification. It contained mineral oil, some of which had been spilled on the outside, and had apparently been handled by a burglar. Attempts to develop the prints by standard methods failed. These prints were faintly visible when viewed with oblique light, but it was not possible to obtain clear photographs of them. Iodine fuming and treatment with 5% silver nitrate were attempted with no success. Finally, a method of using photographic paper which had been fixed in hypo was tried with no real success.

The lack of success in this problem lead the authors to search the available literature which revealed an article by John McMorris of Pasadena Junior College on a method of developing prints by fuming with iodine and lifting with polished silver plates.[1]

After a discussion of this method between the writers the following satisfactory technique was devised for lifting prints in experimental problems. Though it may be used on any print on a fairly smooth surface like glass, wood, or metal, the results have been found very gratifying when used for lifting prints on an oily surface.

Two experiments which attempted to duplicate those circumstances which would confront the worker in the case of a burglary or other crime were set up. The first experiment was carried out with an eight ounce flat bottle. Petrolatum was spilled on the bottle, and it was allowed to stand till the following

1 See the published report of the 21st Annual Convention of the California Division of the International Association for Identification.

day to reach an even surface and gather dust. Then prints were made on this oiled surface and left for two days to simulate a maximum time before these prints would ordinarily come into the hands of the fingerprint technician. A second experiment was carried out with an electric light bulb, an object which offers considerable difficulty in photography. The finger-tips were wiped with cloth saturated in motor oil, and the bulb was then firmly grasped leaving these oily prints. This was left till the following day when it was photographed, and then the prints developed by the new method to give comparative results. In both instances results obtained were superior to those obtained by photography.

The method consists of five steps:

1. Immersing unexposed photographic paper in warm water in the dark room.

2. Fuming prints in the customary manner.

3. After blotting the photographic paper to remove excess water, rolling it on the fumed surface of the fingerprint.

4. Placing photographic paper in developing solution.

5. Exposing to light and after image is fully developed fixing.

1. Soaking the photographic print paper allows the chemical reaction to take place more rapidly as well as making the paper more pliable and more easily molded to fit a curved surface. For surfaces such as that of a light bulb, it is advantageous to cut a rounded piece of photographic print paper slightly larger than the fingerprint. By cupping this in the palm of the hand good contact can be made with the fumed fingerprint without danger of slipping. Work must be done under safelight or in the dark. High contrast print paper has been found to give the best results.

2. The print is fumed in the customary manner. The use of calcium chloride drying tube is convenient for this.

3. The dampened print paper must be held firmly against the print, but if the surface is oily, not so firm as to flatten the pattern. If there is no slipping in placing the paper on the fingerprint or in removing it, no damage is done to the print. Equally good results were obtained on a third and fourth lift as on the first.

4. After contact of the emulsion to the fumed print for about one minute the paper is dropped into the developer and left for 15 to 20 seconds under the safelight so that the paper is saturated with developer.

5. As soon as the paper is saturated the dark room white lights are turned on. As the paper fogs the part subjected to the iodine is retarded. When the maximum contrast is obtained development is stopped by plunging the paper into a short stop or hypo solution. It should be left in the hypo for about 15 minutes, then washed in running water, and dried the same way any photographic print is.

The print developed in this manner is a negative print. It may be compared directly or a photostatic copy may be made to reverse it.