

Winter 1937

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Recommended Citation

William W. Harper, Fingerprint Forgery-- Transferred Latent Fingerprints, 28 Am. Inst. Crim. L. & Criminology 573 (1937-1938)

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POLICE SCIENCE



Editor: FRED E. INBAU

FINGERPRINT "FORGERY" — TRANSFERRED LATENT FINGERPRINTS*

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The claim has been made by numerous dactyloscopists that fingerprints cannot be successfully forged or transferred. It is maintained that although admittedly good forged prints can be produced, a microscopic examination of the fine detail will invariably disclose characteristic imperfections.¹

In reviewing the evidence offered in substantiation of this claim, one finds it both incomplete and inconclusive. Equally disconcerting is the fact that under actual conditions microscopic examinations are rarely if ever made of a latent impression either before or after development. If the differentiation between originals and forgeries is dependent upon examination of the microscopic fine structure, then one could not expect to make such a differentiation after the destructive effect of brushing with powder. The work of Cummins² indicates that counterfeit prints may be extremely difficult to recognize, but since his experiments were carried out with impressions in ink rather than in the natural secretion of the papillary ridges, no definite conclusions can be drawn from them as to the possibility

* The word "forgery," as used throughout this paper, should be interpreted to mean any fingerprint other than the original.

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¹ Soderman, H. and O'Connell, J., *Modern Criminal Investigation* (1935) 126. Also see *The Detective* for July, 1937.

² Cummins, H., "Counterfeit Finger-Prints," *J. Criminal Law and Crim.* 25 (4): 666 (1934).

of detecting forgeries under actual conditions. The fact that some investigators believe that they can recognize *differences* when a transferred latent (produced under ideal conditions in the laboratory) is placed side by side with an original is of no significance. Similar *differences* can be recognized between two successive genuine latents of the same finger made under slightly varied conditions.

The work of Lee and Abbey,³ and more recently of Lee,⁴ although demonstrating that forgeries difficult of detection can be made, indicates that the microscopic examination of fine structure such as ridge boundaries, secretion globules, and sweat pores, will reveal the stigmata of forgery.

The object of the present paper is to report on numerous tests which have been conducted to determine (1) if, from a practical rather than a theoretical viewpoint, fingerprints can be transferred successfully, and (2) if minutiae exist in latent impressions which will permit differentiating between originals and forgeries prior to development; assuming that methods can be developed for examining such minutiae *in situ*.

A fingerprint forgery may be either of two types, namely:

Type 1. A forgery produced by means of a replica of the friction ridge pattern of a finger. This type includes all those methods whereby a rubber stamp or other cast is obtained which is a likeness of the actual friction ridge pattern. The fingerprint thus disposed on the stamp may be deposited at a crime scene by "inking" the stamp with perspiration, blood, paint, or other material to suit the case at hand. A forgery of this type may be looked upon as a true forgery in every sense of the word.

Type 2. This type includes all transfer processes wherein an original latent of an innocent person may be "picked-up" and transferred to some object at the crime scene. This means that the natural secretion of the original latent is actually transferred from one surface to another. Such forgery is technically not a forgery at all since the latent impression actually found is the original latent transferred from a previous surface. It may be regarded as a forgery, however, on the grounds that fraudulent intent is evident.

The present work has been concerned mainly with forgeries of the second kind. The microscopic examination of these forgeries, together with the originals from which they were obtained, seemed

³ See *The Detective* for August, 1923.

⁴ Lee, C. D., "Finger-Prints Can Be Forged," *J. Criminal Law and Crim.* 25 (4): 671 (1934). Also see Lee, C. D., "Easy to Detect Finger Print Forgeries," *Finger Print Magazine* 13 (1): 16 (1931).

likely to supply the most intimate knowledge of the fine structure characteristics as influenced by the processes of forgery. The principle involved in such forgeries is the same regardless of the transfer medium employed. In any instance, this medium is first brought in contact with the secretion constituting the original latent impression. As a consequence, part of the secretion is removed to the surface of the transfer medium. The transfer medium is later brought in contact with the surface upon which the latent is to be deposited. Some of the secretion carried by the transfer medium is thus deposited on the final surface. This procedure entails considerable loss of secretion, i. e., beginning with a latent having copious deposits of secretion one obtains an impression on the final surface in which the amount of secretion is very small. It is probable that technic can be developed whereby this loss of secretion will be minimized. May it be said that several of the media employed in this work for transferring are well known to the fingerprint profession. The various media, as well as details of their use, will not be given, at least not until methods have been devised for dealing with their detection by law enforcement agencies.

The conditions under which all observations have been made will be briefly described. The original latent is deposited on a clean glass microscope slide. This impression is then examined under the microscope using dark field illumination. The transfer is made to a second microscope slide and the impression again examined microscopically. Several hundred such observations have been made using various transfer media. The pressure of contact and amount of original secretion have been allowed to vary through wide limits. Approximately one hundred photomicrographs have been made of various original and transferred prints. These have permitted a more accurate comparison of results than afforded by viewing the impressions singly through the microscope. Examinations, as well as photomicrographs, were made at magnifications of 10 and 50 diameters.

The photomicrographs of Figure 1, chosen at random from those taken, demonstrate the impossibility of differentiating between originals and transfers. Four of the prints shown have been transferred. They are designated by E, F, G, and H.

At the higher magnification, represented by the photomicrographs of Figure 2, one again finds it impossible to recognize transferred impressions. Specimens A, C, D, and E are transferred while the others are originals.

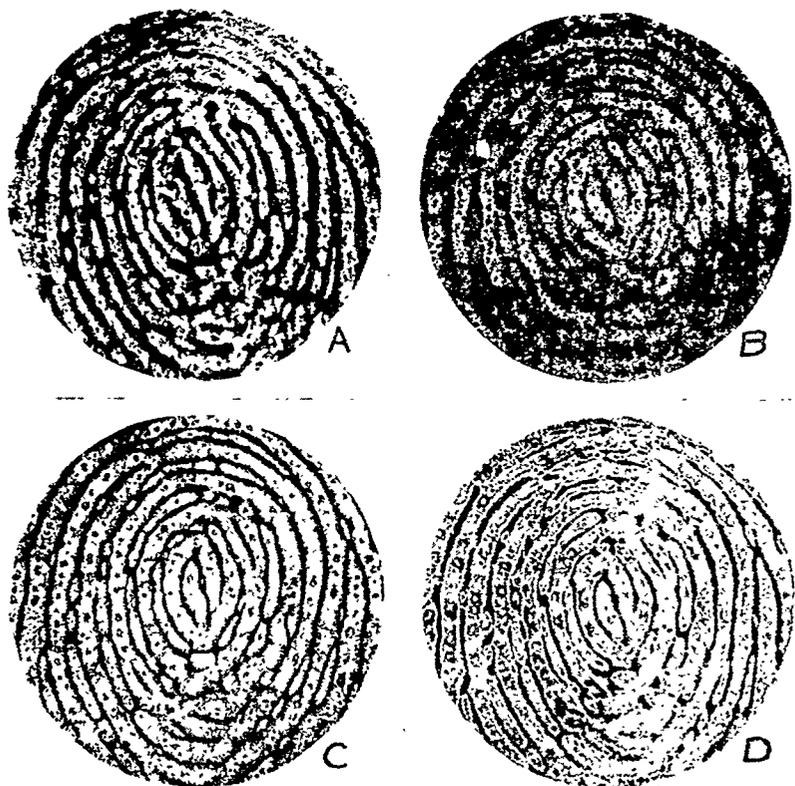


FIGURE 1—A, B, C, D.

The numerous photomicrographs made in connection with these tests have been submitted to various fingerprint experts in this locality. In all instances they have been unable to identify the forged impressions.

Evidently the claims of Lee and Abbey are unjustified, for it appears that even prior to powdering no characteristics of the deposited secretion are of diagnostic value. The photomicrographs of Figure 2, which reveal the fine structure of the impressions, demonstrate that no minutiae are indicative of forgery. It must be borne in mind that the present tests have been made under ideal conditions. Glass surfaces have been used throughout. Temperature conditions have been constant and the surfaces have been reasonably free of dust particles. Even if one could find some bases for detecting forgeries under the conditions of these tests, much re-

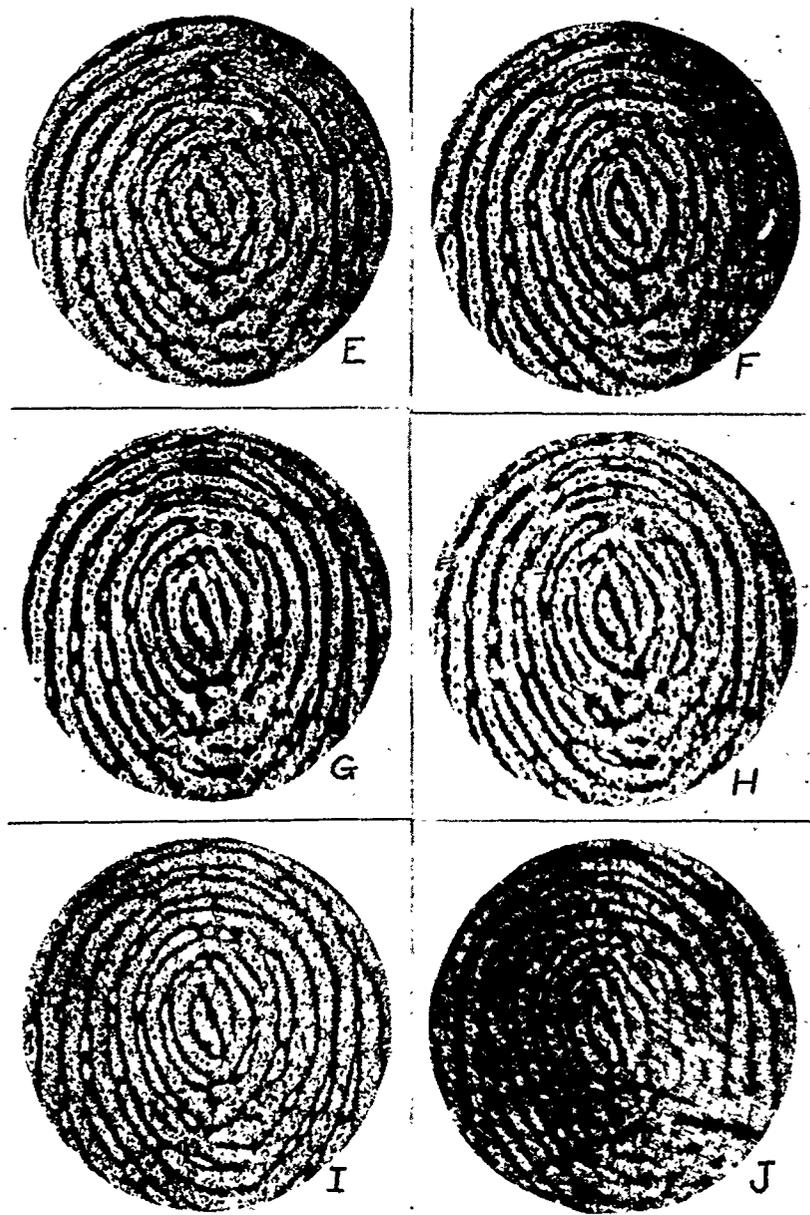


FIGURE 1—E, F, G, H, I, J.

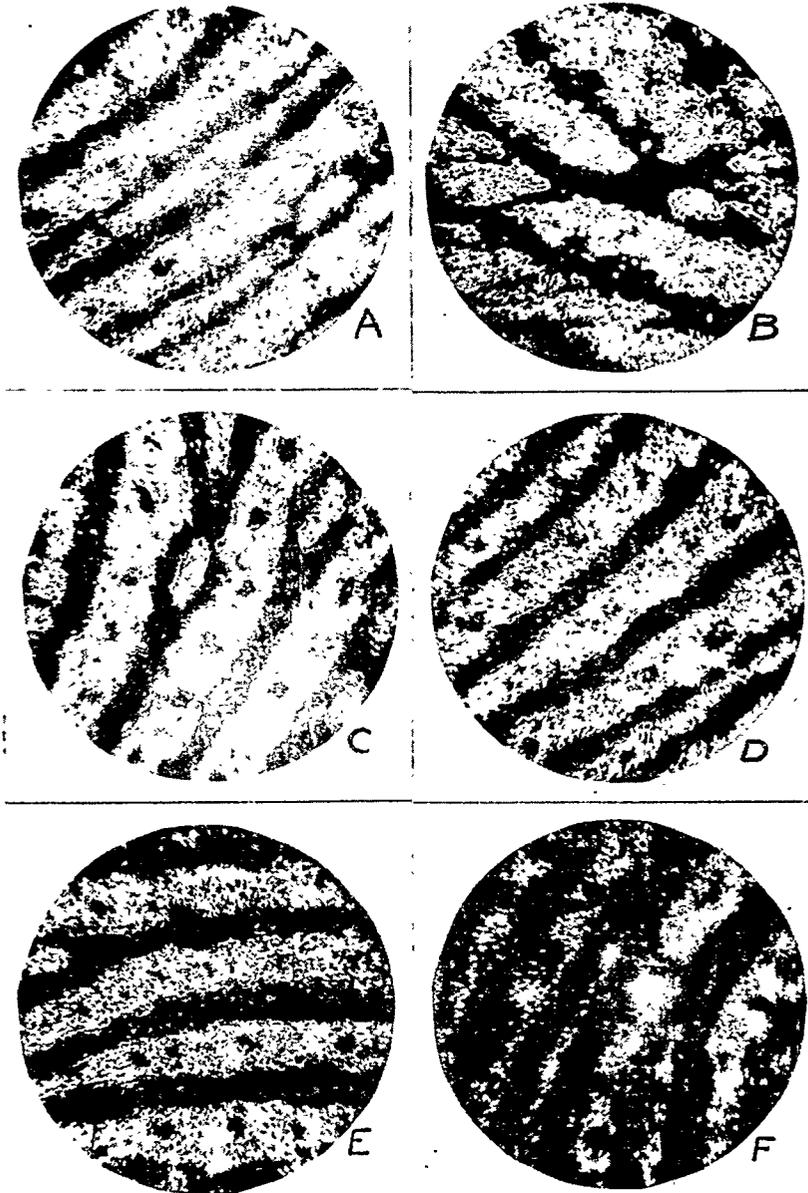


FIGURE 2—A. B. C. D. E. F.

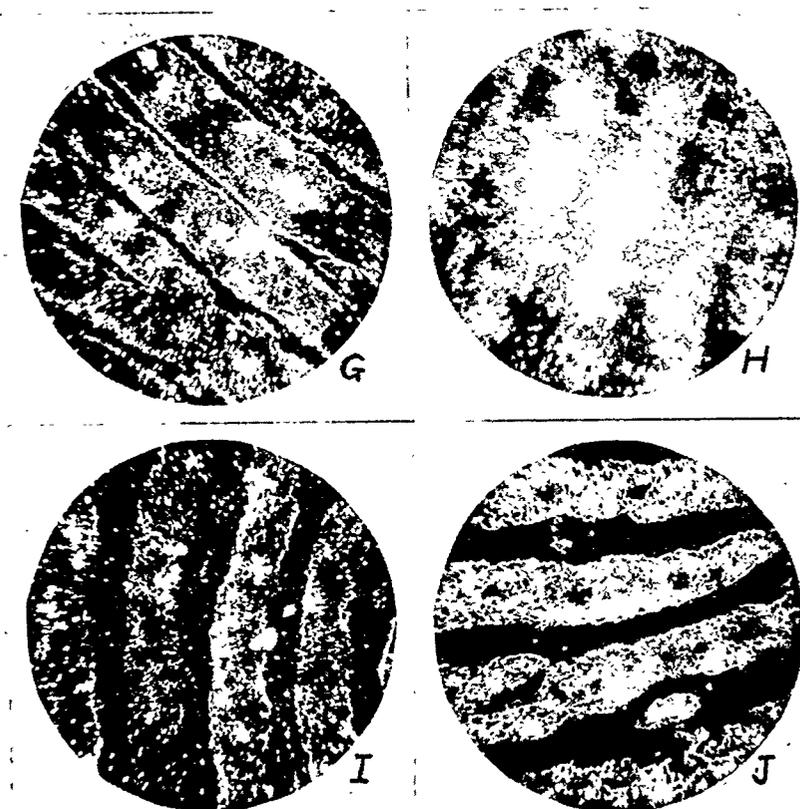


FIGURE 2—G, H, I, J.

search would be required to extend them to the wide variety of practical cases. The actual appearance of a latent impression on any surface depends upon many factors, such as the viscosity of the secretion, and the physical nature of the surface upon which the secretion is deposited. Physiological and psychological factors which influence the chemical nature of the secretion may also contribute to variations in appearance. It thus seems improbable that any exact and reliable method, based upon microscopic examination of the deposited secretion, will be developed for detecting fingerprint forgeries under all conditions.

One concludes that the approach to the problem lies in the study of factors other than deposited secretion. The position of the latent impressions on an object, for example, should be carefully

considered. This has been discussed by Lee.⁵ Perhaps the fingerprint expert should also bear in mind the possibility of "reversal." A forgery is self-evident if the latent impression is reversed with respect to an actual impression taken from the suspect. The conditions under which reversals occur might be overlooked by an otherwise skillful forger.

The surface in the vicinity of the latent impression should be carefully examined. Certain transfer media may cause changes in the surface characteristics adjacent to the deposited print. A marked increase in cleanliness of the surface under and surrounding a print would warrant much attention. Such surface changes, of course, will not be found in connection with skillful forgeries of the first kind.

Another circumstance which should be looked upon with great suspicion would be the finding of two or more latent impressions identical in all respects. Such findings would immediately suggest forgery, since it is practically impossible to deposit two successive latents having identical characteristics. Examinations should preferably be conducted prior to powdering if the surface will permit.

The equipment carried by identification experts ordinarily does not enable microscopic examinations of fingerprints. Where prints are found on surfaces which cannot be removed and transported to the laboratory, it would be well to examine them microscopically as found. Any unusual surface condition might thus be noted and comparisons made between suspiciously similar impressions. In many instances it is difficult to locate latent prints without powdering. On dark surfaces prints may be frequently located by using low incidence illumination. If the source of light is of sufficient intensity observations can be made at relatively high magnifications. The condensation of the breath on some surfaces is also useful in locating latents without powdering. On light colored surfaces the iodine fuming apparatus devised by McMorris⁶ is of great value. Fuming, unlike powdering, causes no change in the arrangement of the deposited secretion.

⁵ *Supra* note 4.

⁶ McMorris, J. M., "The Iodine—Silver Transfer Method for Recording Latent Finger Prints," *Finger Print Magazine* 18 (9): 6 (1937).