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FALSE FINGERPRINTS—A NEW ASPECT

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In publishing articles describing methods of falsifying fingerprints, we have again reviewed the Journal policy set forth in 1934 (Vol. 25, p. 665) and continue to hold to the premise that more is to be gained by a discussion of methods of falsifying fingerprints and the recognition of these possibilities than by the suppression of such information. It is believed that those engaged in technical identification fields should recognize that forgery of technical evidence is possible, and having recognized this fact are then better prepared to combat those rare instances in which such falsifications are attempted.—EDITOR.

Use of ink fingerprinting for identification purposes appears to be an age old custom. However, ancient literature is not entirely clear whether the patterns of papillary lines played a role in it, although one certainly finds that fingerprints were being placed upon deeds. If this fact had been stated anywhere, it surely would now be known exactly how these prints served for identification in those early times.

The first publication in which the papillary line pattern was described as a means for personal identification dates from modern times.¹ The Scottish surgeon, Henry Faulds, wrote an article, which appeared in 1880 in *Nature*.² Although in the next issue (p. 76) the English civil servant, Sir William J. Herschel, announced that he had already been making use of fingerprints in India for twenty years, Faulds thereby only lost part of the honor. Both held that the basic papillary designs were unchangeable but they differed from person to person. They however expressed considerable differences of opinion regarding possibilities of application. Herschel saw merely the administrative usefulness, the infallible personal registration, which he originally applied mainly in the India prison administration.

Faulds showed much broader and deeper insight. As a scientist he foresaw practically all possibilities of application known at the present time—those of heredity, evolution, ethnology, and history. His most important conception—one might say discovery—remaining completely hidden from Herschel, was the identification value of fingerprints left by the criminal at the crime scene or on an object used in commit-

¹ CUMMINS and MIDLO, FINGERPRINTS, PALMS, AND SOLES, AN INTRODUCTION TO DERMATOGLYPHICS, The Blakiston Co., Philadelphia, 1943, p. 15.

² Vol. 22 page 605

ting the crime. It was not until 1938 that Wilton³ made this distinction between Herschel and Faulds clear and at last credited Faulds with the full criminalistic honor that is his due.

IMITATIONS

Through Fauld's insight, fingerprints has become a weapon in the combat against crime. However, attempts of imitation of fingerprints were to be foreseen, to sidetrack the police or even to incriminate an innocent person. The first known attempts did not come to light in the course of criminal investigations.⁴ They were honest persons, some of whom by their experiments tried to show that the finding of fingerprints constituted little or no proof at all. This, of course, does not mean that no criminal ever forged prints in actual crime. Nowhere in literature, however, has such a case been reported; so if ever practiced, the criminal remained undetected. Accordingly the known attempts were not actually forgeries, but merely imitations.

Such imitation might be achieved by constructing a fingerprint without copying any existing papillary line pattern. Attempts of this kind are not to be found in fingerprint literature. It may also be done by copying an existing ridge pattern. This kind of imitation is well known, stamps having been manufactured, in other words an imitation of fingertip skin.

It was tried in 1923 by the American, Albert Wehde. He had a fingerprint photographed, natural size, a copy of it made by an etching process on a metal plate, and from this, after greasing with wax a print was made. When there was criticism he made a print by using sweat instead of wax. He gave a demonstration before a number of experts who declared his procedure was not new but had been put forward in 1921 in Germany, and found imperfect by English workers. Nevertheless, the next year his book, *Fingerprints Can Be Forged*,⁵ appeared and achieved success because of its sensational subject matter.

A better result was attained in 1934 by Harold Cummins.⁶ He constructed a fingerprint stamp without technical perfection, by means of which he placed on cards right forefinger inkprints, such as would fit and are in everyday use for registration purposes. On each card two prints were made by this stamp and two by the real finger from which the stamp was a copy. Eight experts tried to tell the real ones from those faked. Out of the 32 opinions—8 experts who each studied 4 prints—20 were right, 1 doubtful, but 11 wrong.

The second method of copying an existing papillary pattern is in fact no fake because the natural, original imprint is available for the fraud. C. E. Chapel⁷ recalls its first experiment. In 1923 O. E. Brown wrote to police expert August Vollmer about

³ G. W. WILTON, *FINGERPRINTS: HISTORY, LAW, AND ROMANCE*; William Hodge & Co. Ltd., London, 1938.

⁴ An early discussion of the problem appeared in this Journal in 1934 in two articles and the accompanying Editor's Note. See "Counterfeit Finger-Prints" by Harold Cummins and "Finger-Prints Can Be Forged" by C. D. Lee, Vol. 25, No. 4, pp. 665-674. (Nov.-Dec. 1934).

⁵ A. WEHDE and J. N. BEFFEL, *FINGERPRINTS CAN BE FORGED*; The Tremonia Publishing Co., 1924.

⁶ Opus cited in note 4.

⁷ C. E. CHAPEL, *FINGERPRINTING, A MANUAL OF IDENTIFICATION*, Chapman and Hall Ltd., London, 1946, p. 60.

being able to lift and transfer original fingerprints. At his demonstration he indeed transferred a latent fingerprint from a glass plate onto a flat surface. He did not disclose his technique. At first it was thought that no difference could be discerned. Under greater than usual microscopic enlargement, aberrations were perceived. On the original latent print the small particles of liquid secreted by the fingerskin were visible as tiny balls; whereas on the transferred print they appeared more flattened.

QUESTIONS AS TO THE SUCCESS OF FAKED FINGERPRINTS

The answer to such a question depends upon the standard applied. A fingerprint may well prove a success if on the usual thorough routine inspection it would pass as genuine; eventually also in regard to its placing. But no sooner is its genuineness suspected, and consequently the fingerprint examined with all the scientific devices that are not ordinarily available for routine examination, than it becomes doubtful as to whether a forgery could go undetected. A generalization cannot be made, but rather the problem must be considered from case to case. The well known German criminalist, Dr. H. Schneickert, stated in 1923 that "the possibility of forging fingerprints has to be admitted . . ."³ He made this statement even before Wehde and Beffel published their book.

As to early attempts, this has not been a complete survey. Nevertheless, it is typical from the point of view of methodology and of the more recent attempts. Recently other methods have been sought, but they are limited to the use of new materials, especially plastics. The subject however should not be considered exhausted.

A NEW ASPECT

I should like to draw attention to an aspect that up until now has been overlooked and is unmentioned in the literature. First, however, may I point out that this method occurred to me because of very particular circumstances. In 1943, while on our way from occupied Holland to England—secretly of course—my companion and I were in need of French identification papers. They would serve primarily to enable us, within the Italian occupied French territory, to prepare as comfortably as possible our crossing of the French-Italian Alps.

They were needed because, in the event of arrest on either side of the frontier-zone, we were to pass as French mountaineers having lost our way. Obtaining forms and stamps for these identity cards (*cartes d'identités*) was no trouble. The method of placing fingerprints upon them was a different proposition. This problem ought to be briefly explained. We intended to let routine checks on our documents pass quietly however, not to wait for the results of serious investigations of them, or for possible jailing for that purpose, but rather to escape if such an event threatened without bothering about the documents. Now if our own fingers were on the false documents, the documents would always form a means to identify us in case of other difficulties with the enemy. In view of the intention of our travel, we wished to obscure our various skirmishes with the occupiers and their followers. For members of the French resistance movements with whom we were in close contact, the same objection counted against having their fingerprints on our documents. Besides, they were fre-

³ H. SCHNEICKERT, *DER BEWEIS DURCH FINGERABDRUCKE*, IN *JURISTISCHER UND TECHNISCHER BEDEUTUNG*, A. W. Hayn's Erben, Berlin, 1923, p. 14.

quently registered themselves in France by their real fingerprints, so we would risk being charged with their exploits as well. The difficulty, therefore, actually amounted to obtaining a fingerprint that would compromise neither us nor our French friends. From my own experience as a police officer I knew it was not necessary under routine controls for the fingerprints on the documents to be identical with the fingerprint of their holder. At such controls this is hardly ever given thorough attention for it is impossible for a policeman to form a definite opinion on the spot by making a comparison. As long as the print pattern on the document and the finger pattern resemble each other in the main, this in practice would constitute nearly as much as a guarantee for safe use at ordinary inspections. It was thus our desire to produce a print that could not be told from a fingerprint, yet was nobody's papillary finger pattern. While considering this problem, the answer came suddenly—a print from the big toe.

Probably among the available toes, we would have sufficient choice of a pattern resembling in the main the required finger patterns. Our own 4 big toes already proved to hold the two patterns required, and in no time the prints were ready on the documents.

In that way everybody has always with him a pair of "false fingerprint-stamps"; this according to the literature had never been specifically thought of.

APPLICATION TO FRAUD

Thus, easy ways to fraud are at once open—in fact, in many instances where a fingerprint should serve as conformation or proof and where it is not placed in the presence of a supervising person. For instance, in such countries where it is periodically required to produce a certificate to collect old age pensions, etc. On this certificate, as a proof that one is still alive, an inked fingerprint must be placed each time by the aged person, until death obviates such a procedure. (The procedure is specially adapted for old aged persons, who on account of physical handicaps cannot generally be expected to appear in person.)

In the event of death of a person who was previously entitled to draw payment, somebody else, for example a relative, might easily get hold of the certificate or card and might continue to receive the money by placing a toeprint. Close comparison with the genuine prints of the deceased, at every post office where payment is made, is out of the question for practical reasons. In case of subsequent discovery, it would not be too difficult for the deceiver to "prove" that it was not he who placed those prints—which were considered real fingerprints by the police—because his fingers show a different pattern. Nobody would think of his toes. Occurrences of such frauds are known, though only by the placing of a print of the deceiver's or accomplice's *finger*. This real fingerprint, as evidence, constituted a great risk for the delinquent. The *toeprint* does not carry that risk, as long as its application technique is not pointed out to the police.

Another example of these fraud possibilities is supplied by the pay-lists for casual laborers existing in several countries. As receipt of their wages, they put down their forefinger or thumb print in ink. A dishonest paymaster, by means of his big-toe prints might continue payment to two imaginary laborers. In doing so, he would be exposing himself to a much lesser chance of punishment than if he used his *fingerprints*, because comparison of his toe patterns as well would not be thought of if the

fraudulent prints on the paylist differed from his fingerprints. The usual search for an accomplice who lent his fingers could of course yield no result.

APPLICATION AS A SIDE-TRACKING MANEUVER

This is a matter unlike fraud because the toeprint is not placed in the commission of the criminal act itself. On the contrary, it is an application aimed exclusively at obstructing the investigations of various criminal acts. To forestall criticism that this would not work in practice I had it applied experimentally.

In one of the office rooms, there stood a three-drawer steel filing cabinet containing "highly confidential" documents. One day I informed the region's technical police specialist that without breaking, some files had disappeared from this cabinet. During the inspection he found a fingerprint on the front side, (facing the cabinet) in the right top corner of the upper drawer, about 4 feet from the floor. He supposed it to be a right thumbprint left there when the drawer was pushed closed. The print, powdered white on the dark surface, was lifted for further inspection. No other useful prints were found. The usual ink fingerprints were taken for comparison and elimination, from those who according to their functions worked in this room or had legitimate access to the cabinet. After a while I learned from the specialist that the print found, no doubt, was that of a right thumb and that it was not identical with any finger pattern of the officers concerned. Just to make sure, on my insisting, he had the print studied at the highest level, where his opinion was confirmed (Figure 1).

By that time it was obvious to suppose that this was the right thumb of the thief. Accordingly, the tracing would have had to be done in that direction. The remaining personnel's fingers and the national dactyloscopic collection would have had to be checked also. However, in this experiment it made no sense to go on as far as all that, if only because the loss of time involved. The object was already achieved completely by this demonstration.

What in actual fact had happened was that the theft was a non-existent. After the previous explanations, it will now be understood at once by the reader, that the print found was not a thumbprint, but a toeprint; a print of a left big-toe. This print was placed high up on the cabinet, because there a toeprint would be less expected. Moreover, it was intended precisely to provoke the erroneous opinion that this drawer had been pressed by the thief's thumb as is the habit of some people when closing it.

The investigation was thus maneuvered right from its start into a deadlock; no person was to be found whose thumb or other finger was identical with the "planted toeprint".

Yet, there is more to it. In this case, those who legitimately had access to the filing cabinet were soon beyond suspicion as on that typical spot on the drawer was detected the "thumb" of a stranger. Contrary to this belief it was one of them, one of the qualified officers, who had "planted" his toeprint and who had posed as a thief. Not only was the investigation side-tracked, but in this particular case the culprit was formally exonerated, having been one of those whose prints were taken for comparison and elimination. (These were not even taken because of suspicion, but merely as a matter of routine. Since fingerprints of these officers might normally appear on the cabinet, and by eliminating them after comparison with the latent print it could be concluded that the detected print belonged to a stranger.)



Figure 1

The latent print as developed on the filing cabinet after powdering and lifting.

As to the specialist, it must be considered more or less inevitable that he should walk into the trap set up for him. It probably would have happened to anyone in his position. The papillary pattern of a toe in general is not discernible from that of a finger. Toe- and fingerskin have the same anatomical peculiarity. Only the manner of its placement might give rise to suspicion. To be captious about this afterwards (knowing it all) would be easy enough. The question is whether it worked in practice. And in practical criminalistics a trace once detected, is not dropped easily because of a mere suspicion based solely on the strange position of the print. These suspicions nearly always remain relatively weak, and on the subject of fingerprints genuineness is supposed rather than forgery. It is even more so when the print is "real" because it originated from a real skin pattern provided by the toe. No doubt a toeprint can be planted without arousing suspicion. How far this was achieved, in the described

case, may be left out of this particular discussion where reference is only made to the principle involved.

Regarding the execution there remains an important detail. The big toe usually is larger than the thumb. By using a simple small mask, the size of the print can be controlled. For this purpose one has only to fold a piece of paper and over the desired length, along the fold, to tear off enough material to get on unfolding a hole of the size and shape of a thumbprint. Also one can attain by this tearing off the rather irregular outline of a natural print. By employing a mask that bends to the right or to the left, there eventually may be suggested a left or a right thumb.

A misleading toepoint may not only be planted on the scene of crime, but just as well on crime objects such as anonymous letters and other articles. In that case there is full and quiet opportunity for the "planting". By the attention paid, even if only partial, valuable time may be lost and a true trail may be overlooked. Usually, if a casual print is found, the investigation at first will primarily be conducted according to standard practices; on the knowledge that fingerprints have become important and strong evidence.

To convince myself finally with regard to the toepoint method—though frankly I had little doubt—whether the possibility of fraud or misleading had ever been considered on the part of the police, I inquired of Dr. J. Edgar Hoover, Director of the Federal Bureau of Investigation, Washington, whose service is known to handle the largest collection of fingerprints in the world. I was extremely grateful to receive Dr. Hoover's plain answer, which was to the effect that the F.B.I. had never come in contact with a case where a criminal had left a toepoint at the scene of crime, so as to mislead investigating officers. Furthermore, perhaps I ought to give as well Dr. Hoover's comment: "However, this thought is not impossible, but it is believed generally not very probable." (At that time I had not yet conducted the described experiment on the filing cabinet.)

On a recent visit to New Scotland Yard, I was informed that it had neither been encountered nor thought of.

CONCLUSIONS

From this and further information collected, the conclusion can be drawn that this aspect of fraud and misleading has so far escaped attention as no mention has been made in the known literature.

Once caught, the criminal if he had "planted" his *toepoint* may find that this print—much the same as a detected genuine *fingerprint*—is used in evidence against him if judicial and police agencies will pay attention to it in the future.

But a chance that the criminal will be caught on his planted toepoint, only exists if at fingerprinting not merely fingers, but toes also will be taken and registered. In his handbook W. R. Scott states that of all toes, only the big toes have a pattern fit for classification.⁹

Finally, it should be noted that the fact that the misleading use of toepoints has never been uncovered does not imply that it has never been applied in crimes committed. Now that it has been pointed out, law enforcing agencies ought not to close their eyes to any such real possibilities.

⁹ W. R. SCOTT, *FINGERPRINT MECHANICS, A HANDBOOK*, Charles C. Thomas, Publisher, Springfield, Ill., 1951, Sect. 12. p. 28.