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## FINGERPRINTING OF THE DECEASED BY THE DUSTING-TAPE METHOD

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There are several methods now being used in the fingerprinting of deceased persons. Examples are the folded card method or the use of special equipment such as the post mortem spoon. In the more difficult cases where the body has partially decomposed or mummified, special preparation may be required before suitable inked impressions are obtainable.<sup>1</sup>

In some of the situations that may confront the technician he may be dealing with a body in a state of advanced decomposition, where the epidermis loosens itself from the inner layer of skin or dermis. The friction skin may have been exposed to severe heat or submerged for prolonged periods of time in water. The fingers may have dried out, become mummified, macerated, etc. Each one of these situations requires its own solution in order to restore the skin to a state suitable for the recording and photographing of the ridge detail. Most of the standard post mortem techniques are described by Moenssens.<sup>2</sup>

Regardless of the method employed, we must keep in mind the purpose of fingerprinting the deceased, that is, simply, to obtain as much clearly defined ridge detail from each finger as is possible. This will hold true whether we have an "unknown dead" or when the prints will be compared with latents discovered at the scene of a burglary.

A recently published method employs a white-backed, opaque pressure-sensitive tape and ordinary black fingerprint dusting powder.<sup>3</sup> In capsule

<sup>1</sup>United States Department of Justice, Federal Bureau of Investigation, *THE SCIENCE OF FINGERPRINTS* 131-159 (1963).

<sup>2</sup>MOENSSENS, *FINGERPRINT TECHNIQUES* 145-50 (1971).

<sup>3</sup>Thomson, *The Finger Printing of Cadavers*, *FINGERPRINT AND IDENTIFICATION MAGAZINE*, 14-15 (August 1971).

form, the recommended procedure is to "dust" the finger with black powder, apply the opaque tape to the dusted ridges, and peel the tape off the finger, thereby obtaining an impression of the friction skin on the adhesive surface of the tape. The tape is then applied to a piece of glass or transparent vinyl. When the glass or vinyl is turned over, the impression may then be examined through the clear surface of the transparent medium. We will elaborate on the technique further along in this paper.

In experimenting with this method, it was discovered that there were some serious disadvantages. Much care must be exercised to avoid mixing up the impressions due to improper labelling. Unless rather thick glass is used as the mounting surface, there is danger of breaking the glass plates. On the other hand, the use of thick glass poses the problem of how to file the original impressions in the case jacket. The use of transparent vinyl seems to be more practical; however, again, much care has to be exercised in labelling to avoid errors.

To avoid possible mix-ups caused by labelling errors and yet take advantage of the clear vinyl mounting medium, we believe the following procedure will prove most helpful for those choosing to employ this technique.

One-to-one transparencies are made of that portion of our department's own fingerprint card containing the ten blocks provided for recording the inked rolled impressions of the ten fingers. This is the same kind of transparency which, when mounted in a cardboard frame, is used for viewing with an overhead projector. Both 3M and Xerox have equipment with transparency-making capabilities. With a single sheet of the Xerox transparency (8½ x 11 inches), as many as three ten-

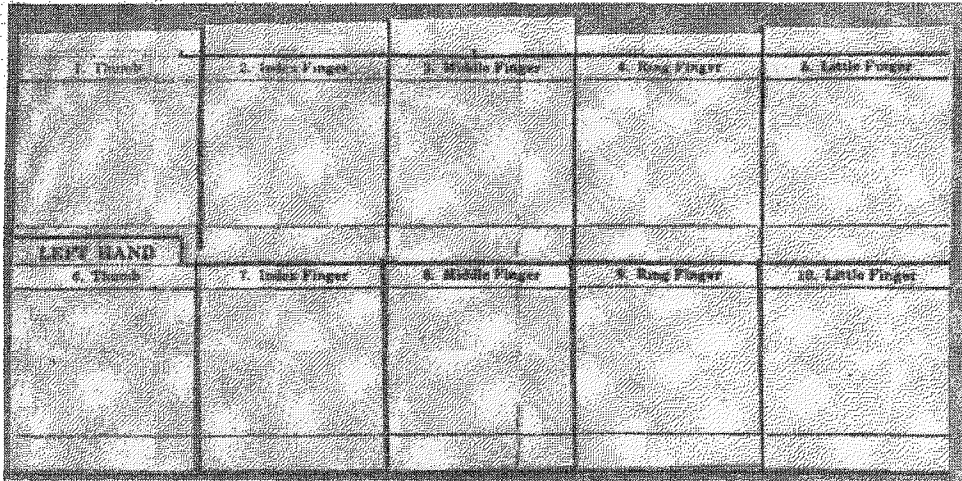


Figure 1. Prepared transparency with white pressure-sensitive tape affixed.

finger block transparencies are obtained. The authors prefer two transparencies to a sheet instead of three, as this provides a margin which makes the job of removing and reapplying the tape a little easier. We used "Scotch" brand (Catalog #191) white-backed pressure-sensitive tape  $1\frac{1}{2}$  inches in width. This tape is readily available in most stationery stores. Ten pieces of tape approximately two inches long are cut from the roll. A quarter-inch tab is folded under the one end of each piece of tape. The ten pieces of tape are applied to the *Back* of the prepared transparency covering each of the ten finger blocks. The tape is applied with the folded tabs toward the top. Several of these transparencies may be prepared and easily stored in a crime scene kit. (Figure 1)

Initially, as with all post mortem fingerprinting assignments, it is necessary to examine the condition of the fingers and carefully clean and degrease them with alcohol, xylene, or other appropriate solvent. It may be desirable to use one of the remedial measures such as injecting air or a hot gelatine solution into the bulb of the finger to help remove wrinkles. The fingers must be dried and then each digit is taken separately and "dusted," using a fingerprint brush or cotton ball and black powder. The powder is applied liberally so that the entire pattern area is covered. (Figure 2.) Using the brush, the friction ridges are rigorously brushed to remove all excess powder. With the transparency lying face down, one piece of tape is removed and applied to the first digit. The tab is held to the top of the finger and the end of the tape without the tab is placed below the flexure crease of the end

joint. In this position the tape would record only the "plain" impression of the finger. The tape is then wrapped around each side of the finger so that the entire pattern area is covered. Because of the somewhat elastic nature of the tape, you will find that it readily conforms to the shape of the finger, thereby assuring the complete recording of the ridge detail. It will be noted that more of the ridges on the tip portion of the finger will be recorded than are usually obtained with the inked method. In removal of the tape, the sides are lifted up first so that the tape is on a flat plane, and then the complete tape is carefully pulled off, using the tab. (Figure 3.) The tape is finally reapplied to the original transparency.

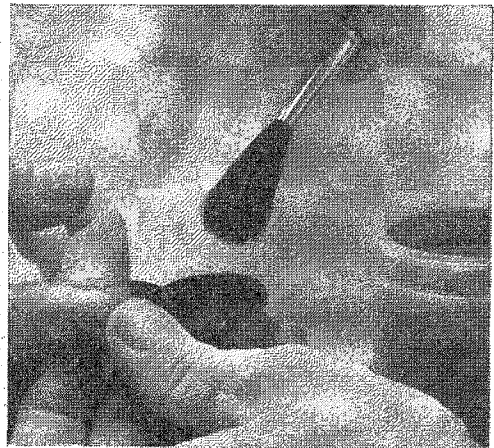


Figure 2. Dusting of individual fingers with black fingerprint powder.



Figure 3. Removal of tape and recording of fingerprint pattern.

In processing one finger at a time and only removing one piece of tape at a time, it is virtually impossible to get the fingers mixed up. When all ten fingers have been processed in this manner and reapplied to the *Back Side* of the transparency, the tab portion of each piece of tape is trimmed off. It should be remembered that the impression is made directly from the finger to the adhesive surface of the tape and is therefore exactly the same as an inked impression and is not reversed as is the case with the opaque rubber lifters used in lifting *latent* prints. The completed transparency is then attached directly over the ten finger blocks of your department's fingerprint card. The card may be classified, searched, or placed in the case jacket file in the normal manner. The completed card may be photographed for distribution to other identification bureaus in cases of unknown dead.

There are several other applications of the dusting tape method and among these are the taking of palm impressions of the deceased. Palm impressions of the deceased are extremely difficult to obtain by the ink method. The dusting tape method works well in this situation due to the flexible nature of the tape which allows it to conform to the shape of the hand. In the case of the 1-½ inch tape, the palm impression must be taken in sections either by recording one section at a time and allow-

ing an overlap or by placing the pieces of tape juxtapost and drawing match lines on the back. It may be possible to obtain from the manufacturer rolls of the tape in a width which would be suitable for recording an entire palm print on one piece of tape. In many cases it may be necessary to only obtain that portion of the palm that normally rests on a surface, such as the heel of the hand as in the endorsing of a check. (Figure 4.)

Another application of the dusting-tape method is in the recording of legible impressions from people with stiffened joints or broken limbs in casts where the traditional inking methods are very painful if not almost impossible. Since it is extremely difficult to take legible footprints of the delicate ridge structure of infants, it was suggested to the authors that the dusting-tape method might be applicable to the foot printing of newborn infants. We have tried this application and have found that here too, the results are excellent.

The dusting-tape method has been found to work very well with the more difficult cases. Recently, three amputated fingers of a badly burned unknown victim of a fire were submitted to the laboratory. Two of the fingers were so badly burned that they could not be identified. A third digit (the right thumb) was examined visually under low-power with a Binocular Stereo-Microscope, revealing some ridge detail from the dermal layer (second layer of skin). We know that for every ridge that appears on the epidermal layer of the

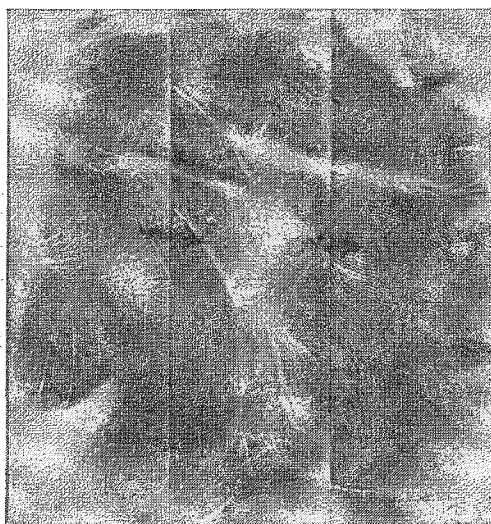


Figure 4. Palm impressions obtained by the dusting-tape method.

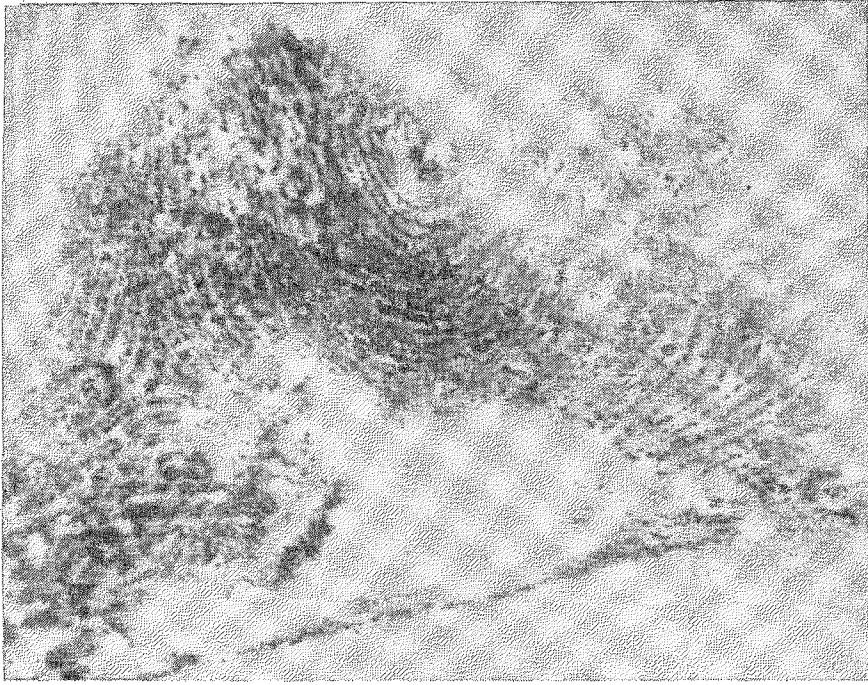


Figure 5. Inked impression of the dermal layer of burn victim's right thumb.



Figure 6. Dusting-tape impression of dermal layer of burn victim's right thumb.

fiction skin there appears on the dermal layer a corresponding pattern. Great care must be exercised in making an identification when dealing with this layer of skin. The ridges observed were photographed in order that if any of the detail was lost in the fingerprinting procedures it would be preserved on film. Both the inking and dusting-tape methods were employed on this skin. Even though the inked impression was suitable for identification, (Figure 5), the dusting-tape method showed a noticeable improvement over the inked method. (Figure 6). The victim was positively identified from inked finger prints which were recorded during his lifetime and on file with the submitting department. In this case the ridge characteristics recorded by the dusting-tape method were superior to those recorded by the inked method and more identifiable "points" were obtained.

In experimenting and working with the dusting-tape method we have drawn certain conclusions. The ridge characteristics are more pronounced and clearer than are inked impressions from deceased

individuals. Further, the dusting-tape method affords a more complete recording of the entire ridge detail of each digit. The method is an easier technique for recording palm impressions from deceased persons. The dusting-tape method also eliminates smears, which are normally a problem with rolled inked finger print impressions encountered when fingerprinting the dead. The impressions recorded on tape and applied to the back-side of the transparency are in a protected state.

If when applying the tape to the transparency, the operator's hand should slip, causing the tape to wrinkle, the tape may be pulled off the transparency and reapplied without destroying any ridge detail. If because of too much powder or some other reason one impression is improperly taken it may be disregarded and another piece of tape cut from the roll. The impression is retaken, and it is therefore not necessary to begin all over again due to one bad print. For individuals with extremely fine or worn ridge detail, the dusting-tape method is far superior to the inked method for the recording of friction ridge impressions.