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Method of Obtaining Finger Prints for Identification by Histologic Section, A

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A METHOD OF OBTAINING FINGER PRINTS FOR IDENTIFICATION BY HISTOLOGIC SECTION

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People in certain occupations handle abrasive materials which wear the friction ridges on their fingers to such an extent that it is not possible to obtain fingerprints from them. Even the type of pattern is obscured in many instances. A few days away from the job or with the hands protected from the abrasive materials is usually

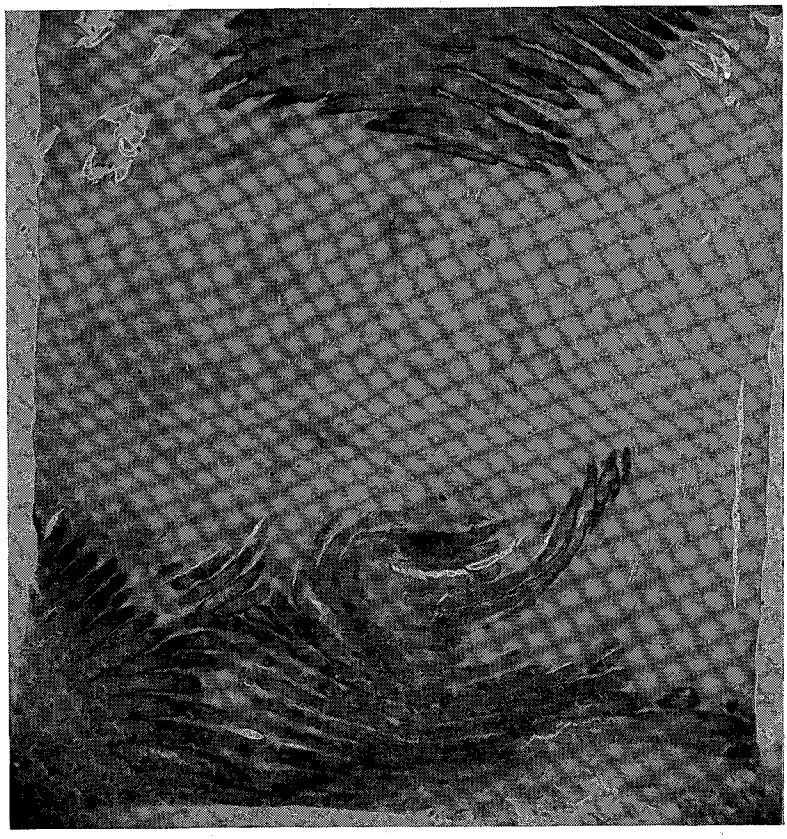

Figure 1

A photograph of the 75th section with transmitted light. Stained with hematoxylin-eosin.

Figure 2

A photograph of the same section as figure 1 made with polarized light as described in text showing a few points of comparison.

enough to allow restoration of the fingerprints by regeneration processes. If an individual with his fingerprints obliterated is killed or if a murderer deliberately abrades fingerprints from his victim to prevent identification, an unusual approach is necessary to obtain fingerprints for identification purposes.

Since the pattern of ridges is constantly being regenerated during life, we may expect to find the pattern with its detail present beneath the surface of the skin. Histologists and cytologists have developed techniques for the differentiation and study of tissues and individual cells. The histologic method seemed to be the logical approach to this problem. The paraffin method was used. Several textbooks are available which give details of this micro technique.[1]

The skin with the pattern area was cut from the finger by making a straight cut across the finger on the palmar side at the distal joint crease; the cut was made far enough to the sides of the finger so that the deltas would be included. Another cut was made starting at one end of the first cut and proceeding along the side of the finger, around the tip, and down the other side of the finger joining the opposite end

[1] GUYER, MICHAEL F.: ANIMAL MICROLOGY, The University of Chicago Press, Chicago, Illinois.

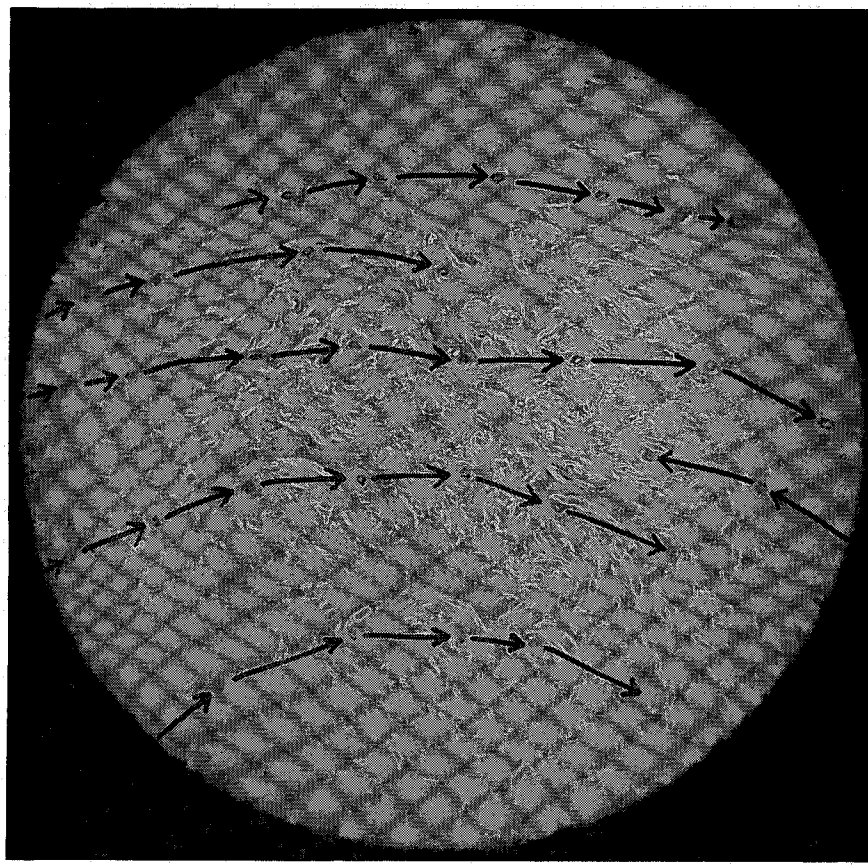

Figure 3

A photomicrograph showing disposition of ducts deep into reticular layer of dermis; 16mm. objective and 5× ocular.

of the first cut. The skin was cut from the finger by lifting one corner of the cut area with forceps and slicing the skin free from the finger. A thickness of about 3 or 4 mm. was maintained on the skin removed.

The skin was placed surface down on a cork board ¼ inch thick and stretched flat by pegging it down with pins. The cork with the skin affixed was placed in 10% formalin for fixation. During fixation (48 hrs.), when convenient, the container was agitated gently to facilitate fixation. The skin was left pegged out on the cork during the dehydration process through the alcohols and then was removed. The tissue was cleared in toluene and cedar oil. After infiltration with paraffin, the skin was trimmed inside of the holes made by the pins. The surface of the skin was placed down in the paraffin block when it was embedded.

Sections were cut on a rotary microtome at 6 micra and mounted on glass microscope slides. The first section was cut from the surface side of the tissue and parallel to the surface. The tissue was not perfectly flat so serial sections were made in order to be able to refer to various levels in the tissue. One section was put on a slide and each slide was numbered for reference.

Figure 2

A photograph of the same section as figure 1 made with polarized light as described in text showing a few points of comparison.

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