Abstract

IDENTIFICATION FROM EDGEOSCOPY AND POROSCOPY IN THE EXAMINATION OF PARTIAL FINGERPRINTS AND THEIR SIGNIFICANCE IN CRIME INVESTIGATION

By

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The influence of cinema, television and detective fictions has projected Fingerprints as one of the most important evidence. The public has become most familiar with Fingerprints as the best means to prove the identity of a criminal. These familiarities with fingerprints tend to provide them a greater importance in the field of criminal investigation. Fingerprints are most commonly available at the crime scene, their permanence and uniqueness leads to absolute identification of the person.

Prints recovered from the scene of crime are identified for their pattern types etc. and compared with the specimens obtained from the suspects. During the process of comparison, 8-21 ridge characteristics are required to give positive or negative opinion in the court of law (the number of characteristics varies from one country to another). If sufficient number of characteristics is not available the fingerprints cannot be used for identification. In many cases, the recovered fingerprints are partial, smudged or fragmentary where the required numbers of ridge characteristics are not available. In such cases it becomes a great handicap for the experts to give opinion. In this situations, there is the need to include the third level details (besides first and second Level) such as the number, shape and measurements of relative position of sweat pores and shapes of the edges of ridges which can be used to supplement the shortfall in the number of ridge characteristics to establish identity.

In the present study, an attempt has been made to collect 100 samples of partial, smudged or fragmentary fingerprints along with some complete prints from 53 males and 47 females on different types of papers. As the number of ridges is very
less in number in partial, smudged and fragmentary fingerprints, initially first, second and then third level characteristics (Edgeoscopy and Poroscopy) are marked at their correlative position to prove identity. After this a further attempt has been made to measure the distance between them. The results obtained are analyzed statistically and found significant. The range of Ridge and Edge characteristics (including pores) varies from 2-8/ridge; the photomicrographs have been prepared at 40X magnification.

Although the edge characteristics on fingerprint can be affected by a number of factors such as pressure applied, type of ink used, surface on which the prints are taken, donor etc. Still the results obtained from this study are very encouraging and will be of great use to the Forensic Scientists working in the field especially to identify individuals from smudged or partial/fragmentary fingerprints or any fingerprints in which only few ridges are available for comparison.