

# The formation of friction ridge skin



**ASSIGN  
BUSTER**

**The formation of friction ridge skin and how it relates to the permanence of fingerprints**

A large part of the human body is protected by a layer of skin that is reasonably free from difficulties or impediments. 'Friction Ridges' can be found on our fingers, the bottom of our feet and on the palms of our hands. They are called friction' ridges is because one of their main functions is to help us easily take hold of objects (Girard, 2008). The friction ridges deposits things like sweat and other types of contaminants directly to any surface that it comes in contact with. The impression which is left behind is an exact reproduction of the part of friction ridge skin that touched the surface. A lot of times the impression cannot be seen with the naked eye so hence the reason why it is called a latent print, which means that the print is there but not clear to the vision (Keogh, 2001).

During the third to fourth month of the development of a fetus fingerprints are distinguished. These fingerprints are made up of individual traits known as bifurcations, ridge endings, dots and many other ridge shape differences. Single kinship of individual distinguishing trait does not change throughout an individual's life, until the individual dies and the body decomposes (Keogh, 2001). After the fingerprint of the infant is formed, the growing ridges are a lot like taking a pen and drawing a face on a balloon then blowing up the balloon to see if the face will open up consistently in all different directions. Perverse alterations to fingerprints include cuts or injuries that are very deep and penetrating all layers of the outer epithelial layer of the skin and other diseases like leprosy (Girard, 2008).

Except for if an individual has any type of cuts, or scarring on the fingers their prints never change and there is no similarity between two fingerprints. The lines on the hands and feet of all individuals have three characteristics (ridge endings, bifurcations and dots) which are evident in sequences that never recur on the feet and hands of any two individuals. A ridge ending is merely the end of a line (also known as an ending ridge). A split of an individual ridge that is shaped into two is known as a bifurcation. A short ridge that is similar to a dot is called a dot. Up until recently these two premises has been introduced as three propositions. The first is that before birth friction ridges are developed on the unborn. Secondly, there is no change of friction ridges as an individual age and throughout their lifetime with the exception for scars left permanently from an accident or serious injury. Thirdly, the patterns and details in areas that are very small on friction ridges are unlike any other and are never recurring

**What is the scientific method, and how is this theory applied to fingerprint analysis?**

The scientific method also known as ACE-V is the abbreviation for the analysis or modified version of the scientific method that is followed by friction ridge examiners: Analyzing, Comparing, Evaluating, Verifying. The first time that ACE-V was used for physical evidence was in 1960 and ridge detail in 1980. Inspector Roy A. Huber, RCMP, developed the ACE-V process and Sergeant David Ashbaugh, RCMP, made this process popular among the friction ridge identification field.

Analyze – The first step which is analysis, compels the expert to test and dissect all variables that has an affect on the friction ridge characteristics in

question. Once latent fingerprints are being tested there are quite a few factors that one has to be considered and probed into. Some of these factors are the material upon which the latent print has been placed, the process of development, pressure distortion, and elements on the outside like blood and grease. The amount and type of latent print ridges has an effect on the testers' competence to carry out the next phase. The end of the analysis process determines whether there is sufficient information existing to go on to the next step (Jones, 2006).

Compare – The process of comparing bring into play the known model with which the latent print must be compared. At this particular point, there is also another aspect of analysis occurring. This analyzing is of the known model in an effort to bring about the suitability for achieving the end result set out in the information above. There is a possibility that the recognized model may have fingerprint images that had too much ink, or was smudged so therefore it was not reliable, stopping a comparison from being definitive. The process of comparison starts with determining the overall ridge circulation and fit in an effort to orient in a proper manner the latent print with an accompanying area of the known model fingerprint. This is usually followed by choosing key traits, understanding their position, trend and relationship and then showing the differences of this structure with the structure in the known models. The type and amount of this information directly affects how easy or difficult the process is (Jones, 2006).

Evaluate – The conclusion of the comparing is the evaluating process or making a conclusion. The overall fingerprint society refers to the end result drawn as being one of three options. First, the two characteristics (the latent

and the known print) were made by the exact finger of the same individual. Second, the latent characteristic has not been produced by any of the fingers of the model fingerprints. And thirdly, an ending of the comparing could not be accomplished, and this is due to the fact that there is not enough clarity or the lack of area to be compared in the known models. (Jones, 2006).

Verify – The final process is verification. The overall guide is that the process of establishing identity must be confirmed by another individual or expert who is qualified. This process of confirmation by a second examiner is a self governing test of both fingerprint characteristic (latent fingerprint and known model fingerprint) applying the scientific procedures of analysis, comparison and evaluation described above (Jones, 2006).

There have been some recent challenges in New Hampshire vs. Richard Langill and Maryland vs. Bryan Rose. These two cases have pinpointed a couple of issues that are important for the latent print community: documentation and the rate of error. Each step of the ACE-V process or its equivalent needs better. In order to rebuild that analysis, enough documents are needed. By documenting the relevant information gathered during the analyzing, evaluating, and comparing of latent prints so the ground work for the conclusion (identifying, excluding, or inconclusive), the tester will produce a transparent record of the procedure and that way supply the courts with more information to determine how reliable that particular method is for a for a exact case. At present, examiners are not required to document, within a latent support, which features support both their reasoning and support.