

THE SCIENCE OF FINGERPRINT IDENTIFICATION

- or -

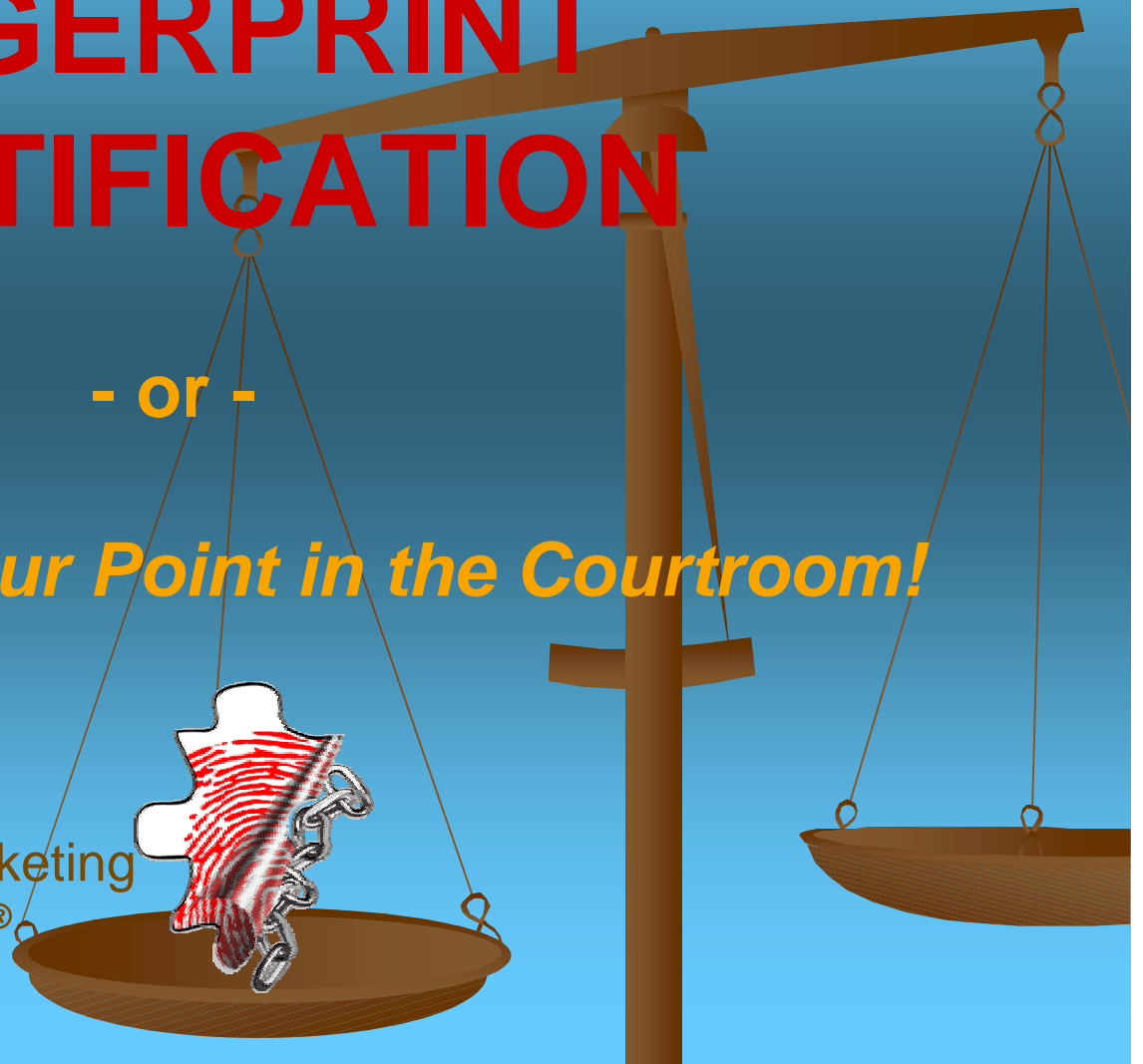
How to Make Your Point in the Courtroom!

Prepared by:

David "Ski" Witzke

Vice President, Sales & Marketing

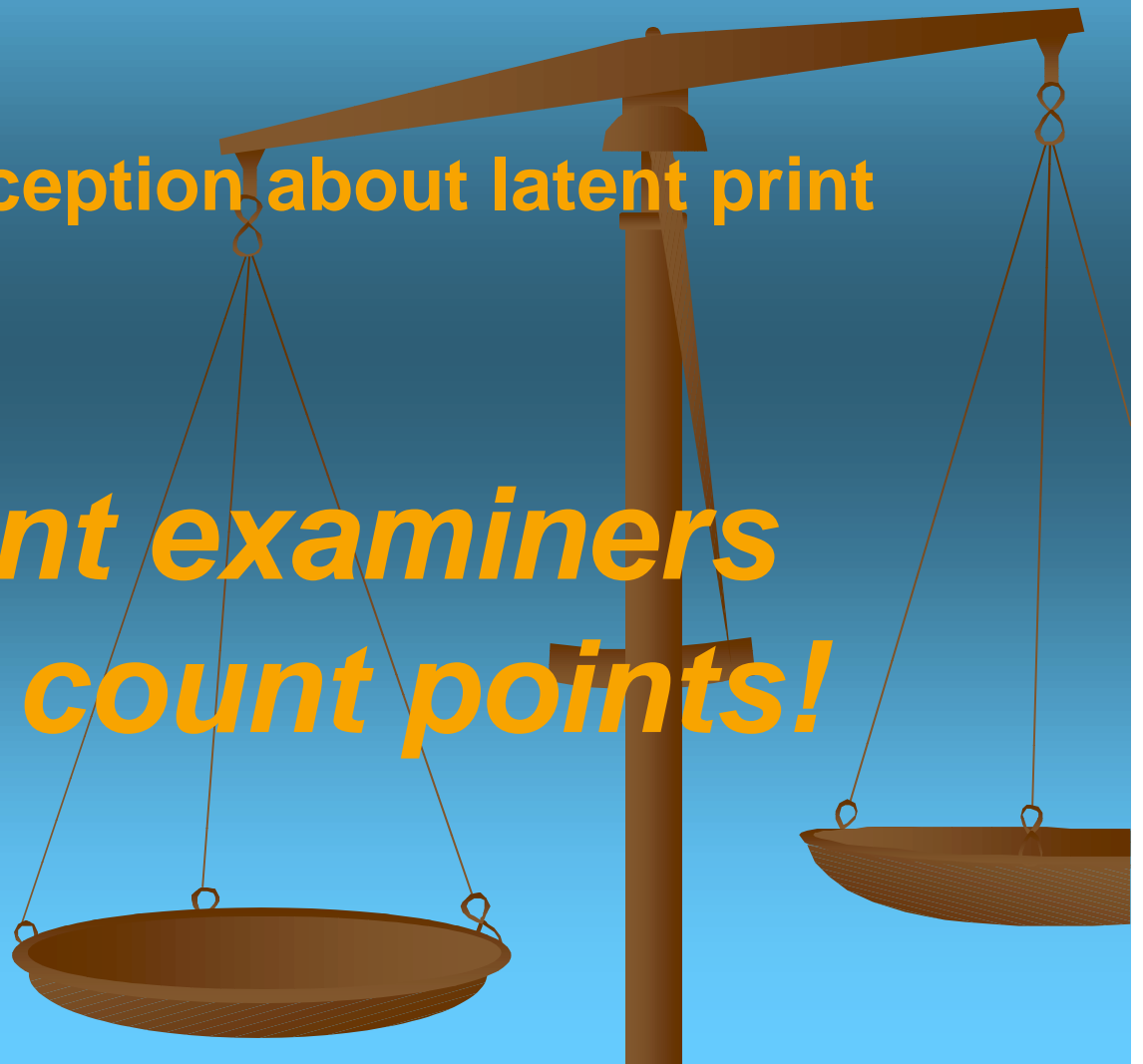
PC Pros **MORE HITS**®



The Science of Fingerprint Identification

The first misconception about latent print identification is:

*Latent print examiners
don't just count points!*

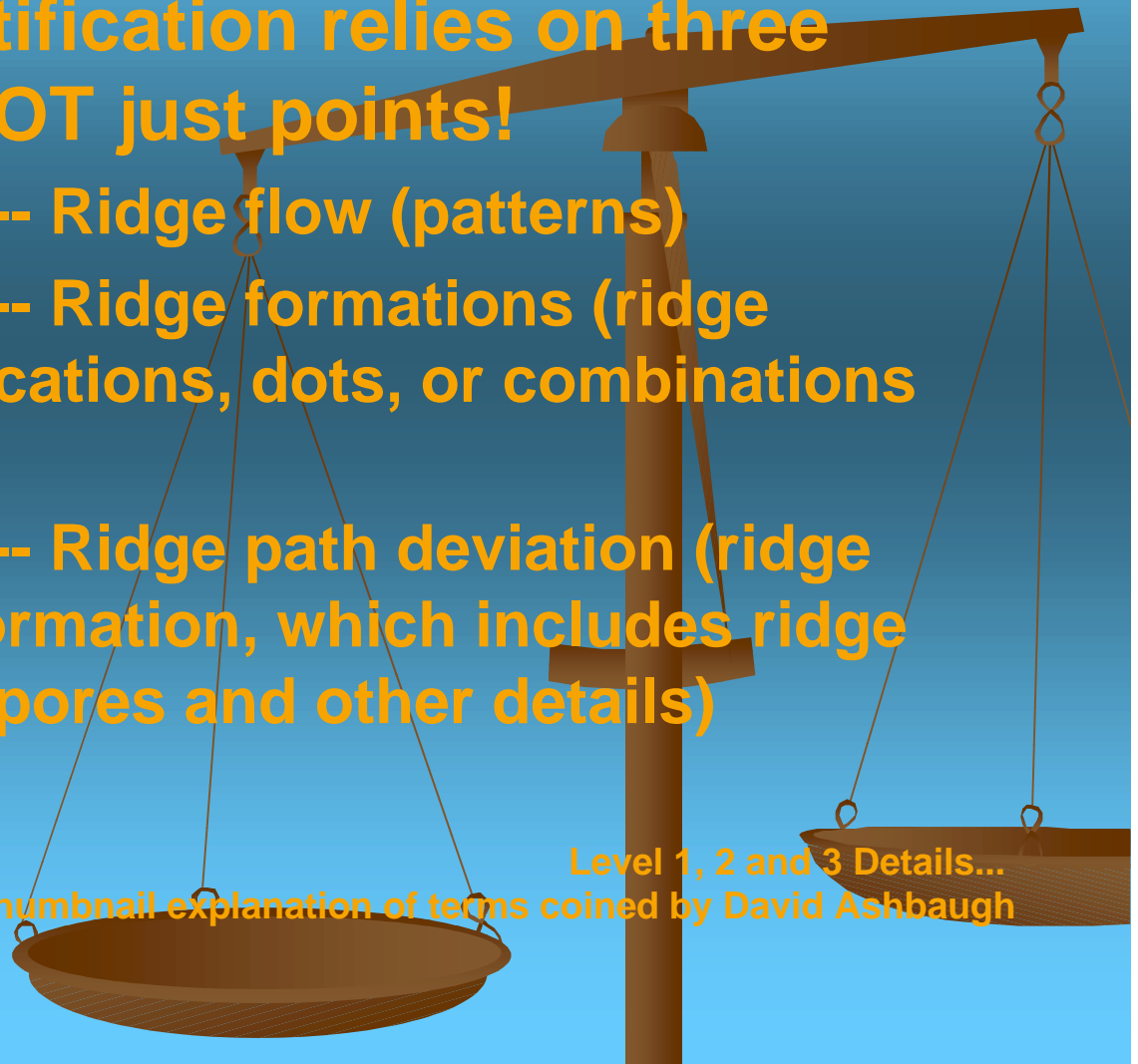


So what's my point?

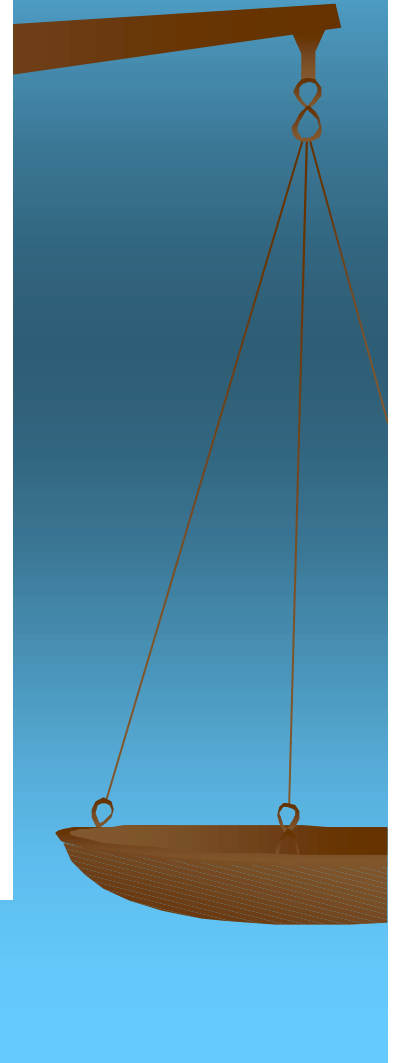
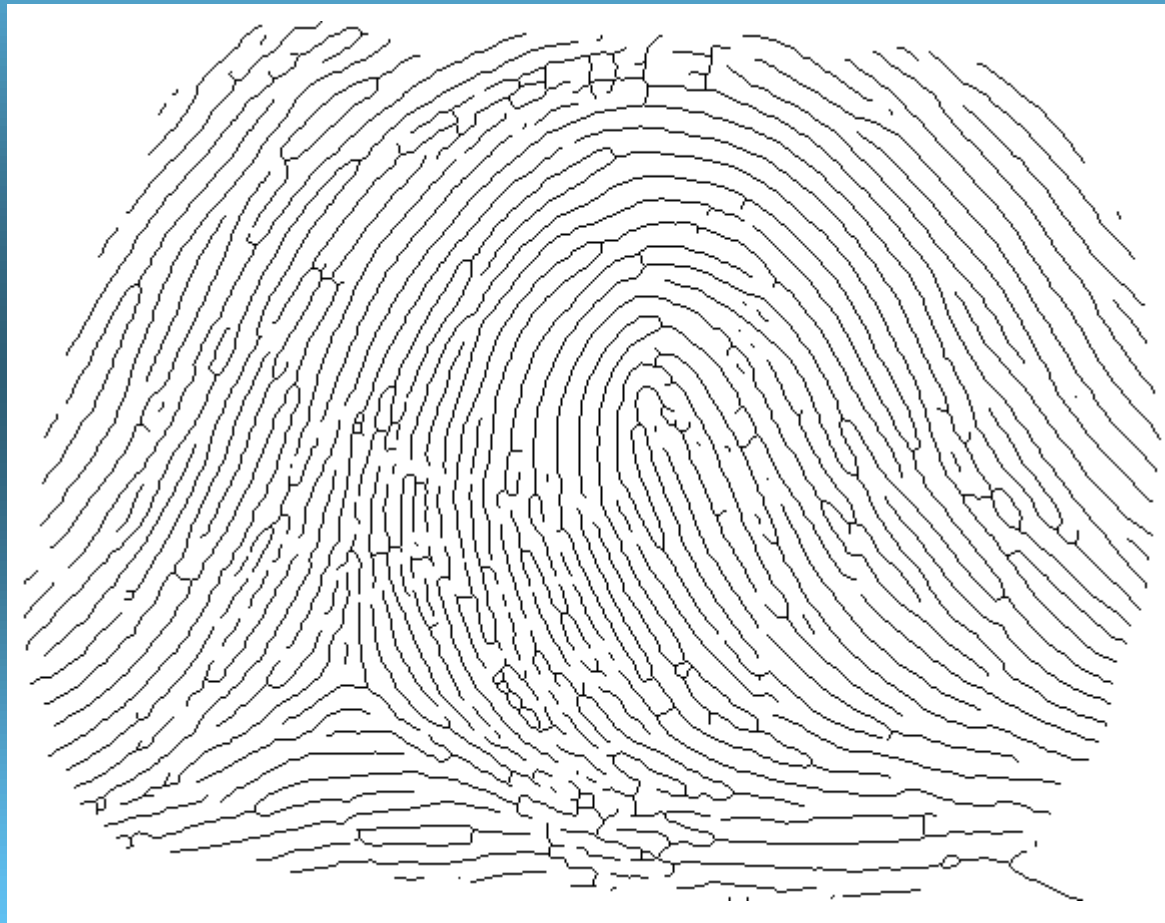
Latent print identification relies on three levels of detail NOT just points!

- **Level 1 detail** -- Ridge flow (patterns)
- **Level 2 detail** -- Ridge formations (ridge endings, bifurcations, dots, or combinations thereof)
- **Level 3 detail** -- Ridge path deviation (ridge structure or formation, which includes ridge width, shape, pores and other details)

Level 1, 2 and 3 Details...
a thumbnail explanation of terms coined by David Ashbaugh



Level 1 Detail Ridge Flow



Level 1 Detail Ridge Flow



LOOP



ARCHES

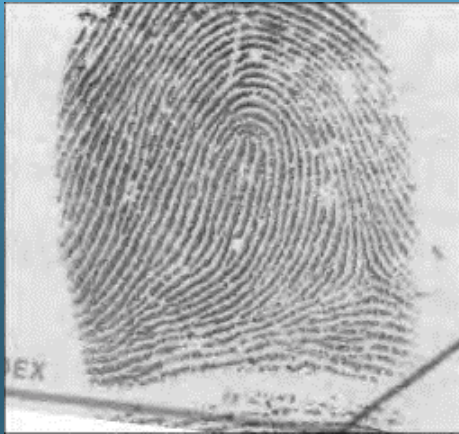


WHORL

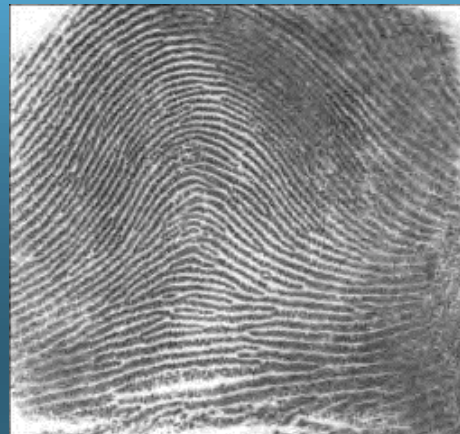
Ridge flows make up three
distinct pattern types:

- Loops
- Arches
- Whorls

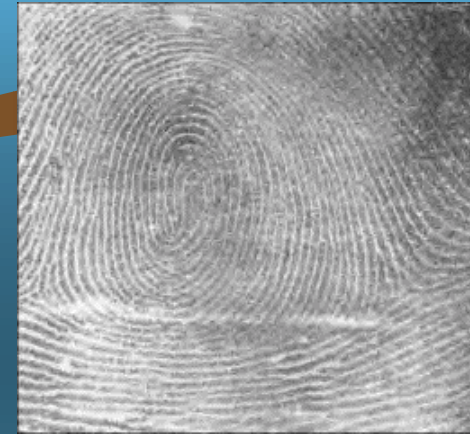
Level 1 Detail Pattern Types



Left slant loop



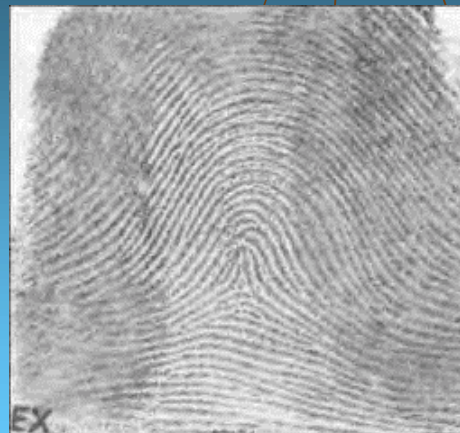
Plain arch



Whorl



Right slant loop



Tented arch



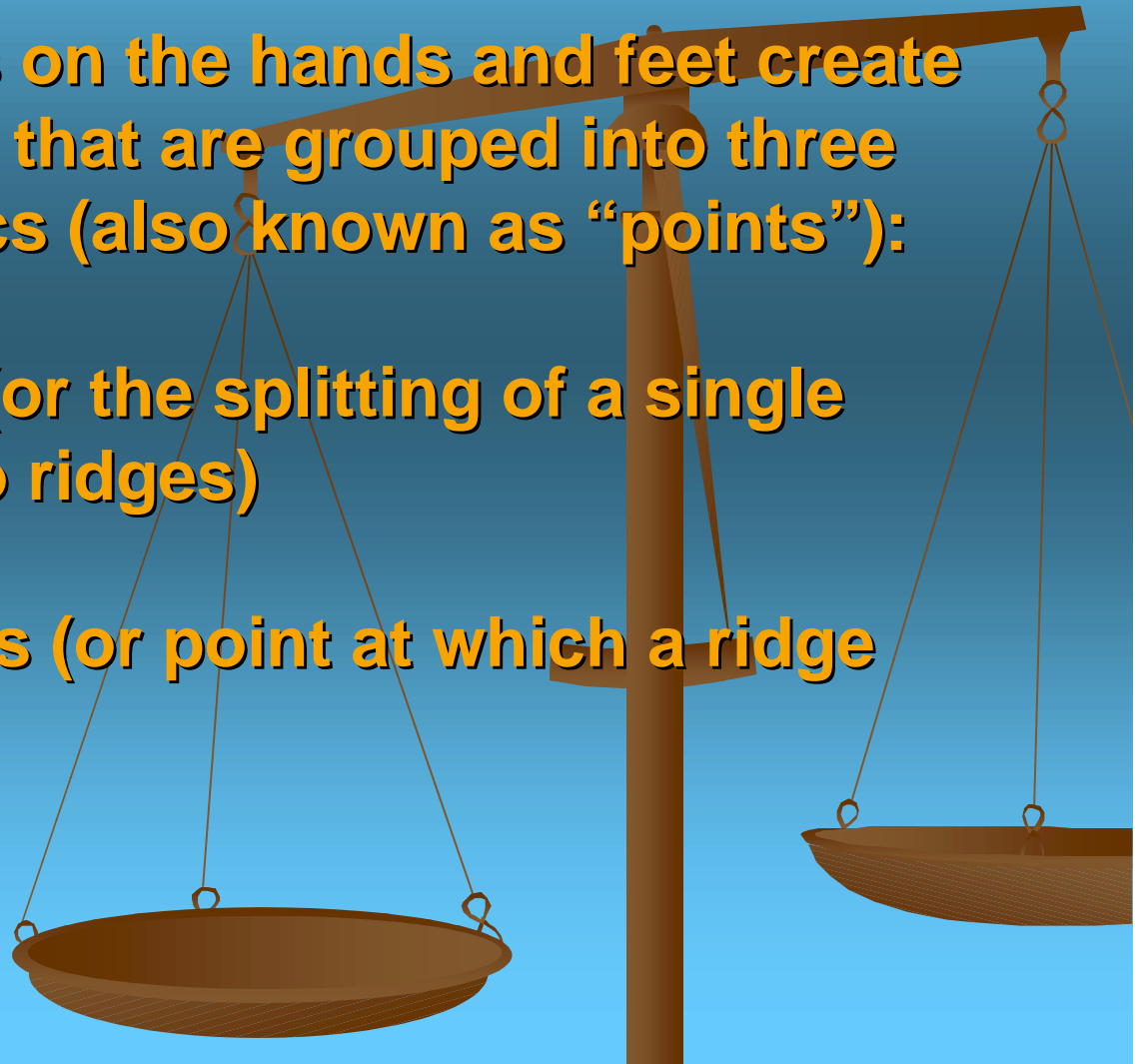
Double Loop Whorl

Level 2 Detail

Friction Ridge Formations

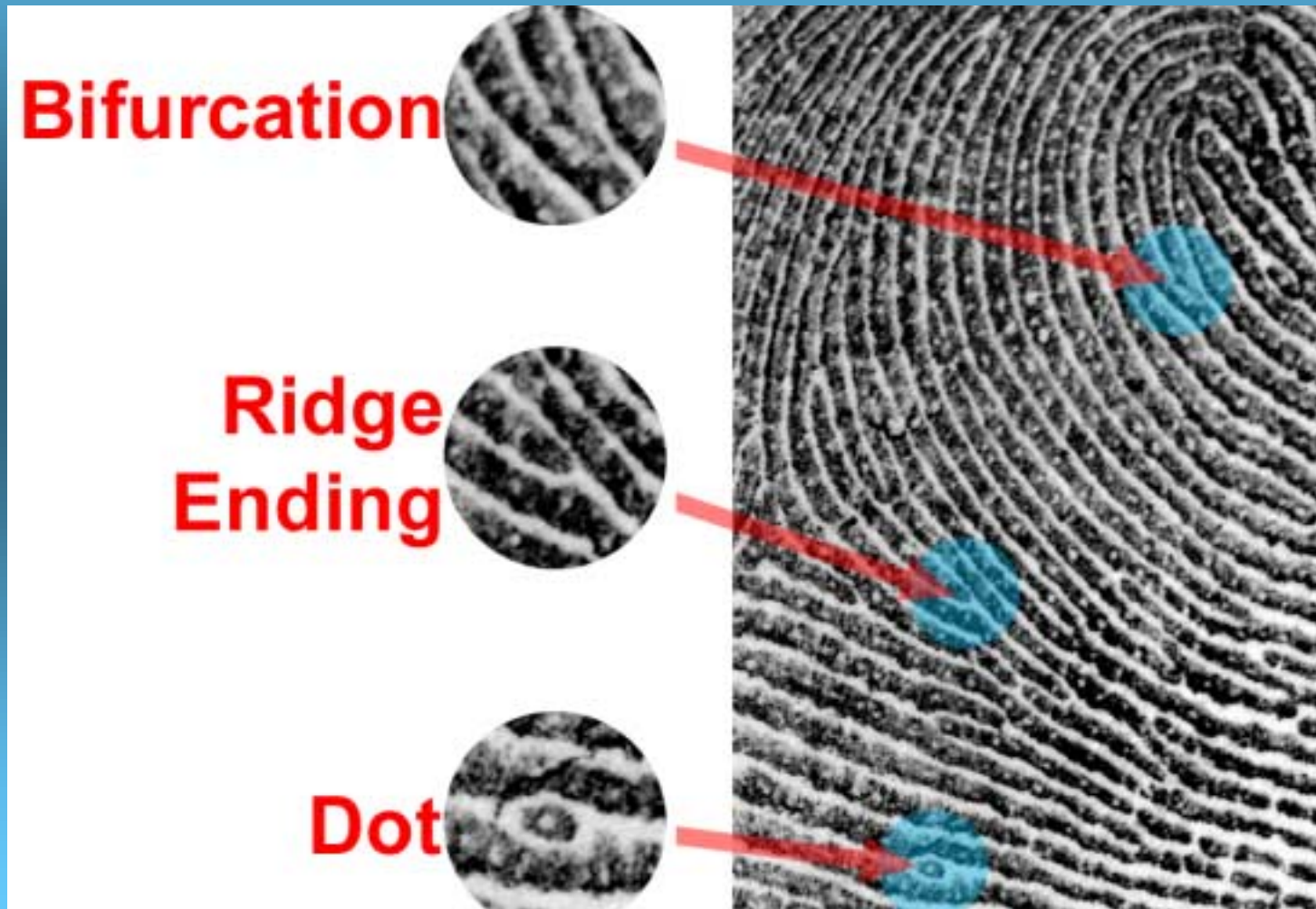
Friction skin ridges on the hands and feet create distinctive features that are grouped into three basic characteristics (also known as “points”):

- Bifurcations (or the splitting of a single ridge into two ridges)
- Ridge endings (or point at which a ridge ends)
- Dots



Level 2 Detail

Friction Ridge Formations

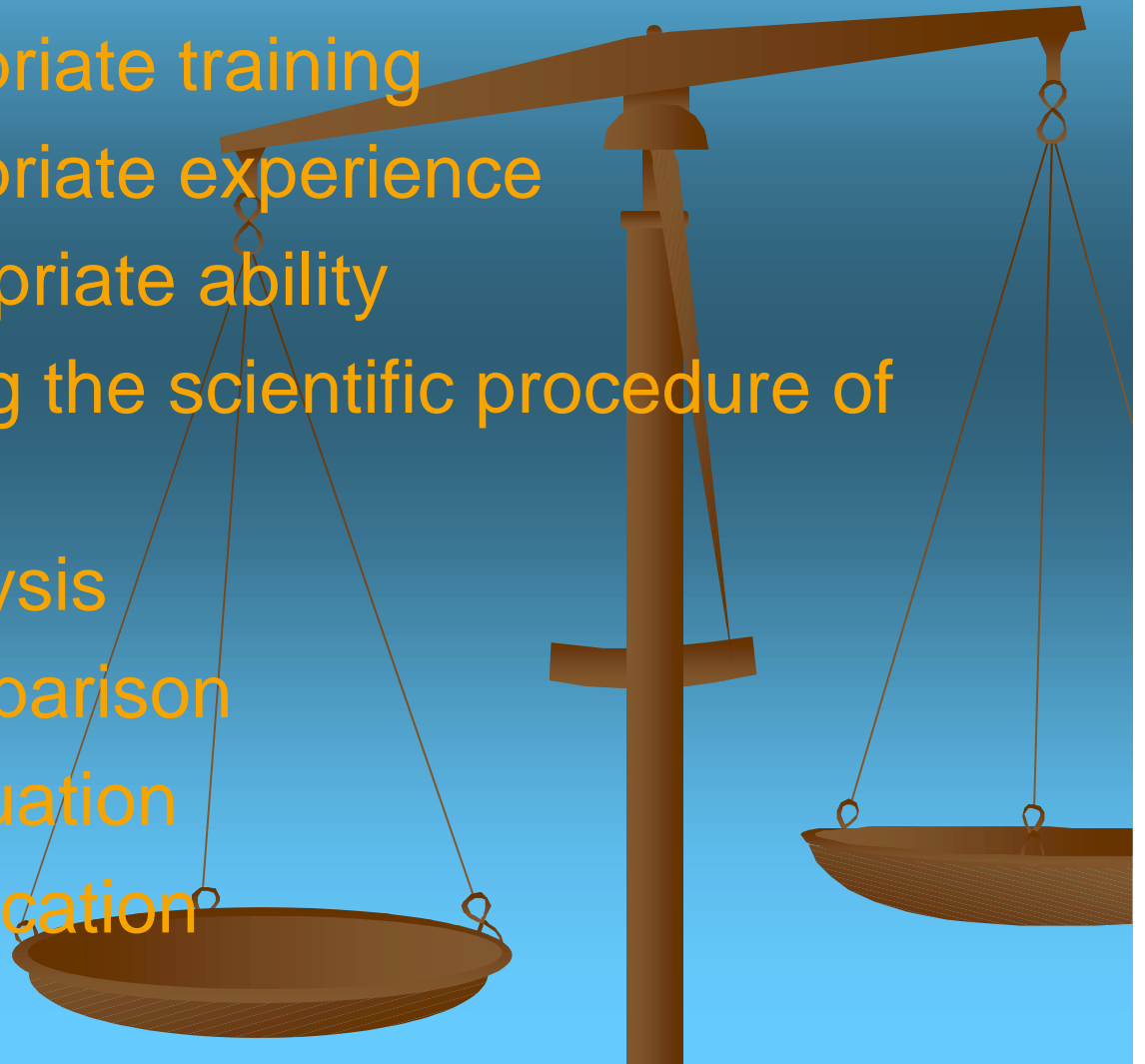


Level 3 Detail Ridge Path Structure



Latent Print Examiners are allowed to make positive identifications

1. With appropriate training
2. With appropriate experience
3. With appropriate ability
4. When using the scientific procedure of ACE-V
 - Analysis
 - Comparison
 - Evaluation
 - Verification



The Scientific Methodology called ACE-V

- **Analysis** – the qualitative and quantitative assessment of Level 1, 2, and 3 details to determine their proportion, interrelationship and value to individualize.
 - **Comparison** – to examine the attributes observed during analysis in order to determine agreement or discrepancies between two friction ridge impressions.
 - **Evaluation** – the cyclical procedure of comparison between two friction ridge impressions to effect a decision, i.e., made by the same friction skin, not made by the same friction skin, or insufficient detail to form a conclusive decision.
 - **Verification** – an independent analysis, comparison and evaluation by a second qualified examiner of the friction ridge impressions.
- 