

# Fingerprinting Merit Badge Fact Sheet

## Two Basic Principles of Fingerprinting

### Permanence:

Fingerprints never change. The ridge on form on a person's hands and feet before birth do not change shape as long as that person lives.

### Individuality:

No two fingerprints are the same. In more than 100 years and comparisons of billions of fingerprints, no two fingerprints have been found to be the same. Even identical twins have different fingerprints.

## What are Friction Ridges and Why do we have them?

- Friction ridge skin is covered with a corrugated texture of ridges that enhance the ability of the hand (and feet) to grasp or grip surfaces.
- Friction ridges are found on hands and feet including fingers and toes.

## History of Fingerprinting

- Chinese records from the Qin Dynasty (221-206 BC) include details about using handprints as evidence.
- The 14th century Persian book "Jaamehol-Tawarikh" (Universal History) includes comments about the practice of identifying persons from their fingerprints.
- In 1686 **Marcello Malpighi**, an anatomy professor at the University of Bologna noted that fingerprint ridges, spirals and loops in his treatise.
- German anthropologist **Hermann Welcker** of the University of Halle, studied friction ridge skin permanence by printing his own right hand in 1856 and again in 1897, then published a study in 1898.
- The English began using fingerprints in July 1858 when Sir **William James Herschel**, Chief Magistrate of the Hooghly District in Jungipoor, India, first used fingerprints on native contracts. As Herschel's fingerprint collection grew, he began to realize the inked impressions could prove or disprove identity. Herschel's private conviction that all fingerprints were unique to the individual, as well as permanent throughout that individual's life, inspired him to expand their use.
- In 1882, **Gilbert Thompson** of the U.S. Geological Survey in New Mexico, used his own thumb print on a document to help prevent forgery. This is the first known use of fingerprints in the United States.
- **Sir Francis Galton**, British anthropologist and a cousin of Charles Darwin, began his observations of fingerprints as a means of identification in the 1880's. Galton published his book, Finger Prints in 1892, establishing the individuality and permanence of fingerprints.
- On October 20, 1897, the National Association of Chiefs of Police of the United States and Canada opened the National Bureau of Identification (NBI) in City Hall at Chicago, Illinois.
- In 1902 the New York Civil Services division started fingerprinting job applicants.
- 1924 - FBI's Identification Division is formed. By 1946, the FBI had processed over 100 million fingerprint cards in files maintained manually. As of March 2022, FBI's civil fingerprint repository has 64,029,261 searchable fingerprint records and over 80,363,088 criminal fingerprint repository records.
- In 1999 the Automated Fingerprint Identification System (AFIS) was introduced.

## Different Types of Fingerprint Identification

**AFIS** takes an unknown fingerprints and compares them with over 100 million known records to try and find a match.

Example: Fingerprints recovered at a crime scene.

**Biometric** fingerprint scanners take a known fingerprint sample and compares it with a known record.

Example: Using your fingerprint to unlock your phone.