

Fingerprints

An introduction

Fingerprints

- Are Infallible?
- DNA is the same for identical twins;
not fingerprints

Unique & Permanent – absolute

No two fingers have the same print

Fingerprints

Think of corduroy pants

Skin

- The largest organ of the body
- 2 mm thick
- weighs approximately 6 pounds
- Consists of different types of cells
- Helps us keep our shape, defensive mechanism
- Maintain homeostasis – function of skin – perspire; temperature control

Skin

- Friction skin is nature's way for use to grasp things
- **All primates have friction skin;**
Man, Women, Great Apes, Baboons,
Chimps, Monkeys,
Lemur(Madagascar),
Tarsier
(nocturnal tree dwelling East Indies)

Skin

- No hair on friction skin
- Sebaceous glands or fat not on friction skin
- Skin replenishes itself every 30 days

Fingerprints

- Fingerprints start to form at the end of the 1st trimester
- 3 months – patterns similar; arrangement of the ridges is different; Unique characteristics – Ending ridge, bifurcation, enclosure

Fingerprints

- Pressures & stresses w/fetus;
- reason prints are not the same develop differently – DNA is same

Equipment

- The basic equipment required for inked prints consists of an inking plate, cardholder, printers ink and a roller.

Upper ten Prints

- Thumb, index, middle, ring and little fingers on each hand in the order named. These are called rolled impressions.
- The impressions at the bottom of the fingerprint card are taken **simultaneously printing** each hand and then the thumbs.
- **Purpose of SP to measure natural spread Of the total HP and match bottom w/top**

Causes for Illegible Prints

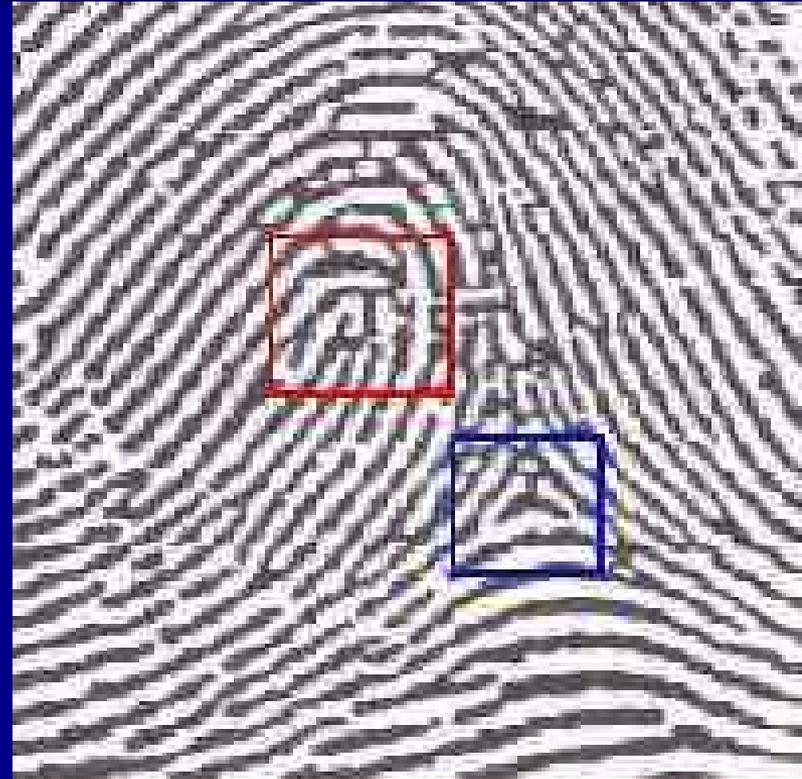
- Failure to reproduce the focal points because the finger was not fully rolled.
- **Smearred Prints**
- Allowing the fingers to slip or twist.
- Use of improper inks.
- Failure to clean the subjects fingers.
- Failure to keep equipment clean.
- Use of too much or too little ink.
- Recording fingerprints impressions within the wrong blocks on the print card.

Fingerprints must contain a clear impression of the **delta**, **core** and **ridges** to be classified

Delta and **Core** are the reference points within the fingerprint pattern necessary to classify fingerprints.

Loop

- Loops constitute between 60 and 70 per cent of the patterns encountered



WHORLS

- Between 25 and 35 per cent of the patterns encountered consist of whorls



ARCHES

- Arches represent only about 5 per cent of the fingerprint patterns encountered



Definitions:

- Fingerprint- an inked impression of the curves found by the system of ridges on the skin surface of the distal area of a finger.
- Latent Print- An impression of the finger or palm left on an object when the object has been touched.

Fingerprints cannot be used to determine the age, race or sex of any person.

Major case prints- Consist of recordings of all friction ridge details present on the palm surfaces of the hand and the inner surfaces of the fingers.

Advantages of Fingerprints for L.E.

- Most positive form of identification
- Not dependant on personal appearance
- Simple to implement and economical to use.
- Will disprove false claims quickly.

Fingerprinting

Historical Background

- 1904- Leavenworth Penitentiary established fingerprint files.
- 1924- FBI Identification Division was established.
- 1933- FBI Fingerprint Section was established
- Acceptable form of criminal identification since early 20th century

1901/1902/1903

- 01/ marked the official introduction of fingerprinting for criminal identification in England and Wales.
- 02/ is the first year in which the first known systematic use of fingerprinting began in the United States
- 03/ New York prison system began using fingerprinting for criminal identification.

The West Case

- Will West imprisoned at Leavenworth denied previous incarceration at this prison.
- A clerk found an almost identical file of one William West whose physical measurements were nearly identical to Will West.
- A photograph of Will West appeared practically identical also.

West Case Continued.

- But Will West was not being untruthful.
- Fingerprints were taken from both men and found to be different.
- William West was currently incarcerated at Leavenworth.



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RECEIVING

NO ENTRY
STAFF ONLY

BJA

FD-258 FBI Fingerprint Card

- This white card with blue ink is used by law enforcement agencies to capture the fingerprints of applicants interested in law enforcement positions; U.S. government agencies and other entities that require fingerprinting by federal law; officials and local governments for purpose of permits, licensing, and employment; and officials of federally chartered or insured banking institutions.

FD-353 Personal Identification Card

- **Used to capture children's fingerprints so that their parents have a record of them, these cards are white with green ink.**

FD-884 Palm Print Card

- The palm print card was designed to encourage state and local agencies to capture a person's palm prints to help solve more crimes through latent print identification. This white card with red ink cannot be used alone in place of the actual fingerprint card but is a supplement to the criminal or civil fingerprint card.

FD-249 Criminal Card

- **The white FD-249 card with red ink is the arrest and institution fingerprint card. It is used to reveal your criminal history.**

Live Scan Card

- The live scan card is a blank card that's used by any agency that has a live scan machine. This machine prints the complete card (i.e., lines, blocks and headings) and fills in each of the fields with your fingerprint impressions.

Classification

- Classification of fingerprints provides orderly placing of fingerprint cards in a file with systematic filing of an original card. Any subsequent card of that individual falls in the same section of the file and a search of the section quickly yields the earlier record.

FBI Identification Section

- The FBI maintains **two separate types of files.**
- **Criminal File and Civil File**
- Individuals arrested and convicted of serious crimes are maintained in the criminal file.
- 1933 the US Civil Service Commission turned over 140, 000 fingerprints of Government employees/ thus the creation of the Civil Files.

How many?

- 1991- 86,079,261 civil prints on file
- 1991- 107,058,738 criminal prints on file.

The Print

- There are **three** fingerprint types
 - Loop
 - Arch
 - Whorl

NHP Records and ID services/ WIN/ AFIS Project.

- AFIS- Automated Fingerprint Identification System
- WIN- Western Identification Network

AFIS- How it works

- AFIS is a complicated Computer system.
 - Three basis functions
 - Searches rolled fingerprints
 - Future identification
 - Search and identify latent prints left at crime scenes

WIN/ AFIS

- WIN/AFIS has put Law Enforcement at the forefront of technology in regards to fingerprint technology.

Ink Prints/ Rolled Prints

- There is no correct or incorrect way to obtain inked prints.
- There are easy ways to roll a finger print for the officer and the suspect.
- Always remember "Officer Safety" first.

Handling the Suspect for printing

- It is easiest to explain the process to the suspect and what will be expected of him/her.
- Their cooperation will make the process be quicker, however, you will obtain the fingerprints.

Have equipment set up.

- Prior to beginning any fingerprinting always set up the necessary equipment.
- Ink pads.
- Print cards.
- Cleaning materials.
- Rubber gloves.
- An assistant.

Rolling the Print

- Have the subject place the finger being printed onto the ink pad.
- Hold the finger being printed and turn the blade side of the hand upward.
- Place the edge of the finger on the print card and roll the finger. Continue all the way past the ink on the finger.
- Only use slight pressure on the finger being printed to avoid smearing.

Inked/Rolled Print

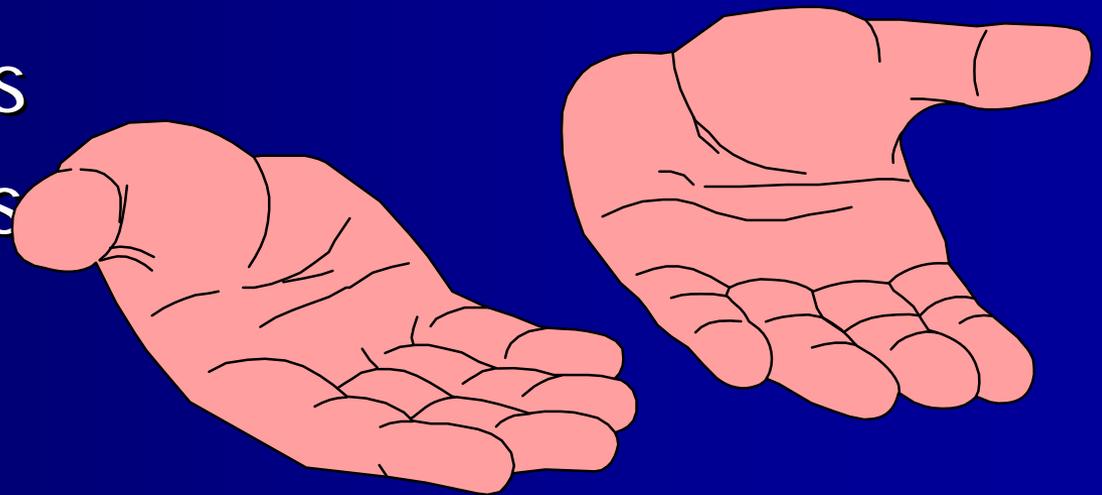
- Have subject clean the finger printed after each roll. This will avoid smudge marks on the card.
- Complete all fingers and palm as shown on the fingerprint card.

Crime Scene prints.

- A variety of information can be left at crime scenes including finger prints.

Three print types

- Plastic Finger Prints
- Visible Prints
- Latent Prints



Plastic Prints

- When a finger presses against a surface such as plastic that leaves a negative print
- Such a print may be found in fresh paint, gum, adhesive tape candle wax, etc.,.

Prints Contaminated by foreign matter/ Visible Prints

- Most common is a Dust Print.
- When a finger is placed on dust some dust adheres to the ridges of the finger, when the finger is again pressed against an object the dust is re-deposited.

Latent Print

- Small amounts of sweat, grease and dirt being on an object being touched by the friction ridge pattern on the tip of the finger.
- Latent prints may or may not be visible.

Developing Latent Prints

- Development of latent prints is done by brushing finger print powder over a print.
- Print powders come in various colors but the most common used are light (gray) and dark (black).

Development of latent prints

- As a rule use dark powder on light colored objects and light colored powder on dark objects.
- There are several different types of powder brushes. Fiberglass, camel hair, feather and nylon brushes are a few examples.

To develop the print

- Dip the brush into the powder so that only a small amount of powder is on the tip of the brush
- lightly brush the area where the print may be located
- Never sprinkle the powder over the object.
- Too much powder will blur the print

Lifting the print

- When lifting the print use a clear plastic tape.
- Finger print tape is available
- Print cards are also available
- Place the tape over the print that has been developed. Press the tape around the print and then lift the tape.

**Place the print onto a
opposing color card.**

**Date, initial, write the case
number, name and your
name on the back of the
card. Also write the
location the print was
lifted.**

Prints at Autopsy

- These are inked or rolled prints
- You will normally break fingers if they have curled.
- Don't worry, they don't feel a thing.

Remember you are not an expert even after this class.