
Educational Visit

Finger Print Bureau, Bangalore

5 February, 2020



INTRODUCTION

On the 5th of February 2020, 37 students from II Semester 'H' section [BcGMb] of Vijaya College R.V.Road, Basavanagudi, Bangalore went on an Educational Visit to '**Finger Print Bureau**' Forensic Science Laboratory, under the guidance of **Dr. Priyadarshini. P.A, H.O.D of Genetics Department, Vijaya College.**

The Finger Print bureau is located in **Madiwala, Police Station, Bangalore.** It is one of the State Forensic Science Laboratories of India and Bureau in Karnataka, many police stations (units) of the state come under this.

Finger Print Bureau is an important agency of investigation which helps Karnataka State Police Force to find leads or to solve criminal cases.

It is a scientific technique that is used to give finger print evidence to find the suspect in a criminal case based on their finger print pattern.

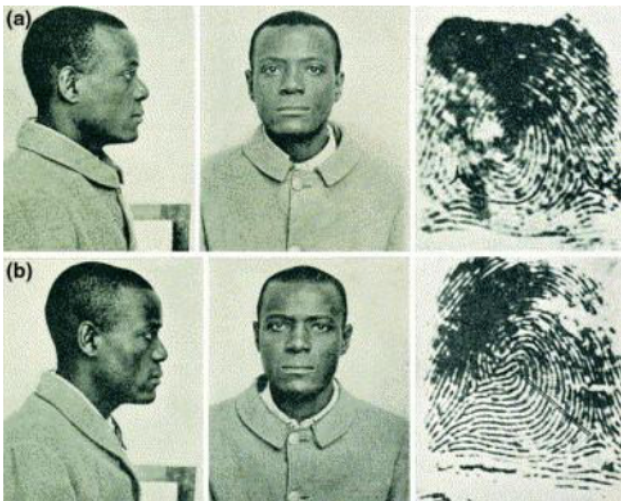


FINGER PRINT TECHNIQUES

We were first shown a presentation on "The Introduction to Fingerprint Techniques" By Mr. Sharanappa, Deputy Superintendent of Police, Madiwala police station.

EVOLUTION OF FINGERPRINT ANALYSIS

In 1882 Sir Alphonse Bertillion, French anthropologist, devised method of body measurements to produce a formula used to classify individuals.



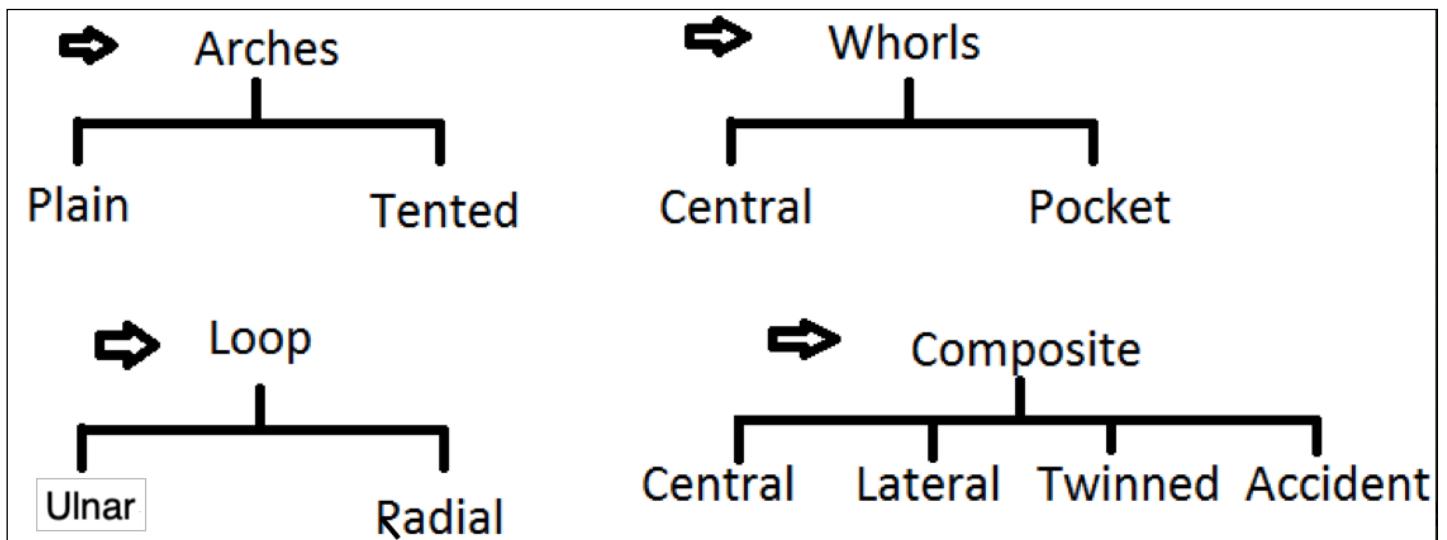
Bertillion's formula involved taking the measurements of a person's body parts, and recording these measurements on a card. This method of classifying and identifying people became known as the Bertillion System or the Anthropometric method of identifying people.

An example was quoted during the session, wherein Anthropometric method could not give proper justification of a crime.

A man William West was misunderstood as Will West who was actually the criminal. The anthropometric measurements of both the men were almost similar. But the fingerprint technique was used as a tool for the identification.

This fingerprint technique is one of the primary techniques used to find the accused. It has got its recognition after the **Will West Case** that took place in 1930. In 1892, Sir Francis Galton was the first person to discover that each and every human has a unique pattern on their fingers which gives them an identity due to the observation made by him he is known as the "**Father of Fingerprinting**".

Meanwhile, in India, the world famous fingerprint Bureau was established in 1897 at **Kolkata**. As per history, **E.R.Henry** established the classification of fingerprint which is now named after him as "Henry's Classification". The classification is based on the different patterns of fingerprint which consists of four types that are:



The general observations drawn from analysing population data are:

- 60% of the population will have Loop pattern
- 30% will have Whorls
- 5% will have Arches and another
- 5% will have composite patterns.

HOW CAN A CRIME BE DETECTED USING FINGERPRINTS?

The fingerprints the authorities find at the scene of crime are called *chance prints* are of 3 types:

- **Plastic fingerprints:** These are found on the materials like soaps, candle mud etc.
- **Visible prints:** These fingerprints are left by a finger that has touched blood, paint, ink, etc.
- **Invisible prints:** These prints are found on the doors, floors which can't be seen by naked eyes easily.

The fingerprints at the crime scene are obtained, scanned and fed into a data base. There are many softwares that are used to store these data.

The Software used by the Forensic Bureau of Karnataka is

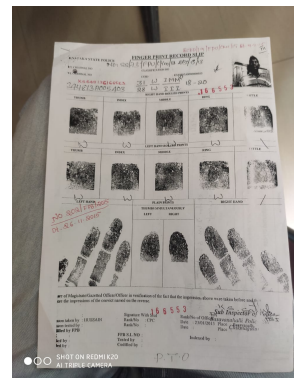
AFIS - Automated Fingerprint Identification System

This is a software used by the police department to store the complete data of criminals. This database includes information of all criminals caught. The system is regularly updated with the newly caught criminals' data. During the session, the officials demonstrated how this software works.

When the criminals' prints that are collected from the crime scene are fed to the computer with the help of a scanner,

The software runs this information and compares it with the wide database available with it. If the culprit is a recurring criminal, it shows all the criminals cases registered on that person.

If the data does not show any resemblance with the already available data, then it is added as a new entry.



With this information, the theory lecture, came to an end.

PRACTICAL DEMONSTRATION

After an hour-long theory lecture, we were shown the practical application of the gained knowledge.



There were certain measures which the authorities undertook, before starting the procedure, the major one being- **Wearing Gloves!** It is important to wear gloves before touching anything at the crime scene. If the gloves are not used, the fingerprints acquired from the crime scene may not be reliable.

Once gloves are worn, the authorities start their task.

STEP 1: **EXAMINE** - The authorities, examine the crime scene at places where chance of acquiring 'chance prints' (fingerprints acquired at the crime scene) are high. These include smooth surfaces like glass doors/windows, phones, mirrors, ceramics etc. The idea behind this is that,

Our palms have sweat gland which are constantly producing sweat. Sweat contains salts, minerals lactate urea and water. When we touch smooth surfaces, say a saucer, the water evaporates eventually, leaving behind the salts and minerals etc.

Once they find a possible object, they try to observe it all angles and try to pin-point fingerprints on that surface. In order to do so, they hold the object at a position which has the least chances of wiping out fingerprints (if any).

STEP 2: **POWDERING** - Once a fingerprint is identified, it is treated with chemicals, in the form of powders this helps in defining a fingerprint by creating a cast over it.

Powders of various colours are put to use for this like, ferrous salts(red), graphite powder(black), zinc powder (white/grey).



The idea is to use coloured powders which are contrasting to the surface on which they are working on.

If a surface is dark coloured, then zinc powders and used. For applying the powders, a feather like brushes are used. The powders are gently dusted over the chance print with the help of

these brushes.

Sometimes prints can also be obtained from papers. For that a dark colour powder (graphite powder) is dusted over the paper to obtain the print.

Now we have a cast the next step is to transfer the print from the object to a sheet.

STEP 3: CLEANING/ DEVELOPING: The extra powders are dusted off. Now a normal cellophane tape is used to get the print. The size of the tape is selected based on the size of the fingerprint. It is crucial to use a tape of appropriate size in order to extract the chance print accurately in one go!

The tape is carefully placed on the fingerprint at a 45 degree angle, in order to avoid any air bubbles.

Then the tape is carefully removed from the surface and stuck on to a normal plastic/OHP sheet.

(As a precautionary measure, before removing the tape, the fingerprint is scanned with digital tools to avoid its loss the process.)

Thus, a fingerprint is obtained from a crime scene!

These prints are then updated to the Automated FIS system to identify the culprit.



Apart from this, the authorities enlightened us with certain **guidelines/precautions** that we must take if we happen to be at a crime scene.

- **Call the Police!** And inform them about the crime.
- **Secure** the place and do not let anyone enter the scene or touch anything at the scene.
- Finally, if anyone is gathering at that place, especially make sure that no one is touching the doors, windows or other **entry points** because these places have high chances to spot fingerprints of the culprits.

They also informed us about few basic things we should keep in mind if we are going out of our house for a long time.

- **Don't use pad locks** at the gates, instead make use of the lock which can be embedded in the door.
- **Inform the newspaper** deliverer to not give newspapers for that specific duration.
- **Inform the neighbours** of our absence.

STUDENTS' VIEWS ON THIS TRIP

I really enjoyed this trip. It was what I would call an 'Infotainment' , i.e both informative and entertainment at the same time!

Visiting the Finger Print Bureau gave us a real insight on how police officers crack a crime. I was fascinated to know about all the techniques which the Department uses. Growing up, I have always watched TV shows which crack crimes based on fingerprint analysis. Getting to know the latest software technologies, techniques and interacting with the Superintendent of Police aided in the learning process. He was very welcoming and entertained all of our queries.

We also met one of the alumini from our college. It was a motivation for us, teaching us how hardwork and dedication can take us to great places.

On top of that, this trip helped all of us to bond as a class and have fun together.

I would like to thank the Police authorities, The Principal of our college Prof.H.S.Balakrishna, and our teachers Prof. Priyadarshini.P.A and Prof. Jalajakshi.S for making this Educational Trip possible.

Hamsini Harikumar

This trip had a lot of elements to it, which made it a wholesome learning experience. We got to meet the police authorities in person which would not have been possible otherwise. We, as a class gained a lot of information. The presentation showed to us was loaded with facts, figures and valuable data. The police officials increase the doubt and happily taught as many things.

The building was also well constructed and maintained. It was calm and quiet. Each room was allotted for different activities. I would like to thank them a lot for permitting us to be there. I would also like to thank the principal and the teachers of Vijaya College for organising this trip.

A Roopika

