

# CRIME SCENE MANAGEMENT

*Mr. Sanjeev S Koni*  
*Assistant Professor*  
*School of Forensic Sciences,*  
*CUTM, BBSR.*

# CRIMESCENE MANAGEMENT

- **Crime scene**
- **Any inquiry will achieve its optimum value in criminal investigation when the scene of crime is properly processed. It is the meeting place of the criminal and victim where the exchange of physical evidences takes place. Hence;**
- **Treasure house of clues.**
- **Establishes corpus delicti.**
- **Provides link between criminal, crime & victim.**
- **Evaluates the pattern of the events.**
- **Helps in the elimination of innocents.**

# CRIMESCENE MANAGEMENT

The crime scene management should solve the problems like,

- How did the criminal and victim reach the spot?
- Routes of the entrance and exit?
- How many criminals and victims were involved?
- Modus operandi?
- What were the evidences exchanged ?
- Whether the scene of crime is genuine?
- When the crime committed ?
- Identification of criminal and victim.

# INFORMATION GATHERED FROM CRIME SCENE

- **What type of crime has been committed?**
- **Where did it happen?**
- **Who committed the crime?**
- **When was the crime committed?**
- **Why did the crime committed?**
- **How was the crime committed?**
- **Who is the victim?**

# CRIME SCENE PROCESSING ORDER

- The crime scene must be identified
- The scene must be secured
- Access and departure must be logged
- Access must be restricted to authorized personnel
- A chain of custody **MUST** be established for every piece of evidence from collection to inspection and submission to laboratory.

# CRIME SCENE PROCESSING ORDER

- **Photography**
- **Search and mark evidence**
- **Collection of evidence**
- **Alternate light sources**
- **Chemical processing**
- **Re-Search**
- **Post evidence recovery photographs**
- **Sketching of the crime scene**

# CRIME SCENE NOTES

- **Concise**
- **Legible**
- **Accurate**
- **Objective (contain no theories, opinions, or speculation)**
- **Are subject to legal discovery**
- **Are legally required in some jurisdictions and must be maintained and surrendered**

# INVESTIGATION

**Putting relevant evidences in a correct way before court of law, which will prove a criminal activity. It is a logical, an objective and legal enquiry which will answer certain questions as below.**



# INVESTIGATION

- **Is there any violation of statute?**
- **When the crime occurred?**
- **Who was the person involved in planning, execution and their after effects?**
- **Is a witness to the criminal activity present?**
- **Is there evidence of criminal offense?**
- **How it was committed?**
- **Is there any indication of guilt or innocence to a law in ending a solution of a case?**

# INVESTIGATION

**Before 1900s criminal investigations were based on over intelligence collection i.e. interaction with individuals. But, today current methods involve to a large extent criminalistics / forensic sciences i.e. application of natural sciences and technologies to the detection of crime and justice administration. Hence have become indispensable.**

# FORENSIC SCIENCE

**The application of science to those criminal and civil laws that are enforced by police agencies in a criminal justice system.**

# CRIMINALISTICS

- **Means, Services provided by a crime/forensic laboratory. Basic services provided by a full service forensic laboratory are:**
- **Physical science unit**
- **Chemical Science unit**
- **Biological science unit**
- **Document Examination unit**
- **Finger prints unit**
- **Toxicology unit**
- **Forensic Psychology unit**
- **Computer Forensic unit**
- **Evidence collection unit**

# EVIDENCE COLLECTION UNIT

- **This unit can assist the investigator in solving cases.**
- **Basically this unit consist of trained officials who manage the crime scene i.e. preserver the crime scene, collect the physical evidences, reconstruct the crime and gather information from physical evidences, preserve and forward to the respective unit of the laboratory for further scientific evaluation.**

# INVESTIGATION

Today, systematic investigations based on evidences have started. The evidence in criminal trial is important because it will prove the fact without support. This may be:

**(1) Direct evidences (oral & physical)**

**(2) Indirect evidences (circumstantial)**

**(3) Documentary evidences**

# INVESTIGATION

- **Physical evidences are most reliable in criminal investigations and justice administration. This may be any object which will establish the corpus delicti and a link between crime, criminal and victim. These evidences are found on :**
  - **the crime scene**
  - **Criminal**
  - **Victim**
- **These evidences are available in all criminal cases except in forgery cases where its utilities are limited. Hence, crime scene management is the most important parameter in any criminal investigation.**

# PHYSICAL EVIDENCE

- Means, all objects or any object that can establish through scientific examination that the crime has been committed, when and how it was committed and provide link between crime scene, criminal and victim.
- The important physical evidences and their importance is given below.



# CHARACTERISTICS OF EVIDENCE

- **Class characteristics**
  - features that place the item into a specific category
- **Individual characteristics**
  - features that distinguish one item from another of the same type

# TYPES OF PHYSICAL EVIDENCE

## ➤ BODY FLUIDS

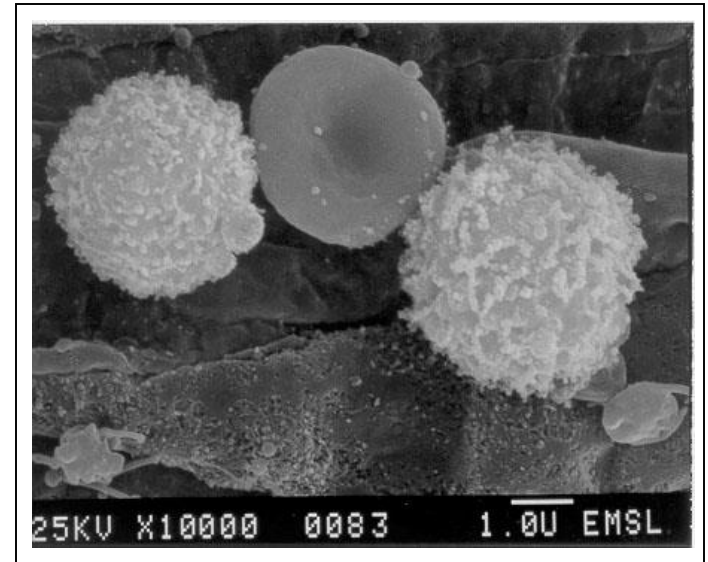
### ➤ Conventional serology:

- presence of blood in stains
- species identification and ABO grouping
- is not adequately informative to positive identify a person

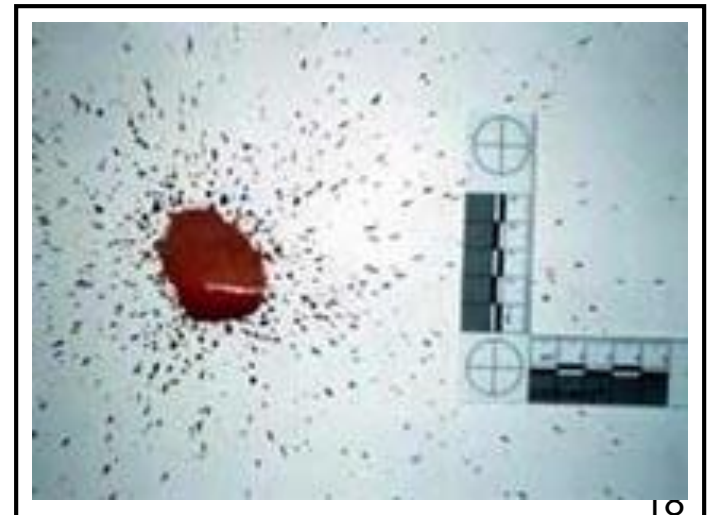
### ➤ DNA analysis can associate victim and/or suspect with each other or with the crime scene

## ➤ BLOODSTAIN PATTERNS

- additional information



SEM: erythrocytes & lymphocytes



# TYPES OF PHYSICAL EVIDENCE

## ➤ BODY TISSUES

- organ samples collected at autopsy, including blood, urine and stomach contents

## ➤ DRUGS & CONTROLLED SUBSTANCES

- plant materials, powders, tablets, capsules

## ➤ toxicological analysis

- volatile compounds (ethanol, methanol, isopropanol)
- heavy metals (arsenic)
- nonvolatile organic compounds (drugs of abuse, pharmaceuticals)
- miscellaneous (strychnine, cyanide)

## ➤ trace drug presence, identity, and quantity



Black tar heroine wrapped in cellophane

# TYPES OF PHYSICAL EVIDENCE

## ➤ DOCUMENTS

### ➤ examination

➤ typed, handwritten and printed materials for evidence of forgery

➤ indented writings, obliterated or altered writings, used carbon paper, burned or charred paper

➤ paper and ink analysis

➤ handwriting comparison to determine authenticity



Obliterated writing examination

# TYPES OF PHYSICAL EVIDENCE

## ➤ HAIRS

➤ hairs analysis can determine

➤ morphological features

➤ DNA analysis

➤ toxicological examination

## ➤ FIBERS

➤ human/animal

➤ race

➤ body area

➤ cosmetic treatments

➤ method of removal (crushed, cut, burned, forcibly removed, fallen out naturally)

➤ can associate a hair to a person

➤ positive identification

➤ presence of drugs and poisons

➤ type

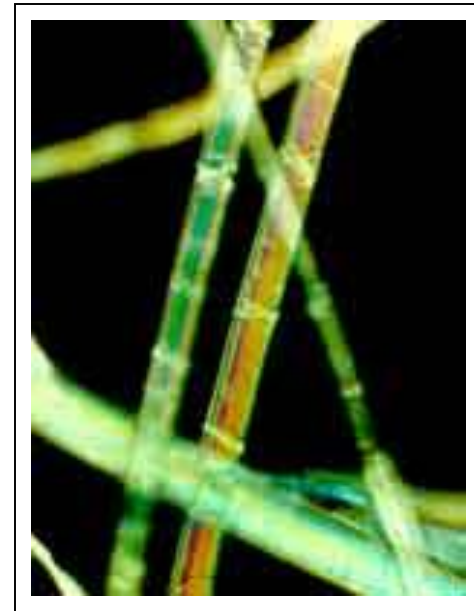
➤ color, composition construction

# TYPES OF PHYSICAL EVIDENCE

*Two matching hairs identified with the comparison microscope*



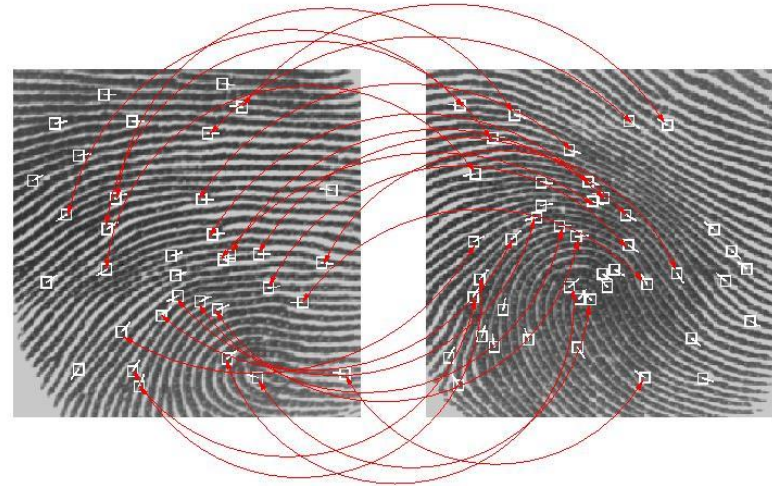
*Flax fibers viewed with polarized light*



# TYPES OF PHYSICAL EVIDENCE

## ➤ FINGERPRINTS

- the strongest possible evidence of a person's identity



*Fingerprint Matching*

## ➤ FIRE DEBRIS & EXPLOSIVES RESIDUE EXAMINATIONS

- identification of accelerants and explosive residues

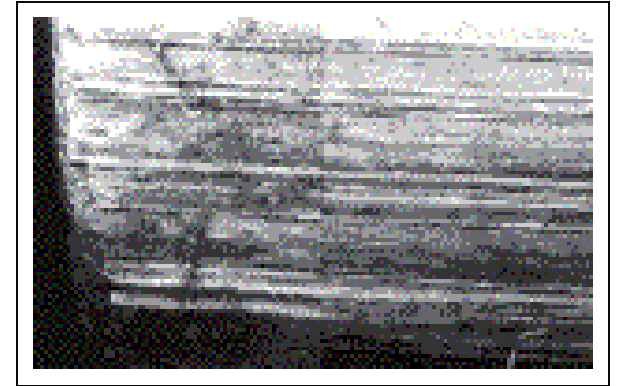


*Unburned accelerator liquid on a soot covered carpet*



# TYPES OF PHYSICAL EVIDENCE

- **FIREARMS & AMMUNITION**
- **individual microscopic marks**
  - identification, source, operability of firearms.
- **detection and characterization of gunpowder residues**
- **muzzle-to-garments distance estimation**
- **GLASS FRAGMENTS**
  - Cause of breakage
  - Direction of breakage force
  - Physical fitting
  - Glass fragment comparisons



*Photomicrograph: test bullet - questioned bullet*

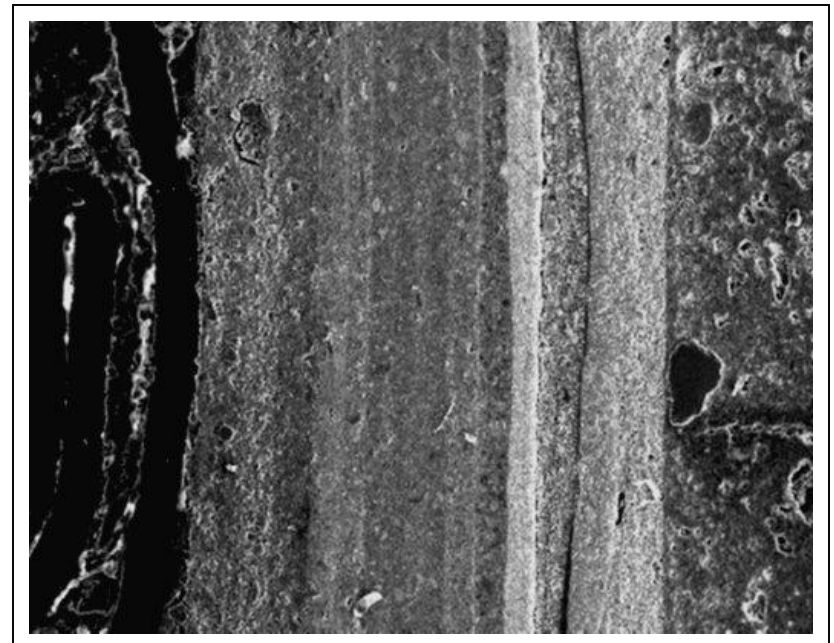


*Glass fracture produced by a high-speed projectile*



# TYPES OF PHYSICAL EVIDENCE

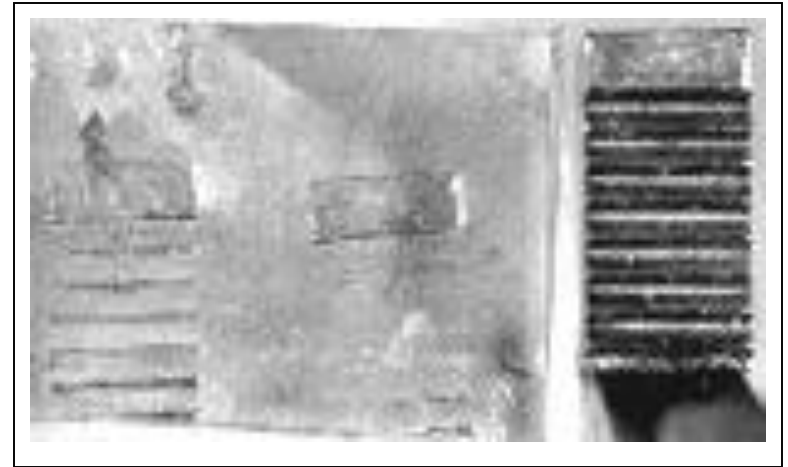
- **PAINT & PAINT PRODUCTS**
- **analysis and comparison of paint transferred from the surface of an object to another during the commission of a crime:**
- **Suspect vehicle impacting a victim vehicle; a pedestrian or a stationary object**
- **Tool impacting stationary object**
- **Paint databases can help identify the year, make and/or color of a motor vehicle from a chip of paint left at the scene.**



*Paint Layers on Wood Surface*

# TYPES OF PHYSICAL EVIDENCE

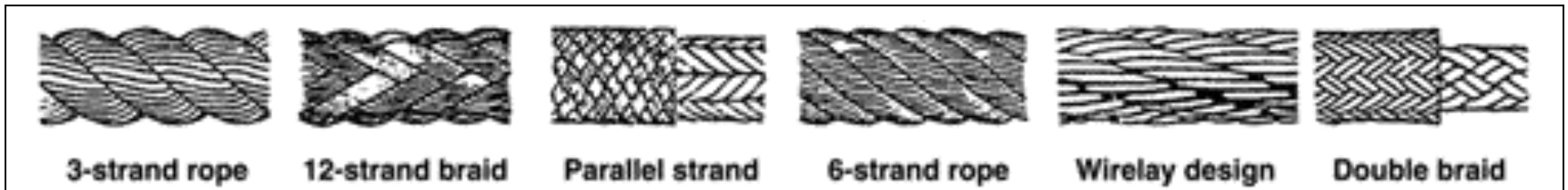
- **TOOLMARK IDENTIFICATION**
- microscopic side-by-side comparison
- attempts to link a particular tool with a particular mark to the exclusion of any other tool



*Spacing between teeth in gripping -major role in toolmark examinations*

- **ROPE & CORDAGE**
- composition, construction, color and diameter

↓ manufacturer

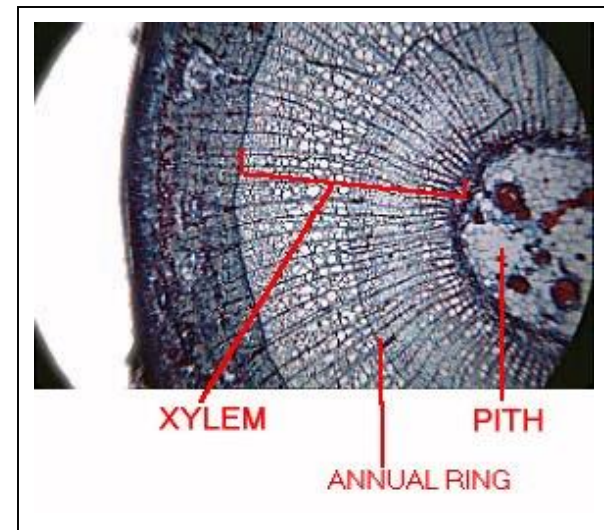


# TYPES OF PHYSICAL EVIDENCE

- **SOILS & MINERALS**
  - comparison between two or more soils to determine if they share a common origin
  - color, texture, composition comparison
- 
- **WOOD**
  - place the suspect at the crime scene
  - side or end matching, fracture matching and species identification.



Layers of soil exposed at a grave site. Each layer must be sampled



Cross-section - Xylem

# TYPES OF PHYSICAL EVIDENCE

- **OILS/GREASE & COSMETIC PRODUCTS**

- possess unique composition for comparison

- **SHOEPRINTS & TIRE TREAD IMPRESSIONS**

- have value for forensic comparisons.
- can provide positive identification of the suspect's shoes or tires from the suspect's vehicle.



*Shoeprint collected using a gelatin lifter.*

# BUILDING MATERIALS AND PARAMETERS

- Can provide positive identification if the building is constructed as per specifications of IS code or building construction code or material used is as per requirements or not.

# MOBILE AND CYBER CRIME RELATED EVIDENCES

- Retrieval of data from computer hard disks
- E-mails origin
- SIM cards
- Credit Cards
- Mobile data etc.

**THANKS**