

## Classification of Evidence

**Testimonial evidence** is a statement made under oath; also known as direct evidence or *prima facie* evidence.

**Physical evidence** is any object or material that is relevant in a crime; also known as indirect evidence. Examples are hair, fiber, fingerprints, documents, blood, soil, drugs, toolmarks, impressions, glass.

## Reliability of Eyewitness

### Factors that affect accuracy:

Nature of the offense and the situation in which the crime is observed

Characteristics of the witness

Manner in which the information is retrieved

### Additional factors:

Witness's prior relationship with the accused

Length of time between the offense and the identification

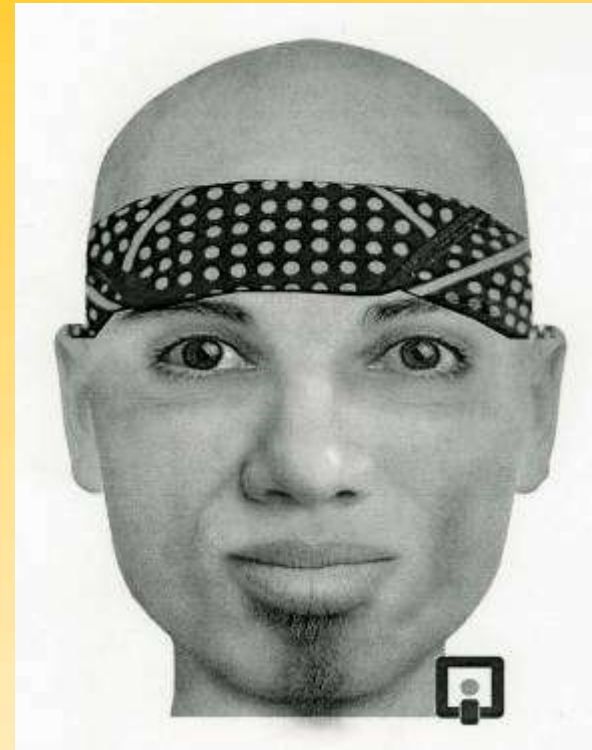
Any prior identification or failure to identify the defendant

Any prior identification of a person other than the defendant by the eyewitness



## Eyewitness

A police composite may be developed from the witness testimony by a computer program or forensic artist.



*FACES*—a composite program by InterQuest

## Physical Evidence

As a result of the influences on eyewitness memory, physical evidence becomes critical.

Is generally more reliable than testimonial evidence

Can prove that a crime has been committed

Can corroborate or refute testimony

Can link a suspect with a victim or with a crime scene

Can establish the identity of persons associated with a crime

Can allow reconstruction of events of a crime

## Reconstruction

**Physical evidence can be used to answer questions about:**

- What took place at a crime scene
- The number of people involved
- The sequence of events



A forensic scientist compares the *questioned* or unknown sample from the crime scene with a sample of *known* origin.

## Types of Physical Evidence

**Transient evidence** is temporary; easily changed or lost; usually observed by the first officer at the scene.

**Pattern evidence** is produced by direct contact between a person and an object or between two objects.

**Conditional evidence** is produced by a specific event or action; important in crime scene reconstruction and in determining the set of circumstances or sequence within a particular event.

**Transfer evidence** is produced by contact between person(s) and object(s), or between person(s) and person(s).

**Associative evidence** is something that may associate a victim or suspect with a scene or with each other; e.g., personal belongings.

—Henry C. Lee and Jerry Labriola, *Famous Crimes Revisited*, 2001



## Examples of Transient Evidence



**Odor**—putrefaction, perfume, gasoline, urine, burning, explosives, cigarette or cigar smoke

**Temperature**—surroundings, car hood, coffee, water in a bathtub, cadaver

**Imprints and indentations**— footprints, teeth marks in perishable foods, tire marks on certain surfaces

## Examples of Pattern Evidence

**Pattern evidence**—mostly in the form of imprints, indentations, striations, markings, fractures, or deposits

Blood spatter

Glass fracture

Fire burn pattern

Furniture position

Projectile trajectory

Tire marks or skid marks



Clothing or article distribution

Gunpowder residue

Material damage

Body position

Toolmarks

Modus operandi



## Examples of Conditional Evidence

**Light**—headlight, lighting conditions, lights on or off

**Smoke**—color, direction of travel, density, odor

**Fire**—color and direction of the flames, speed of spread, temperature and condition of fire

**Location**—of injuries or wounds, of bloodstains, of the victim's vehicle, of weapons or cartridge cases, of broken glass

**Vehicles**—doors locked or unlocked, windows opened or closed, radio off or on, odometer mileage

**Body**—position and types of wounds; rigor, livor, and algor mortis

**Scene**—condition of furniture, doors and windows, any disturbance or signs of a struggle

## Classification of Evidence by Nature

**Biological**—blood, semen, saliva, sweat, tears, hair, bone, tissues, urine, feces, animal material, insects, bacteria, fungi, botanical material

**Chemical**—fibers, glass, soil, gunpowder, metals, minerals, narcotics, drugs, paper, ink, cosmetics, paint, plastic, lubricants, fertilizer

**Physical**—fingerprints, footprints, shoeprints, handwriting, firearms, tire marks, toolmarks, typewriting

**Miscellaneous**—laundry marks, voice analysis, polygraph, photography, stress evaluation, psycholinguistic analysis, vehicle identification



## Class vs. Individual Evidence

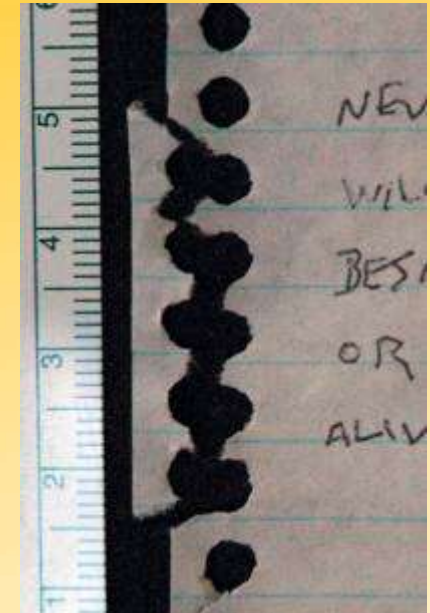


These fibers are class evidence; there is no way to determine if they came from this garment.



The large piece of glass fits exactly to the bottle; it is individual evidence.

## Class vs. Individual Evidence, *continued*



Which examples do you think could be individual evidence?

## Forensic Investigations

*Include some or all of these seven major activities:*

1. **Recognition**—the ability to distinguish important evidence from unrelated material
  - Pattern recognition
  - Physical property observation
  - Information analysis
  - Field testing
2. **Preservation** through the collection and proper packaging of evidence



## **Forensic Investigations, *continued***

### **3. Identification** using scientific testing

Physical properties

Chemical properties

Morphological (structural) properties

Biological properties

Immunological properties

### **4. Comparison** of class characteristics measured against those of known standards or controls; if all measurements are equal, then the two samples may be considered to have come from the same source or origin

## Forensic Investigations, *continued*

5. **Individualization** in demonstrating that the sample is unique, even among members of the same class
6. **Interpretation**—giving meaning to all the information
7. **Reconstruction** of the events in the case
  - Inductive and deductive logic
  - Statistical data
  - Pattern analysis
  - Results of laboratory analysis



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# Collecting Trace Evidence

## Who collects the evidence?

- Police Officer
- Crime Scene Investigator
- Forensic Scientist

Depends on the state/community

Often **one person** to ensure consistency  
of labeling

Trace > Collecting

## Collect trace or entire object?

Suppose a glove appears to have glass, fibers and blood on it.

Should the glass, fibers and blood be removed and packaged separately?

Should the entire glove be packaged?



## **Considerations before packaging entire object:**

- Object may be too large or difficult to move
- Trace evidence may fall off item during transport.
- Trace Evidence may be transferred to different, irrelevant area of object.

If packaging object, **package objects separately.**

Prevents trace being transferred to other objects.

These 3 methods can be done at the crime scene or in the crime lab.

1. Visual Inspection
2. Tape Lift
3. Vacuum



## Visible Inspection

- Use naked eye or hand lens.
- Evidence removed and packaged for later analysis
- Use bright light and forceps to collect.

## **Visible Inspection (Packaging)**

- Small paper envelopes are bad (Holes allow small objects to escape).
- Use small plastic bags, glass vial or paper using a druggist fold.
- Double package. Label each package.

## Tape Lift

- Clear tape is used.
- Repeatedly apply tape to small area until most of the stickiness is gone.
- Tape is folded back upon itself, taped to a glass slide or taped to a piece of plastic.
- Put in separate labeled container.  
Be sure to document specific area covered.

## Vacuuming

- Nozzle should be short and transparent.
- Debris is collected on a filter or membrane



## Vacuuming

- Small area is vacuumed. (Filters changed frequently)
- Filters packaged in separate labeled container. (Be sure to document specific area covered)
- **Most improperly used method** because it often results in the collection of a lot of irrelevant material.



# Druggist Fold

- Consists of folding one end of the paper over one third, then folding the other end one third over that, and repeating the process from the other two sides.
- After the paper is folded in this manner, the outside two edges are tucked into each other to produce a closed container that keeps specimen from falling out.



- **Fulton County Case in 1981**
- **First case in which primary evidence was fiber evidence**
- **Fibers linked Williams to being in contact with the bodies**
- **Media released info that GBI/FBI were collecting fibers**
- **Williams began dumping nude bodies in rivers**

- **Fiber links to dog, cars, home, bedspread**
- **He was convicted for being linked to the bodies prior to dumping**
- **Set standard for murder trials based on overwhelming circumstantial evidence**