

Group No: \_\_\_\_ Case #: 5-1 Date: \_\_\_\_\_ Period: \_\_\_\_

Names of members: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

## Pollen Examination

### Background information:

Forensic palynology is a specialized field that studies pollen and spore evidence. Why is pollen a good forensics tool. There are about ½ million plants that produce pollen or spores, each species is unique. Each geographical region produces a unique “pollen print” that can be very useful in linking “things” to the exact location.

### **Murder Case: Austria in 1959**

A passenger was missing when a sightseeing boat on the Danube River arrived in Vienna, Austria. His friend and business partner was on board but he claimed he did not know what happened to his friend.

He becomes a suspect so the police searched his cabin on board the boat. They find a pair of hiking boots with mud on them. They send boots to the crime lab to find that mud on one boot contain a Miocene-age pollen grain of *Carya*. Control samples taken along boat’s route confirm only one spot where a Miocene outcrop is exposed with the same type of *Carya* pollen grains. Suspect is taken to the crime scene location, he is so shocked he admits to the murder, shows where the body is buried in a shallow grave.

Our Scenario: A robbery had taken place at the Huxton’s home. Footprints were found throughout the recently watered flower garden leading to the window of a bedroom located at the back of the expensive home. Just as the robber was leaving the house, the owner returned home and caught a glimpse of a young teenage boy dressed in a T-shirt and blue jeans running through the garden.

The police questioned three neighbor boys who live in that vicinity. All three young men denied that they had been anywhere near the Huxton home and stated that they did not rob the home. After obtaining a warrant, the police searched the one of each of the three young men looking for blue jeans that could have been worn during the robbery. All three pairs of jeans were confiscated and taken in evidence bags to the crime lab to be examined for pollen evidence that could link the suspect to the Huxton garden. Huxton garden has a beautiful bed of rare pink lilies. Examine the pollens at CS and from three boys’ jeans.

### **Procedure:**

#### **Part A: Preparation of Pollen Wet-Mount Slides**

1. Examine the flower from the CS (crime scene). Locate the anthers and pollen grains.
2. Prepare a wet-mount slide of the pollen:
  - a. obtain a clean slide and label it “CS” for crime scene.
  - b. Add one or two drops of fresh water to the slide.
  - c. Place the flat end of the toothpick into the drop of water to moisten the toothpick.
  - d. Using the moist end of the toothpick, touch the anthers of the crime-scene flower to obtain pollen grains.
  - e. Swirl the toothpick with the pollen in the drop of water and apply a coverslip.
3. Observe the pollen under 100x and 400x of the microscope and sketch or take photo.

#### **Part B: Observation of Pollen Collected from the Three Suspects.**

4. Using a marker pen, label four different slides: Suspect 1, Suspect 2, and Suspect 3.
5. Using the same procedure as #2 & #3, examine a wet-mount slide of pollen from each of the three samples (suspects).

#### **Part C. Clean Up**

You must wipe down the table so next class can use the laboratory table.

Data:

**Data Table 1 : Pollen Comparison**

<b>Sample</b>	<b>Color</b>	<b>Shape</b>	<b>Sketch</b>
<b>Crime Scene</b>			
<b>Suspect 1</b>			
<b>Suspect 2</b>			
<b>Suspect 3</b>			
<b>Suspect 4</b>			

**Questions:**

1. Do any of the suspect pollen samples match the pollen collected from the crime scene? If so, which one(s)?
2. Using the information gained from your microscopic examination of the pollen, justify your answer to question 1.
3. Suppose the pollen from one of the suspects did match the pollen found at the crime scene. What arguments could the defense attorney present to try to discredit the evidence?
4. What could you do to improve the reliability of your analysis? Include in your answer any other instruments that you would use to compare the pollen samples.