

The Silent Witnesses

CRIME SCENE DO NOT CROSS

How insects tell the story of death.



The Estimation of Postmortem Intervals Based on Forensic Entomological Evidence.

a presentation by
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Forensic entomology isn't new. It dates back to 13th-century, China.

- The body of a farmer was found in a field,
The recorded cause of death was a sharp weapon.
- All suspects were ordered to put their sickles on the ground.
- Blow flies were attracted to one sickle only, and on it trace amounts of blood were found.
- This finding resulted in the confession of the murderer.



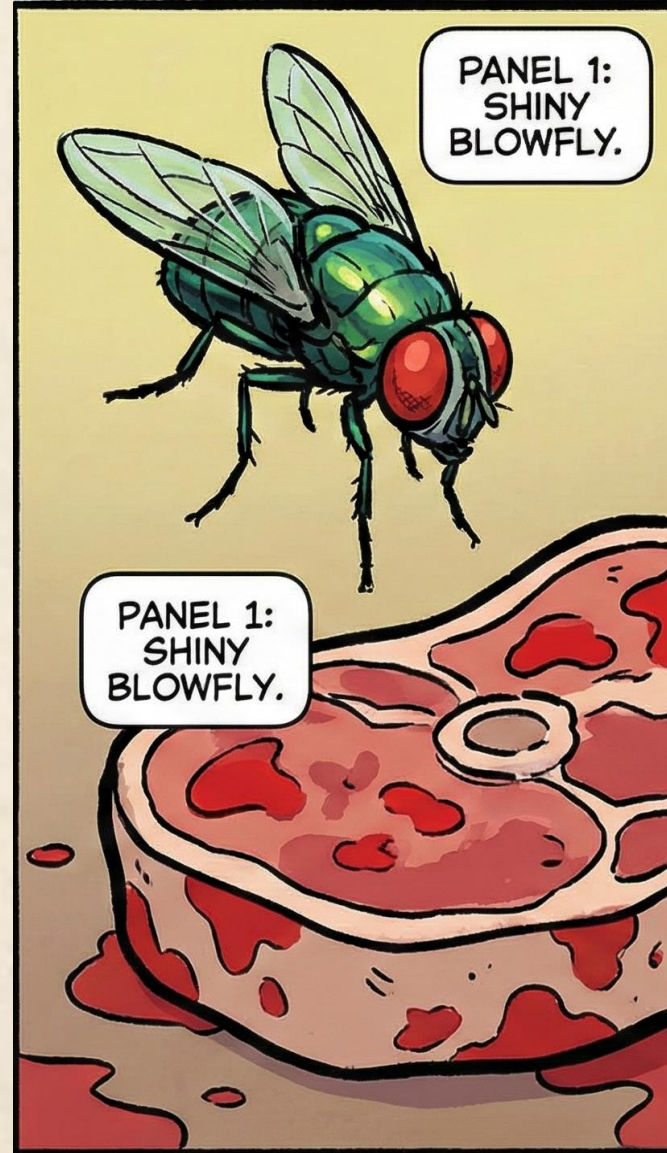
When the clock stops for the human, it starts for the insect.

- The time between the actual death of the victim and the discovery of the corpse or remains is known as the minimum postmortem index (minPMI).
- By examining the insects and larvae present on a corpse, experts can identify the time, cause, and if the body's position was altered.
- After 72 hours, traditional medical pathology (like rigor mortis) becomes unreliable due to decomposition.



The First Responders:

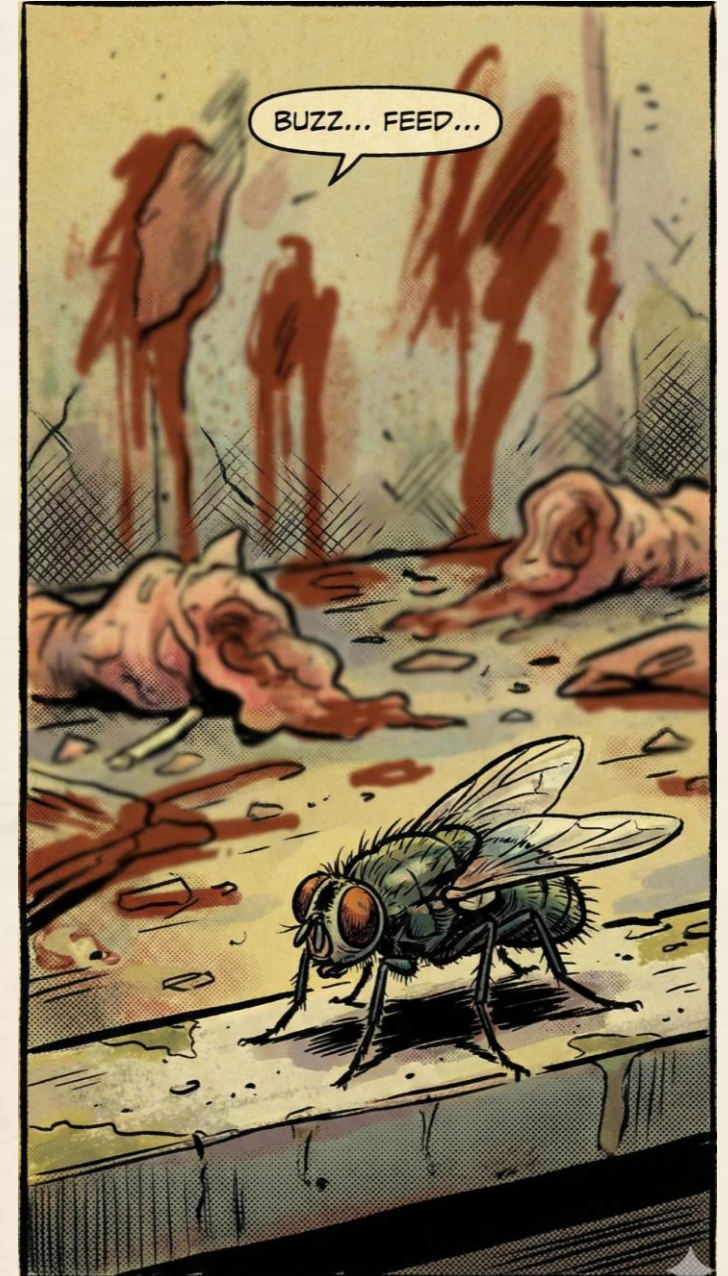
- ***Calliphoridae***
Blowflies (metallic blue/ green)
- ***Sacrophagidae***
Flesh Flies (striped) arrive first.



The Late Comers:

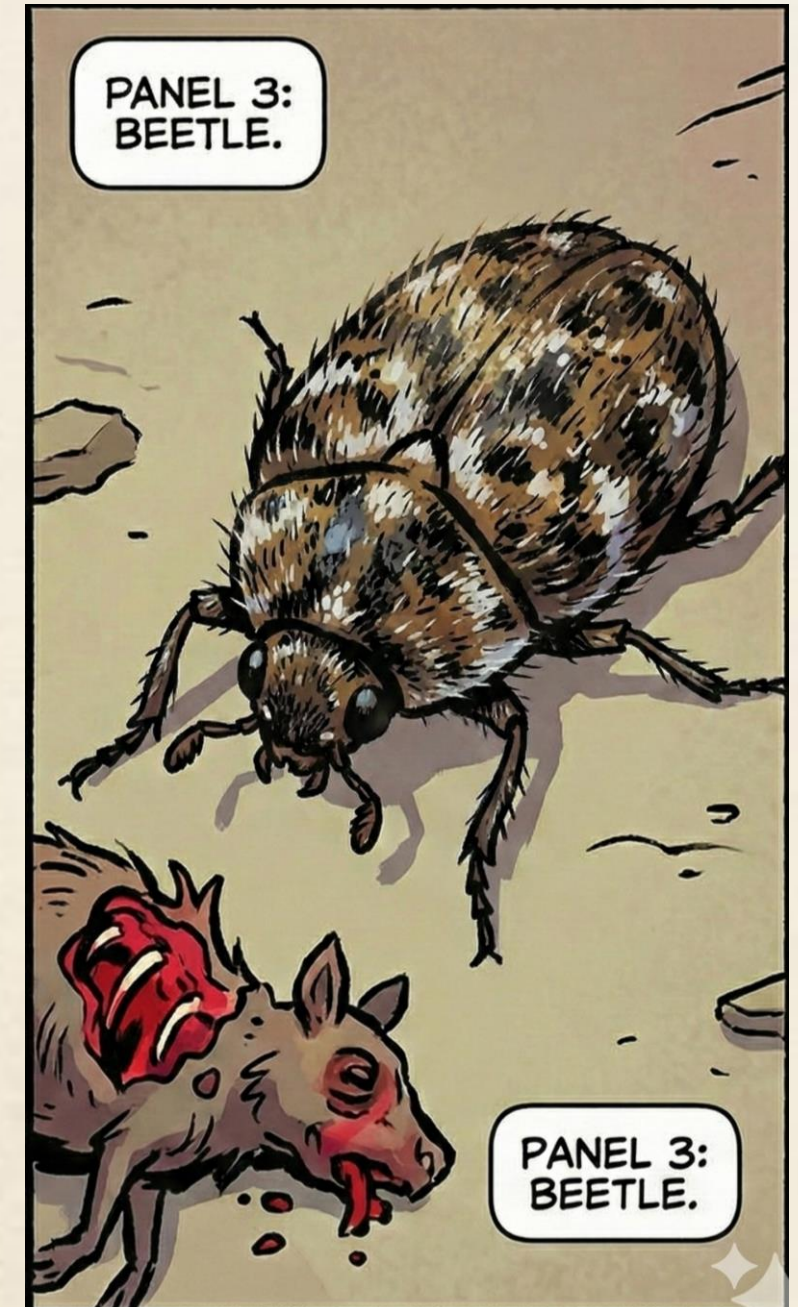
- *Muscidae*

House flies arrive when the body bloats.

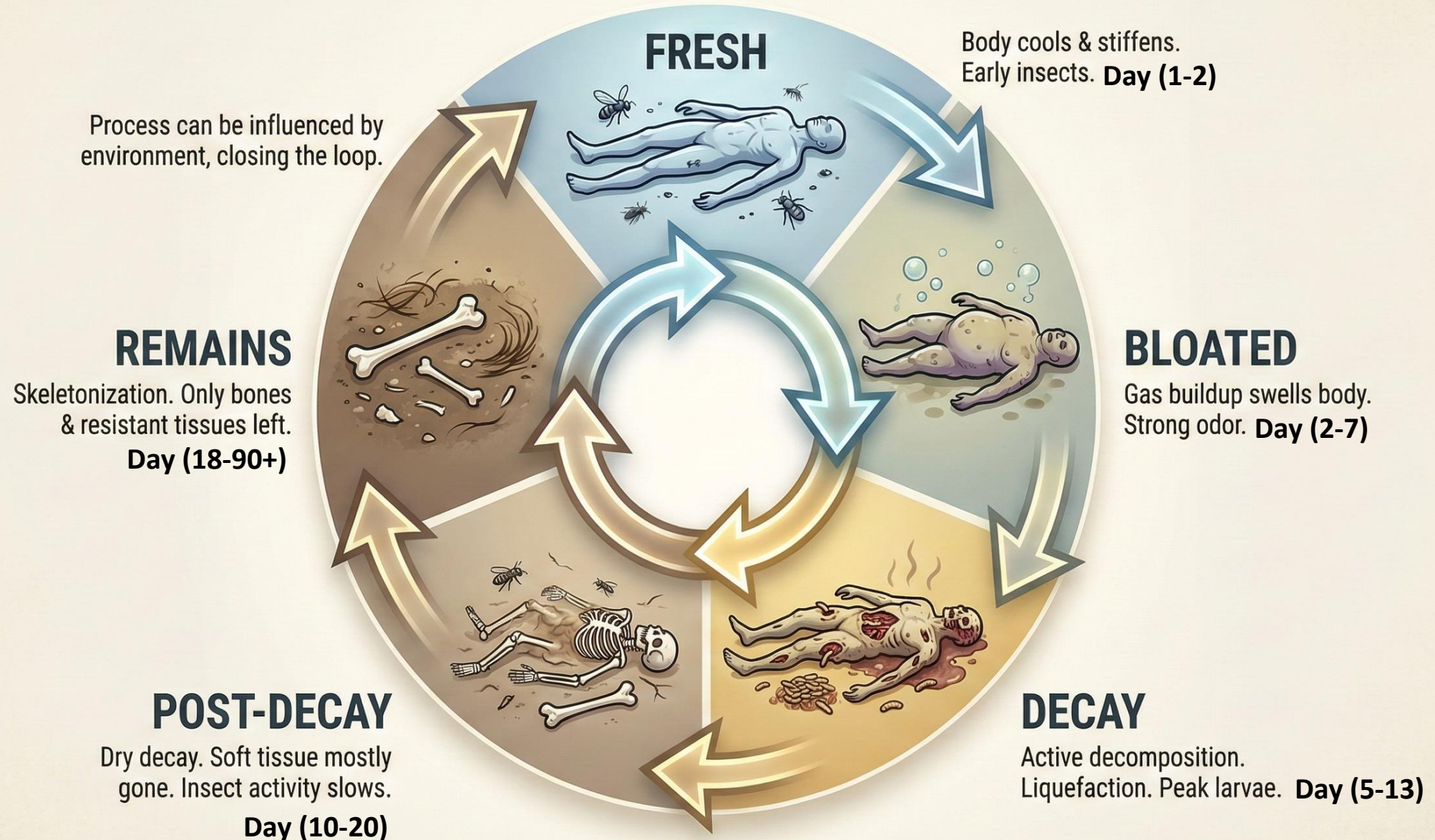


The Late Comers:

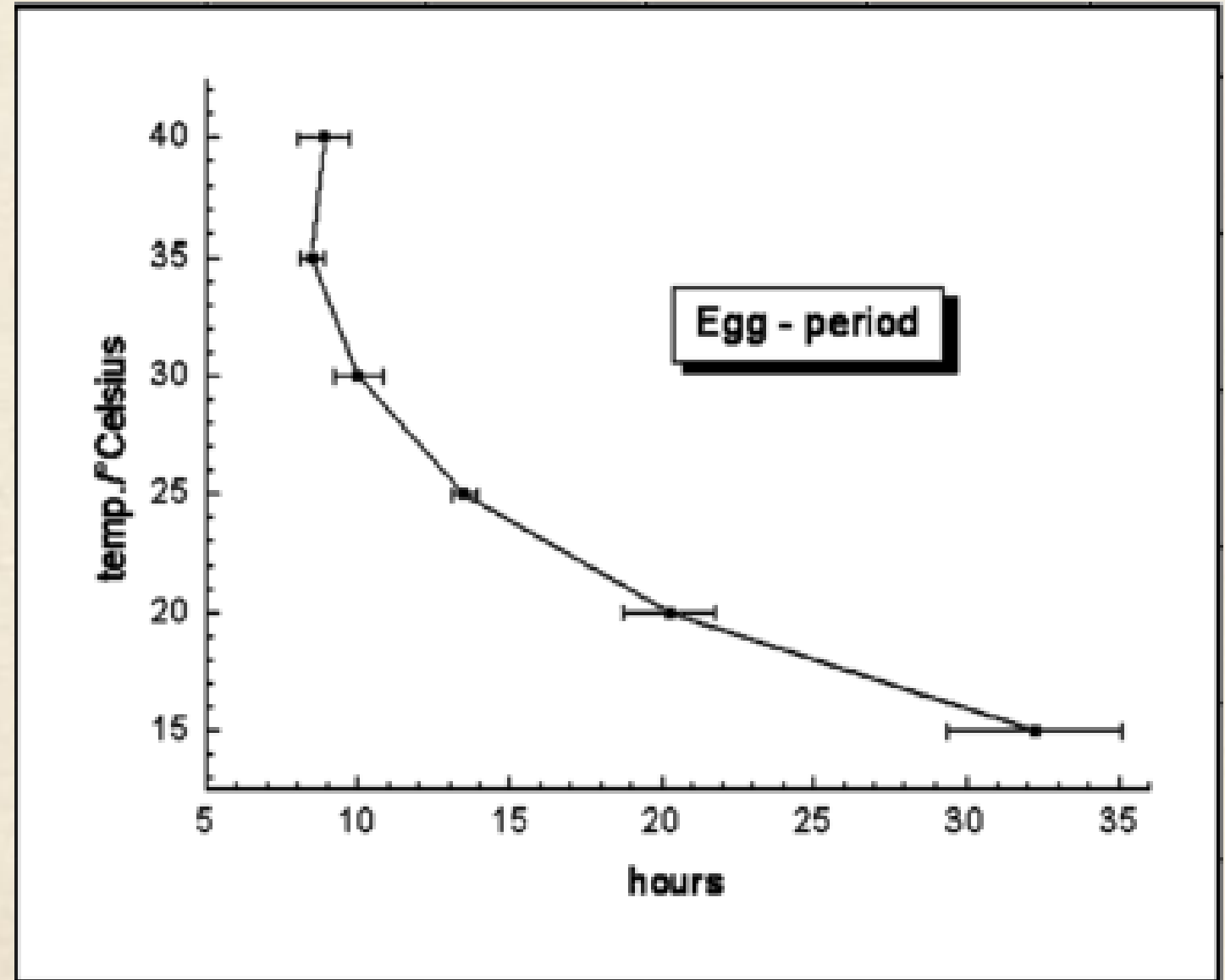
- *Dermestidae*
Beetles arrive much later, even years later when only dry bone remains.



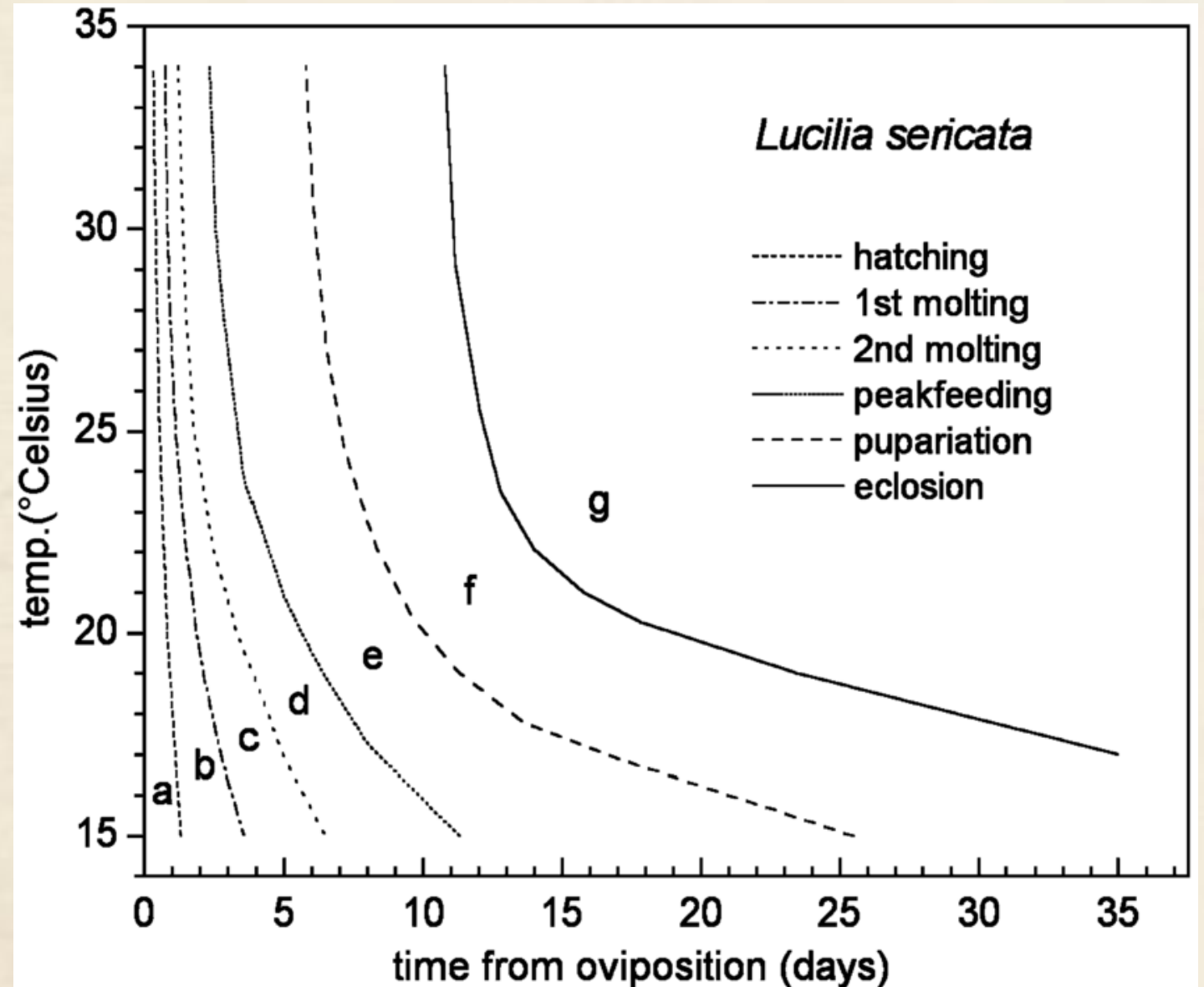
THE 5 STAGES OF POSTMORTEM DECAY: A CYCLICAL PROCESS



**Isomegalen diagram
from hatching to
peak-feeding.**



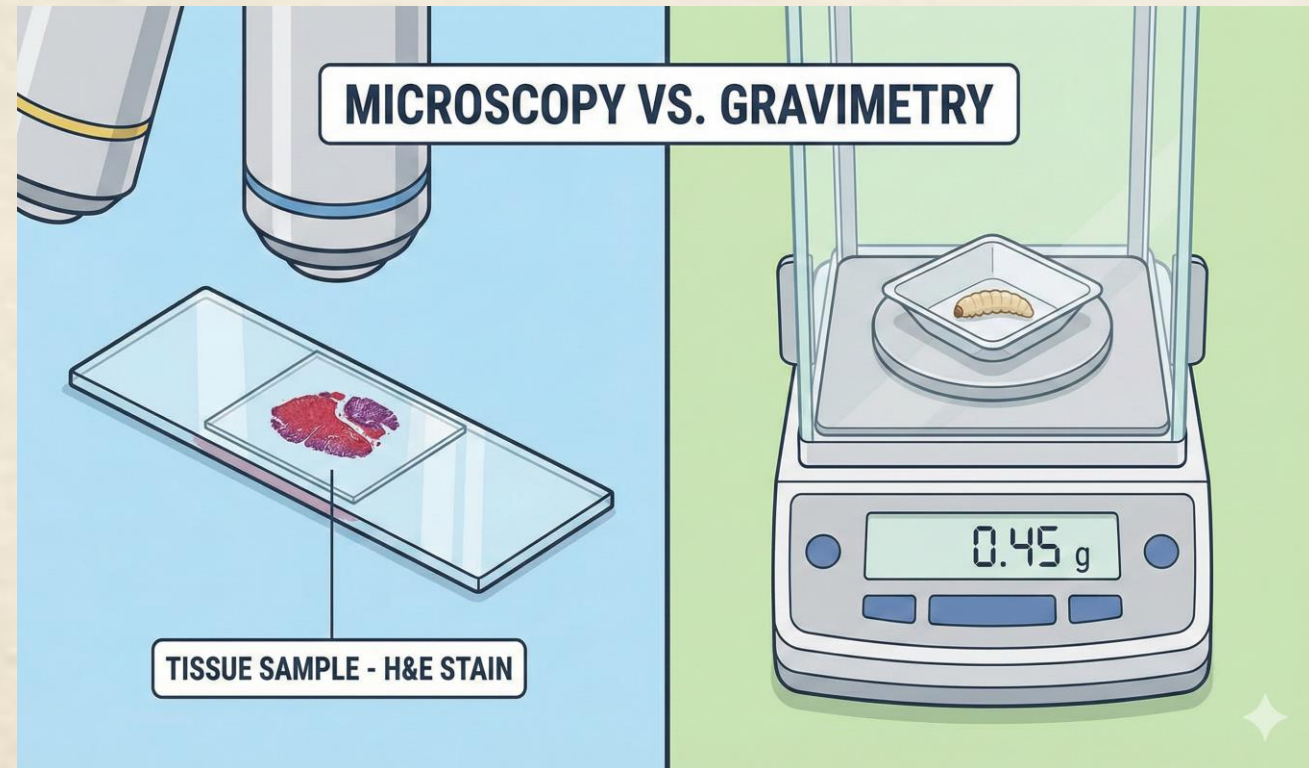
**Isomorphen diagram
showing all stages
from oviposition to
eclosion ($15 \pm 34^{\circ}\text{C}$).**



- When discovering a dead body or remains, specimens should be collected from **above, below and inside** the flesh.
- It should be noted that **cases of CSA are characterized by the phenomenon of myiasis** within the peri-anal and genital areas

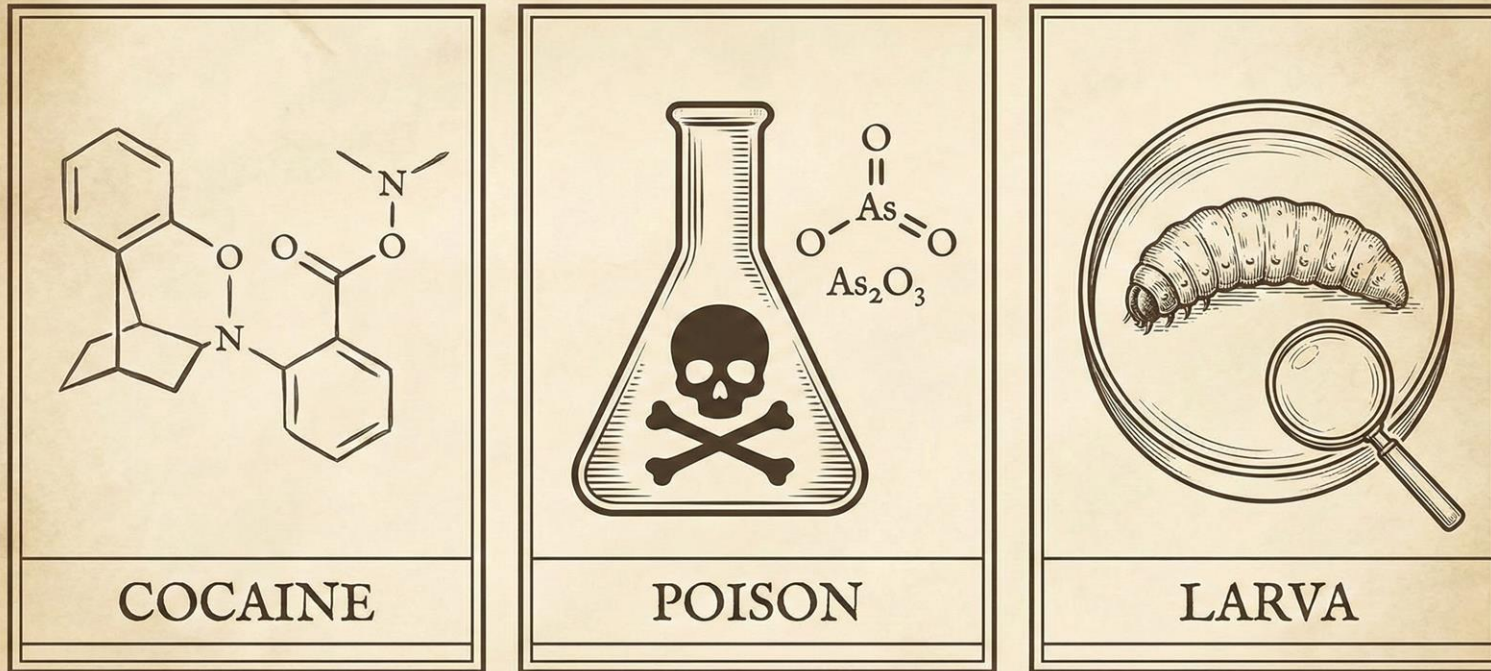


- **Intestinal Filling:** Maggots stop eating when they reach maximum size.
- **Pupal Analysis:** We can slice the pupa shell and stain it to see internal development.
- **Gene Expression:** Advanced DNA techniques can now estimate age even more accurately than size.



“You are what you eat.”

- If a body is too decomposed for a blood test, we test the maggots. They ingest the drugs from the body.



When Evidence Lies (Fly Artifacts)

- Flies walk through blood and create track marks or regurgitate blood on walls.
- This looks exactly like "blood spatter" or crime scene struggle marks.
- Investigators must distinguish between a killer's blood spatter and a fly's footprints.



Post-mortem damage vs. Pre-mortem torture.

- Ants and cockroaches bite skin after death. These bites can look like cigarette burns or IV drug tracks.
- Larger beetles can bore holes that look like gunshot wounds.
- Aquatic insects can eat facial tissue, making it look like a criminal assault occurred before death.



Summary & Recommendations

- Forensic Entomology is a vital tool when traditional pathology fails.
- It determines Time, Manner, and Cause of death.
- **Final thought:** It is not a solo job. It requires strict cooperation between police, pathologists, and entomologists to ensure the insects are collected correctly.



Any questions?

