

The Remains of Doctor Bass

Written by [Alan Bellows](#) on 06 November 2008 ~adapted



in Knoxville, Tennessee. From a short distance the male figure almost appeared to be napping among the hummingbirds and squirrels, draped as he was over the pebbled ground. But something about his peculiar pose evoked a sense of grim finality—the body language of the deceased.

²The students knelt alongside the slumped form, seemingly untroubled by the acrid, syrupy tang of human decay which hung in the air. They remarked on the amount of decomposition that had become evident since their last visit, such as the sloughed skin and distended midsection. Their lack of alarm wasn't altogether surprising, for they were part of the organization responsible for dumping these corpses. They were forensic anthropology students from the University of Tennessee.

³Affectionately referred to as the *Body Farm*, the facility was founded in 1981 by Dr. Bill Bass, a professor of anthropology at the university. Before the Body Farm was established, information on human decay was astonishingly inadequate, leaving criminal investigators poorly equipped for determining abandoned bodies' time of death. On one occasion, Dr. Bass was asked to estimate the *post-mortem interval* of some human remains, and conventional methods indicated approximately one year given the moist flesh still clinging to the man's bones. When other evidence later revealed that the body had been occupying its coffin since the Civil War, a flummoxed Dr. Bass took it upon himself to finally fill the forensic gap.



⁴The professor convinced the university to set aside over an acre of woodland for his pioneering decay research. A chain-link fence with razor wire and a privacy fence were erected around the plot. To discourage those whose curiosity is aroused by pungent breezes and formidable fences, a series of signs were installed to warn away would-be interlopers, broadcasting their unsettling all-caps pronouncements across the countryside:

RESEARCH FACILITY. BIOHAZARD. NO TRESPASSING.

⁵As the lifeless subjects are interred into the grisly forest hideaway, each is assigned an anonymous identification number. At any given time, several dozen perished persons are scattered around the hillside within automobiles, cement vaults, suitcases, plastic bags, shallow graves, pools of water, or deposited directly upon the earth. Grad students and professors return periodically to check on the subjects' progress.

Name _____ Date _____

⁶One of the facility's first non-living participants was *Pig Doe*, a hog who was anesthetized and shot on the facility grounds. Within eighty-seven seconds a vigilant blow fly made berth upon the unfortunate animal and installed a cluster of eggs. The predictable timing of infestation waves represents the main thrust of the research at the Body Farm: *forensic entomology*, the examination of insects for law-enforcement purposes.

⁷Technically decomposition begins about four minutes after death, when cells are deprived of their usual supply of nourishment. Absent these food molecules, digestive enzymes begin gnawing upon the cells themselves, a process called *autolysis*. Within a few hours the chemicals that allow muscle fibers to slide freely are metabolized, causing a temporary profound stiffness known as *rigor mortis*. The body pales in color as its blood pools at the lowermost portions.

⁸With the human immune system permanently off-line, the digestive bacteria in the gut gain the upper hand, causing an upset in the uneasy intestinal alliance. These bacteria begin nibbling on the body itself. As the host's cells steadily self-destruct from autolysis, their membranes rupture, spilling the nutrient-rich cell filling into the tissues. The bacteria thrive in this river of food, and they soon establish decomposition franchises at every extremity.



⁹Meanwhile, back on the surface, scores of flies are drawn to the fresh-corpse scent from up to a mile away. They lay their eggs at every exposed opening, and soon the newborn maggots are making a meal of the cadaver's subcutaneous fat. Forensic entomologists can measure the size of these developing fly larvae to determine "time since colonization." Over several days the spongy brain will liquefy and leak from the ears and mouth, while blisters form on the skin which eventually evolve into large, peeling sheets. Often the skin from the hand will slough off in one piece, an effect known as *gloving*. Body Farm researchers have discovered that such skin can be soaked in warm water to restore its flexibility, and placed over a researcher's hand for the purposes of fingerprint identification.

¹⁰By day four or so, the rigidity of rigor mortis has subsided, and the rapidly reproducing anaerobic bacteria have expelled enough gas that the skin takes on a green tinge. The sickly sweet smell of decay begins to saturate the air as bacterial byproducts such as *putrescine* and *cadaverine* cause swelling of the abdomen. Steadfast insects have thoroughly colonized the cadaver, with writhing mounds of maggots obscuring every orifice and a fog of flies swarming above. Maggot-hunting beetles and wasps may join the fray creating another measurable milestone for the entomologists.

¹¹As the tenth day of decay approaches, the bacteria-induced bloating becomes pronounced. Sometimes this pressure is relieved via post-mortem flatulence, but occasionally the abdomen will rupture with a wet pop. Ants, moths, and mites begin to capitalize on the corpse cornucopia along with the other insects, while the single-celled citizens dutifully dissolve the internal organs. Soon the soil beneath the corpse is sodden with liquids, while the skin—unappetizing to most insects—becomes mummified and draws in close to the bones. Natural soap buildup might also be present due to the interaction of bodily fats and acids, a process known as *saponification*.

Boggs Anatomy Period 1 Off-Site Learning Packet Day 2

12 When the decomposing donors have completed their stint at the Farm, their bones are steam-cleaned and added to the University of Tennessee skeletal archives.

13 Owing to the information harvested from the Body Farm, any forensic entomologist worth their salt can now determine time of death when presented with a reasonably fresh corpse. Using the results of numerous experiments, investigators have the data to properly adjust post-mortem interval estimates, taking into account environmental conditions. One example of such variation was Dr. Bass' underestimated civil War remains, which were found to be contaminated with lead from the cast-iron casket. This effectively embalmed the body, making the meat unpalatable to tiny foragers.

14 Dr. Bass has since retired from teaching, but he has continued as head of the Forensic Anthropology Center. While the prospect of having one's naked, lifeless husk flung into the woods lacks general appeal, there is nevertheless an ever-growing waiting list of enthusiastic, not-yet-deceased Body Farm volunteers. Dr. Bass himself has stated that his hatred of flies compels him to decline the opportunity to rot for the benefit of science.

QUESTIONS: Match the word with its definition/synonym (words are underlined in article)

- | | |
|--------------------|--------------------------|
| 1. ___ throng | a. puzzled, dumbfounded |
| 2. ___ sloughed | b. mob, group |
| 3. ___ flummoxed | c. shed, cast off |
| 4. ___ contemplate | d. obvious, noticeable |
| 5. ___ formidable | e. alert, watchful |
| 6. ___ subsided | f. placed, positioned |
| 7. ___ deposited | g. impressive, large |
| 8. ___ vigilant | h. lessen, go down |
| 9. ___ obscuring | i. consider, think about |
| 10. ___ pronounced | j. hide, conceal |

___ 11. What is the purpose of the Body Farm?

- a. help solve crimes by examining the decay of corpses
- b. provide learning opportunities for students of anthropology
- c. harvest chemicals from decaying corpses
- d. promote Dr. Bass' book

Which paragraph (#) is this answer located? _____

12. What specific event prompted Dr. Bass to create the body farm? Summarize what happened below.

What paragraph did you find this answer? _____

13. What is rigor mortis?

14. What does the author mean when he refers to the "corpse cornucopia" in paragraph 11?

___ 15. What data is **most likely** to determine the length of time a corpse has been dead?

- a. location of the corpse
- b. insects living on the corpse
- c. weight of the corpse

___ 16. Autolysis occurs when:

- a. enzymes break down tissues
- b. the skin slides from the bone
- c. gasses build up in the body and cause bloat

What paragraph did you find this answer? _____

___ 17. What factor might increase the speed of decomposition?

- | | |
|-----------------------------------|-------------------|
| a. age of the deceased | b. cause of death |
| c. temperature of the environment | d. victim's race |

___ 18. Why is the author declining to have his own body donated to research at the body farm?

- a. too expensive
- b. religious reasons
- c. hatred of insects
- d. afraid students would make fun of him

19. There were several disgusting references made in the text. Quickly summarize the following gross terms:

- a) saponification _____
- b) gloving _____
- c) post-mortem flatulence _____

20. Create a TIMELINE that illustrates the major events in decomposition as described in this article. *Attach page if needed.*