

I acknowledge and respect the lək̓ʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

Curiosity Killed the Cat

VIVISECTIONS IN SEVENTEENTH AND EIGHTEENTH CENTURY ENGLAND



AMBER FILL | DEPARTMENT OF HISTORY | MARCH 2024

THIS RESEARCH WAS SUPPORTED BY THE JAMIE CASSELS UNDERGRADUATE RESEARCH AWARDS, UNIVERSITY OF VICTORIA, AND SUPERVISED BY DR ANDREA MCKENZIE.

EARLY VIVISECTIONS

The early modern era saw a rise in empirical experimental methodology, which paired nicely with the growing interest in human anatomy. A roadblock in this was the lack of both human volunteers and human cadavers available to experiment on. Thus, the trend of animal experimentation became central to the English scientific methodologies coming out of *The Royal Society of London for Improving of Natural Knowledge*. Opening in 1660 as an enlightened establishment for scientific research, the *Royal Society* became a primary vessel for vivisections, marking a new age of animal cruelty. The virtuosi practicing these forms of experimental science argued that the practice of vivisections could be justified by the greater good of amassing knowledge and developing skills to treat human beings.

A pioneer of these experimental methods was Robert Boyle, who among other achievements, is well known for his advancements in chemistry and pneumatics. Boyle had been using animal subjects since the late 1640s, and his enthusiasm led him to become one of the leading vivisectors of the Royal Society. His advocacy for the use of animal subjects was of an anatomical justification, as mentioned in his work *Usefulness of Experimental Natural Philosophy*.

“For since it were too barbarous, and too great a violation of the laws, not only of divinity but humanity, to dissect human bodies alive... and since, nevertheless, divers things in anatomy, as particularly the motion of the blood and chyle cannot be discovered in a dead dissected body, (where the cold hath shut up and obliterated many passages) that may be seen in one opened alive; it must be very advantageous to a physician’s anatomical knowledge, to see the dissections of dogs, swine, and other live creatures, made by an inquisitive naturalist...”

Robert Boyle was joined by Robert Hooke to create an advanced version of Otto Von Guericke’s air pump that allowed for experimentation on air. They worked to understand the nature of respiration by observing their subjects’ reactions to the reduction of air. Through these experiments, Boyle was able to publish his theory that a gas’s pressure and volume are inversely proportional, known as Boyle’s Law. Robert Hooke became similarly reputable within the Royal Society for his observations on living things at a microscopic scale. What is interesting, though, is his work on larger animals like dogs. In 1667, he performed an experiment for the Royal Society showing the use of bellows to keep an animal alive. Hooke pinned a dog to a table, cut away its ribs, diaphragm, and the pericardium of its heart. To keep the dog alive, he inserted a pipe into the dog’s airway and connected it to bellows. The dog was kept alive for over an hour, eventually succumbing to Hooke cutting off part of its lungs to allow the audience to observe the circulation of blood. Just a few years prior to this experiment, Hooke had written to Boyle expressing his reservations about vivisections.

“The other experiment (which I shall hardly I confess make againe because it was cruel) was with a dog which by means of a pair of bellows...” ... “I shall hardly be induc’d to make any further trials of this kind because of the torture of the creature”

There is certainly evidence that points towards internal conflict over the ethics of these experiments; however, those concerns were outweighed by the potential of scientific advancements .



Figure 1: Joseph Wright ‘of Derby’, *Experiment on a Bird in the Air Pump*. 1768. Oil on Canvas. The National Gallery. London, United Kingdom.

ATTITUDES TOWARDS VIVISECTIONS

The painting shown above by Joseph Wright ‘of Derby’ uniquely showcases the varying reactions to vivisections in eighteenth century England. Completed in 1768, it is part of a wider tradition of artistic representations of animal subjects. The main scene is of a lecturer demonstrating Boyle and Hooke’s air pump to a family. In the glass flask from which the air is being vacuumed is a white cockatoo. However, observers of the painting are drawn to the portrayal of the onlookers, showcasing their varying reactions to the ongoing experiment. On the left, there is a couple lovingly gazing upon one another, appearing unmoved by the experiment unfolding. On the right, there is a woman overcome with emotion, likely experiencing shock, sadness, or concern for the animal. She is being consoled by an older gentleman, seemingly encouraging her to look at the bird. Next to her is a young girl watching the experiment closely with eyes full of curiosity. On the far right is a gentleman observing another glass vessel on the table containing a human skull.

These reactions are wide-ranging, yet representative of those experienced by the English populace in the eighteenth century. Responses to vivisections included satire, sentiment, and frustration over the waste of resources. This latter response was one that was rife through the scientific community, who were under the impression that gentlemen should not be wasting their time analyzing inferior species. Wide-spread condemnation of vivisections did not occur until the nineteenth century, with legislation introducing licensing and inspection beginning in 1876.

18TH C. VIVISECTIONS

John Hunter has been referred to as the most prolific vivisector of the eighteenth century, in addition to ‘the greatest surgeon’. Many of Hunter’s observations were recorded in his publication, *A Treatise on the Blood, Inflammation and Gunshot Wounds*, published posthumously in 1794. It lists ingenious yet cruel experiments on a wide variety of animals. In 1779, he investigated the breathing of a dog who had his chest opened.

“I made an opening between the ribs into the chest of a dog, and touched the edges of the wound all round with the caustic, to prevent it from healing by the first intention, and then allowed the dog to do as he pleased. The air at first passed in and out of his chest by the wound. He ate, etc. for some days, but his appetite gradually began to fall off. He breathed with difficulty, which increased; he lay principally on that side which we find people do who have the lungs diseased on one side only or principally, and he died on the eleventh day after the opening.”

Similar to Boyle and Hooke, Hunter devised his own bellows experiments to observe the effects on circulation. His scientific colleagues praised Hunter for his diverse experiments and insatiable curiosity. Along with the experiments aforementioned, he researched the tendons of dogs to learn more about his own ailments and is credited with publishing the ‘earliest recorded experiments in endocrinology’, the study of hormones. Some historians have called his vivisectioning activities obsessive. Hunter anatomized at least five hundred different species of animals, while the number of physiological preparations left in his collection numbered almost four thousand.

Another Englishman who routinely performed vivisections is John Ranby, who collaborated with German physiologist Kurt Sprengel. In 1724, they put a scientific enquiry before the Royal Society with a focus on arterial experiments. Ranby repeatedly opened a dog’s crucial arteries to test the efficacy of various tinctures in stopping bleeding and healing wounds. Realizing that the canine crural artery is considerably smaller than the human, they repeated the procedure again on the carotid artery of another dog.

“Having laid bare the Jugular Vein, divided and tied it, that it’s bleeding might not hinder us from finding the Carotid Artery, we were obliged to cut some of the Muscles thro’ likewise, till, with some Difficulty, we found the Artery; which being opened with a Lancet, the Blood spouting forth, I applied to it Helvetius’s Tincture, upon which the Blood stopped. I took it off in less than a Minute, and made it bleed again, but it bled but little, and then I applied Dr Eaton’s Stoptick, we filled up the Wound with Lint, and stitched up the Cutis, then untied the Dog and let him run down Stairs, where, after some time, I saw him again, and found he had bled a good deal, and was still bleeding.”

This is only one of many experiments that led contemporary observers to question the scientific utility of vivisections. Notably, the practice of blood transfusions drew vast criticism. On one occasion, the blood of a sheep was transfused into a man. The scientific viability of these experiments was reliant on the notion that there was physiological proximity between the subjects. This inherently challenged the belief of human cosmological superiority, bringing on an increasing amount of debates over the relationship between humans and animals.

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