

PAVLOV AND THE

35 North Gallery
North Road
Brighton
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A SECRET HISTORY 9 MAY – 7 JUNE

Open 11:00am – 5:30pm every Thursday,
Friday and Saturday 9th May – 7th June,
or by appointment. Please email:
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KINGDOM OF DOGS

Welcome to Pavlov and the Kingdom of Dogs, an art installation exploring the extraordinary life and times of Russian scientist Ivan Pavlov (1849–1936). The exhibition aims to shed new light on Pavlov's experiments and the central role played by the countless dogs involved.

In popular consciousness, the name Ivan Pavlov is often associated with classical conditioning, a concept he pioneered through his famous experiments with dogs. The image that typically comes to mind is that of dogs salivating in response to a bell, showcasing the conditioned response to a previously neutral stimulus.

Pavlov's work has become a symbol of behavioural psychology and is often referenced in discussions about learning, conditioning, and the nature of reflexes. The phrase "Pavlov's dogs" has even become a metaphor for the way individuals or animals can be conditioned to associate certain stimuli with specific responses.

But what do we really know about Pavlov, or for that matter, his dogs? This exhibition explores the lesser-known stories behind Pavlov's experiments—intriguing, often disturbing tales from the early days of psychology, led by a unique and complex personality.

Through a series of scale models and artefacts, the exhibition invites you to observe different elements of Pavlov's sprawling St Petersburg (later Leningrad) laboratory complex, spanning a fifty-year period in the late 19th and early 20th century, a time of enormous social and political upheaval. Across all of the models, dogs take centre stage.

The exhibition is produced and designed by Matt Adams and Jim Wilson. Both work at the University of Brighton. Matt Adams is a Principal Lecturer in Psychology in the School of Humanities and Social Science. Jim Wilson is a Technical Project Manager for the School of Art and Media.

Text: Matt Adams

Leaflet Design: Luna Stephens

*Key Academic Source: Daniel Todes (2014)
Ivan Pavlov: A Russian Life in Science, Oxford
University Press. Quotes from p.145 & p.812.

1. INSTITUTE OF EXPERIMENTAL MEDICINE

Welcome to the Institute of Experimental Medicine, Russia's preeminent scientific and medical research centre, and Pavlov's main place of work. The Institute was built in the late 1880s by royal decree, close to the centre of a bustling St Petersburg, then capital of the Tsarist Russian Empire, in its own extensive grounds. The site incorporated the buildings of the various science departments, including physiology, chemistry, zoology, bacteriology and anatomy.

We have reimagined the Department's main building here, along with the vivarium or animal house, where dozens of dogs were kept at any one time. There is also plenty of everyday activity to look out for. You might spot bottles of gastric juice being shipped, dogs being exercised in the grounds, and other mysterious, even nefarious, goings on...

1a. Towers of Silence

It's hard to miss the TOWERS OF SILENCE, a foreboding annex in the grounds of the Institute. The name was adopted informally because of one of the primary purposes of the building's design: to eliminate vibration and extraneous sounds in the rooms where animal experiments take place.

In 1922, alongside his assistant and lover Maria Petrova, Pavlov conducted a series of experiments in the Towers, with the intention of purposefully 'breaking' two dogs—Postrel and Milord. This they did by subjecting them to increasingly powerful electric shocks from which they could not escape. Over three years of trials, the shocks were paired with food, or other already established stimuli, supposedly to create a 'clash' in the dogs' nervous system. Designed to support Pavlov and Petrova's theory of psychological breakdown, the results of these experiments were later disregarded.

Our reimagining of the building is an attempt to challenge representations of Pavlov's experiments as benign and make visible what happened to Milord, Postrel, and many other dogs.

2. THE PHYSIOLOGY DEPARTMENT

2a. Pavlov's Desk

On top of the doll's house is a version of Pavlov's desk. The open book imagines a catalogue listing some of the various stimuli available for conditioning experiments.

A brief list of just some of the stimuli dogs were exposed to reveals how they varied—from the mundane to the bizarre: the sound of ascending or descending chords, extremely loud buzzer, the ticking of a metronome, bubbling water; the feel of a cooling breeze on different parts of a dog's body, electric shocks, or home-made devices designed to inflict pain; the sight of a flashing light, figures rotating in different directions, or variations of a particular shape; the taste of acid, which was forced

into the dog's mouth, or the smell of camphor. Stimuli would then be slightly varied. For example, the ticking metronome would be sped up or slowed down, the colour of a shape might be varied. Salivation would again be measured as these slight variations were presented to the dogs.

In all cases, the aim was to create a 'conditioned response', i.e. salivation in response to the stimuli alone. Multiple experiments were always underway simultaneously, with every dog attended to by a researcher and perhaps an assistant.

Related experimental paraphernalia can be found on Pavlov's desk.

2b. The First Floor Laboratories

The main laboratory and surgery spaces take up the first floor. Newly recruited dogs would be operated on before they took part in experiments. Pavlov is watching on with his most esteemed co-worker—and by the 1910s, secret lover—Maria Petrova.

You might also spot a well-to-do figure looking on. Pavlov accommodated a regular stream of guests—patrons, officials, other scientists, journalists and as his celebrity grew, visitors from Europe and America.

In the early days of the labs dogs regularly died during surgery. Later on, when the lab turned its attention to the study of conditional reflexes, the operation required was less intrusive—cutting into the cheek or jaw, creating a permanent path between saliva glands and an opening at the surface of the skin, to which a container could be attached to collect saliva. Most of these dogs survived relatively intact and took part in countless experiments often over a number of years.

On arriving for a day of experiments the dogs were secured via straps and buckles to the experimenter stand. An experiment would then begin—a dog being subjected to one or more stimuli, saliva carefully collected and recorded.

You can also see a row of dogs lined up as if on an assembly line. This is what Pavlov called the 'gastric juice factory'. Look out for the detail of what this was all about elsewhere in the exhibition, especially **GASTRIC JUICE FOR SALE**.

2c. The Ground Floor Animal House

Visitors to the animal house would be confronted by a motley crew. There were dogs returning from surgery with freshly stitched up necks, stomachs or cheeks; others with bandaged heads, after the removal or destruction of parts of their brain. Their number included new arrivals too, as well as more seasoned survivors of multiple surgical interventions and countless experiments.

Where did the animals come from? There was no official breeding programme and there are few written accounts of dogs raised here from birth, so it is normally

assumed that a regular supply of adult dogs came from outside the labs. Where and how were they recruited? In a quote often attributed to Pavlov he says that 'dogs were collected with the help of street thieves, who used to steal those with collars as well as those without. No doubt we shared the onus of the sin with the thieves'.

Gathered from the streets, the dogs must have been a broad mixture of ages, shapes and sizes, breeds and temperaments. Interaction between the dogs might be marked by enthusiasm, indifference or aggression reflecting character but also the ordeal of their ongoing incarceration—for all a life sentence.

3. DOGS IN MOTION

Every day, dozens of dogs would need to be transported to and from various buildings within the Institute's extensive grounds—but how?

At any one time, there were scores of dogs living at the Institute of Experimental Medicine, housed either in the Physiology Department building or in the separate animal house nearby in the Institute grounds. There must have been a system for moving multiple dogs from place to place on a large scale, but there appear to be no surviving written accounts.

However, a handful of photographs and illustrations from the time suggest an intriguing possibility. Here and there tracks running across the grounds between buildings and into places where the dogs were kept can be spotted. Elsewhere, cages with wheels that are being pushed by assistants can be seen on those tracks. One such image in a magazine illustration is labelled 'reception cage for rabid dogs' in Russian. However, the depiction of these tracks and cages suggests at least the possibility that their use was more widespread.

In our reconstruction of Pavlov's laboratories, and specifically in this piece, we have pulled together these visual clues to imagine this possible alternative as a fully functioning system for transporting individual dogs. Pavlov was preoccupied by the dangers of any uncontrolled external factors impacting on his experiments, including any undue influences on his dogs. It is easy to imagine such a system appealing to him—making the movement from A to B as ordered and predictable as possible.

4. THE ANATOMICAL LECTURE THEATRE

Pavlov regularly performed vivisection or conducted experiments on living dogs to large audiences of students, the scientific community and the general public in a large, steeply tiered auditorium.

After some initial remarks Pavlov would begin. A regular demonstration in this setting was the 'sham-feeding' experiment, which Pavlov and an assistant used to show how appetite initiates gastric secretion in the stomach. A first-hand account from a member of the audience describes the sham-feeding trials vividly:

"There was placed before the dog a bowl with pieces of meat. It swallowed them greedily, but they fell out through the oesophagus back into the bowl. The dog, clearly famished, again seized the pieces of meat, again swallowed them, and they again fell back into the bowl. Covered in saliva, these pieces became more and more repulsive, but the dog continued to swallow them greedily. And all this time the assistants followed the quantity of gastric juice secreted into a tube on the animal's stomach. The picture was repulsive, but Pavlov walked about satisfied, rubbing his hands."*

We might assume that animal experiments were uniformly accepted in the past, and the general public less questioning of science. However, there were plenty of exceptions (see BANDIT! BARBARIAN!). Disgust or dismay about the treatment of experimental animals is not an exclusively modern concern.

5. GASTRIC JUICE FOR SALE

Pavlov's experiments were funded in part by the public sale of the gastric juice of dogs as a cure for chronic indigestion in humans. Whilst most dogs were destined for the labs and experiments, some were designated the role of 'factory workers' for this purpose. In a separate dedicated section of THE PHYSIOLOGY DEPARTMENT, row upon row of dogs could be found on any working day, all secured to a long beam above, a bench below. Each dog, starved before their shift, is subjected to the 'sham feeding' system (see THE ANATOMICAL LECTURE THEATRE).

The system was first developed for physiological studies and demonstrations of digestive processes. In Pavlov's gastric juice factory, however, the focus was the extraction and collection of large quantities of gastric juice untainted by food, to be sold to the general public as a cure for dyspepsia—otherwise known as chronic indigestion.

In this piece we reimagine the labelling and advertising that might have accompanied the public sale of the product. We remain largely faithful to the descriptions and instructions that Pavlov produced, including correct dosage, health warnings, and the apparent testimony of happy customers.

Would you have tried it? As a remedy to be ingested by humans, canine gastric juice probably seems pretty repellent, even if we are unaware of the specifics of how it was extracted. But perhaps, on reflection, it's not that different from the thousands of items we consume today that contain animal products, however well-hidden their origins and means of production might be?

6. IVAN PAVLOV: ACTION COMRADE

Our reimagining of Pavlov as an action hero references the scientist's enduring legacy and popular appeal after his death—in Soviet culture especially, but also in the history of psychology in the West. Despite some initial hostility, Vladimir Lenin, the first leader of the Soviet Union, lavishly supported Pavlov from the 1920s

onwards. Now in his 70s, he was championed as a figurehead of Soviet commitment to scientific progress that could compete with the West.

By the time Pavlov died in 1936, he was a familiar name to the growing global scientific community and a national hero. For the most part, his legacy has remained intact, his accomplishments heralded in Psychology as a major contribution to the establishment of the discipline as a science. Even today, however, we rarely stop to look at the detail, including the role of the thousands of dogs involved. In that sense, the simplified figure of an unblemished, intrepid 'great man of science' has been frozen in time, like a slightly absurd action hero from a bygone era.

In case you were wondering, 'electroshock machines' really were key pieces of experimental kit, capable of delivering severe shocks. You can spot versions of the machine throughout the exhibition and hear more about how and why they were used.

7. BANDIT! BARBARIAN!

In the grounds of the Institute of Experimental Medicine in St Petersburg there stands a stone monument dedicated to the laboratory dog. It was built at Pavlov's request and includes various inscriptions that describe the 'sacrifice' of dogs to science as noble and necessary, emphasise the dogs' 'joy' in their service to the experimenter, the 'dignity' of their treatment, and the avoidance of any 'unnecessary torment'.

The statue can be thought of as a piece of propaganda, broadcasting to the world Pavlov's message that a laboratory dog's suffering was kept to a minimum, and wholly justified by knowledge gained, and any loss of life a regrettable but necessary sacrifice. Whilst this was a view shared by many men (and they were almost exclusively men) of science at the time, it did not go unchallenged.

At the statue's unveiling Pavlov had just returned from the London leg of his latest tour and is reported to have said to his long-time assistant Boris Babkin, "In London I couldn't show myself at all. An antivivisectionist journal poured buckets of abuse upon me: calling me Bandit! Barbarian! I should photograph this memorial and send it to them."⁴

Back in Russia, the movement often targeted Pavlov's practices in letters and pamphlets and protested at his public appearances at home and abroad. They pointedly (and correctly) questioned his assertion that experiments were completely painless, and that the dogs were happy and healthy – claims he repeatedly made in public.

We imagine the monument as a target for protestors, just as many statues have become such a focal point for progressive political movements in recent years.

8. OTHER OBSERVATIONS

Later in his career Pavlov actively encouraged co-workers to observe idiosyncrasies in a dog's behaviour. Dogs were routinely described as cowardly, heroic, compliant, sociable or aloof. These 'other observations' were taken extremely seriously, as evidence of a dog's character. This mattered, because from the 1920s onwards, Pavlov developed a theory of various canine personality 'types' to try and explain extremely varied results.

For a while he was publicly optimistic that varied reactions from dogs to the same stimuli during experiments reflected one of four inborn 'nervous types'. He was particularly excited because these four types appeared to confirm one of the oldest personality typologies in the West—humorism. Originating in ancient Greco-Roman medicine, this is the theory that the specific balance of four bodily 'humors' within one person—blood, yellow bile, black bile, and phlegm—underpin four 'temperaments' respectively: sanguine (enthusiastic and sociable), choleric (assertive and impatient), melancholic (analytical and introverted), and phlegmatic (relaxed and thoughtful). Look out for these terms in the observation notes.

In attempting to contain his data, Pavlov was fighting a losing battle—the more results came in from his conditional reflex experiments, the more varied they were, and the more 'types' he needed to contain them—4, then 7, then 12, then 25, and still results would not always fit. Despite the common image of Pavlov's experiments as revealing irrefutable laws of behaviour or learning, his dogs' behaviour always managed to escape any neat explanation.

9. A MEMORIAL TO THE KINGDOM OF DOGS

The memorial gathers together all the names of the dogs we have discovered in the course of researching this exhibition. For us, naming is a significant act—a direct way of challenging the objectification of experimental animals.

Naming matters, but it is also important to recognise the countless unnamed dogs that spent their lives in Pavlov's laboratories, and the millions of experimental animals in the past and today, that have found themselves the subjects of research.

Our memorial is not a celebration or valorisation of their sacrifice. It is simply an attempt to recognise the extent of Pavlov's animal experiment enterprise and to personalise the dogs involved.



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