

Brown Institution

(Martin Adams)



Image: Illustrated London News, Feb. 24 1872

The Tower of London is no longer the only major building in London protected by a moat; it has been joined by the new United States Embassy, and this one, more authentically, has water in it. The Embassy is in a large area of development around Vauxhall encompassing the former Battersea Power Station, familiar to many from a 1977 Pink Floyd record cover, and, of more interest to microbiologists and rather less well known, as the site of the Brown Animal Sanatory Institution.

It was founded in 1871 with money left in trust to the University of London by Thomas Brown, who required that the Institution was to be established within a mile of Westminster or Southwark 'for investigating, studying, and without charge beyond immediate expenses, endeavouring to cure, maladies, distempers, and injuries, any Quadripeds or Birds useful to man'. For some obscure reason, Brown also stipulated that, should the University of London fail to establish the Institution, the money should be used to endow Professorships in Sanskrit and other languages at the University of Dublin.

An early appointment was that of Emmanuel Klein, a Croatian who had trained as a physiologist and anatomist in Vienna. He was appointed scientific assistant to the Institution's first Professor-Superintendent, John Burden-Sanderson, and given the title Assistant Professor in recognition of his outstanding qualifications. Klein enjoyed a long, but not entirely glittering, career in England. Shortly after moving to London, he achieved notoriety as a co-author of *Handbook for the Physiological Laboratory* in 1873. Some of the experiments on animals described

A learner-centric microbiology education framework

in the book provoked public outrage, leading to the 1875 Royal Commission on Vivisection for Scientific Purposes and the subsequent Cruelty to Animals Act of 1876. During the Commission's deliberations, Klein's responses to its questions – declaring that he had 'No regard at all' to the suffering of animals and that 'a man who conducts special research, he has no time, so to speak, for thinking what the animal will feel or suffer' – did little to endear him to the British public.

More positively though, Klein worked extensively in bacteriology throughout his career in England, performing investigations for the Local Government Board and writing *Microorganisms and Disease*, the first English language microbiological textbook, published in 1884. In it he extolls the ideas and approaches of the great European microbiologists, particularly Robert Koch, but despite this, when he was appointed the same year to a Government commission to investigate cholera in India, Klein felt compelled to dispute Koch's claim to have isolated the causative organism, *Vibrio cholerae*. The prevailing view in British India was still essentially a miasmatic theory of transmission, heavily supported by commercial interests who thought the germ theory a plot to restrict British shipping from India with inconvenient quarantine periods and *cordons sanitaire*. Based on his experiments and observations in India, Klein's report dismissed Koch's claim noting that vibrio-contaminated water failed to cause cholera in large numbers of those that consumed it, including Klein himself, that the bacteria were very sensitive to stomach acid and that no convincing animal model for cholera transmission had been demonstrated. To his credit he did record the ubiquity of the vibrio in cholera victims and came round to the correct view just a few years later, yielding to the overwhelming empirical evidence on the association of the cholera vibrio with clinical disease.

In 1909, Frederick Twort was appointed Professor-Superintendent of the Brown Institution. During his time there he developed a synthetic growth medium for the *Mycobacterium* responsible for Johne's disease (a wasting disease of ruminants) using a supplementary growth factor (now known to be vitamin K), but he is perhaps better known as one of the two, independent discoverers of bacteriophages. In the *Lancet* in 1915 he reported their lytic effect in a micrococcus and recognised it as the action of an infectious, filterable lethal agent that multiplies during the lethal process. He was however reluctant to go the whole hog and identify it as a virus, 'the possibility of it being an ultra-microscopic virus has not been definitely disproved...'. Two years later Felix d'Herelle investigating an outbreak of dysentery in a French cavalry regiment noted the action of bacteriophage in *Shigella*. He described the effect and concluded that it was caused by a bacteria-infecting virus, coining the term 'bacteriophage'.

It wasn't until 4 years later, in 1921, that Twort's paper was rediscovered and he was given some share of the credit. There was some acrimony at this stage and claims that d'Herelle had been aware of Twort's earlier work and failed to acknowledge it, though this has been discounted by others. D'Herelle continued to work on bacteriophages, and later, perhaps in an attempt to bolster his claim to priority, he reported that he had first encountered bacteriophage lysis earlier in his career in 1910, when investigating a diarrhoeal disease of locusts in Mexico. Whatever the truth of this, someone able to stride purposefully into a swarm of locusts in the cause of science has my respect, but to do so when the locusts are suffering from diarrhoea is truly heroic.

Twort was the Brown Institution's last Superintendent. It suspended its activities at the start of the Second World War but, for some unexplained reason, the Luftwaffe seemed to take particular exception to its premises in Wandsworth Road. It sustained bomb damage in 1940, 1943 and February 1944 and was finally finished off by a flying bomb in July 1944. The Brown never reopened and the trust money remaining from its foundation was eventually divided between the Universities of London and Dublin in 1971.