

James Bell Pettigrew (1832–1908)

James Bell Pettigrew (1832–1908)¹ was one of the first to offer a unifying theory for movement in all forms of nature.

Born and educated in Airdrie and at the University of Glasgow, Pettigrew moved to the University of Edinburgh Medical School in 1856. Intellectually brilliant and manually dexterous, he established himself as the outstanding scholar of John Goodsirs' anatomy class. Awarded many medals for competitive essays, in 1859 he was elected President of the Royal Medical Society. His dissections were shown to scientists from London and he was appointed as 1860 Croonian Lecturer of the Royal Society of London. He was still only a third year student.

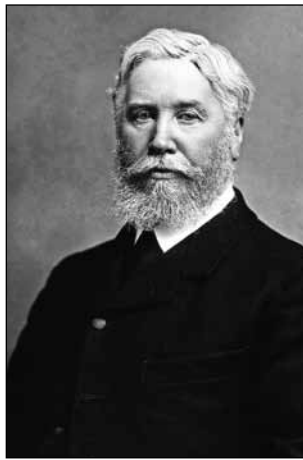


FIGURE 1 James Bell Pettigrew (courtesy of the Wellcome Library).

After graduating MD in 1861 with a gold medal for his inaugural dissertation, he became House Surgeon to James Syme who supported his move to be Assistant to the Hunterian Museum of the Royal College of Surgeons of England. Here he made and displayed more than 600 new dissections and visited the zoo to study the urinary and gastric musculature of mammals ranging from whales to the chimpanzees and the differences between their cardiac valves and those of birds, reptiles and fish. It was Pettigrew's fascination with avian wings that led him to demonstrate the apparent importance of spiral movement. He carried out simple experiments such as the removal of different feathers from the wings of small birds, watching the effects on their flight.

Intensely active, Pettigrew became ill in 1867 and was obliged to take a year of convalescence. By this time, his studies had attracted international interest. But Scotland beckoned and in 1869 he became the Conservator of the Museum of the Royal College of Surgeons of Edinburgh, not long after his election to the Fellowship of the Royal Society of London. Pettigrew continued his experiments and in 1872 contributed a course of lectures on physiology to the Edinburgh College Fellows. During this time that he published his ground breaking work *Animal Locomotion*.² Coincidentally, he was appointed pathologist to the Royal Infirmary of Edinburgh and his duties included assisting with the autopsy on James Young Simpson of chloroform fame. By 1873, when he became a Fellow of the Royal College of Physicians of Edinburgh, he had devoted most of his graduate years to the dissection, drawing, photography and analysis of specimens ranging from moths and butterflies to birds, bats and marine creatures.

Anxious to put his skills and knowledge to good use, in the spring of 1874 Pettigrew applied unsuccessfully first for the Chair of Anatomy in the University of Edinburgh and then for that of Physiology. His ambitions were fulfilled when, in 1875, he was appointed Chandos Professor of Medicine and Anatomy of the University of St Andrews. He became Dean of the St Andrews Medical School and was drawn into the controversy regarding the proposal that Dundee should have its own medical school. The resulting demands interfered with research and led to renewed ill health.

By 1889, when he gave the Edinburgh Harveian Oration,³ Pettigrew had become known internationally for his belief that, throughout the animal and plant kingdoms, at all orders of size, movements were often helical or spiral.

Elected Honorary LLD of Glasgow University, he had time for two unique achievements. First, around 1903, shortly before the Wright brothers made their first flights, Pettigrew secretly had his own petrol engine-driven aeroplane constructed. He flew it for 60 feet down a St Andrews street before it crashed, breaking his femur. Second, from his sickbed, he was able to complete *Design in Nature*,⁴ a three-volume work of more than one million words and 2,000 illustrations, describing his lifetime of scientific work, publications and philosophy and published shortly after his death.

DL Gardner

References

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- 2 Bell Pettigrew J. *Animal locomotion or walking, swimming, and flying with a dissertation on aeronautics*. London: Henry S King & Co.; 1873.
- 3 Bell Pettigrew J. The Harveian oration for 1889. The pioneers in medicine prior to and including Harvey. *Edinburgh Medical Journal* 1889; 34:977–98; 1073–91.
- 4 Bell Pettigrew J. *Design in nature*. London: Longman, Green, and Co; 1908.