Thomas Willis

He was a pioneer in research into the anatomy of the brain, nervous system and muscles. His most notable discovery was the “Circle of Willis”.

Willis's academic and professional career was influenced by the turbulent period of the English Civil War during which he studied medicine. Willis went from chemistry to dissection arguably because of his need to justify the body-brain-soul relationship. As a result, he became a fellow of a select club of eminent experimentalists, and afterward was a Fellow of the Royal Society. Later on, he went to London, leaving the academic life to dedicate himself fully to the profession of medicine. As a physician, Willis did not base his practice on aphorisms but on a 'bench to bedside' approach to medicine, while studying neuroanatomy - covering embryology, comparative anatomy and pathological anatomy - as a basis for the comprehension of neurological pathology. He developed innovative anatomical methods for the preservation and dissection of the brain, injection of coloured substances and illustration of his findings.

Cerebri anatome

see Cerebri anatome

Publications

The “circle” was named after Thomas Willis by his student Richard Lower. Willis was the author of Cerebri Anatome

This work coined the term neurology, and was not the result of his own personal and unaided exertions; he acknowledged his debt to Christopher Wren, who provided drawings, Thomas Millington, and his fellow anatomist Richard Lower. It abounds in new information, and presents an enormous contrast with the vaguer efforts of his predecessors.

In 1667 he published Pathologicae cerebri, et nervosi generis specimen, an important work on the pathology and neurophysiology of the brain. In it he developed a new theory of the cause of epilepsy and other convulsive diseases, and contributed to the development of psychiatry. In 1672 he published the earliest English work on medical psychology, 'Two Discourses concerning The Soul of Brutes, Which is that of the Vital and Sensitive of Man'.

Willis could be seen as an early pioneer of the mind-brain supervenience claim prominent in present day neuropsychiatry and philosophy of mind. Unfortunately, his enlightenment did not affect his treatment of patients, advocating in some cases to hit the patient over the head with sticks.

Willis was the first to number the cranial nerves in the order in which they are now usually enumerated by anatomists. He noted the parallel lines of the mesolobe (corpus callosum), afterwards minutely described by Félix Vicq-d'Azyr. He seems to have recognised the communication of the convoluted surface of the brain and that between the lateral cavities beneath the fornix. He described the corpora striata and optic thalami; the four orbicular eminences, with the bridge, which he first named annular protuberance; and the white mammillary eminences, behind the infundibulum. In the cerebellum he remarks the arborescent arrangement of the white and grey matter, and gives a good

account of the internal carotids, and the communications which they make with the branches of the basilar artery.

He coined the term mellitus in diabetes mellitus. An old name for the condition is “Willis's disease”.

He observed what had been known for many centuries elsewhere, that the urine is sweet in patients (glycosuria).

His observations on diabetes formed a chapter of Pharmaceutice rationalis (1674). Further research came from Johann Conrad Brunner, who had met Willis in London.