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Imagens

360 years of *Cerebri Anatome*

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Cerebri Anatome of Thomas Willis is well known for its landmark contributions (1). From the term "neurologie" - originally applied exclusively in the anatomical sense (to represent of the study of the nerves), to clinically important understandings (as the origin of painful stimuli from the meninges, but not from the brain itself and the role of the arterial circle in the base of the brain in protection against apoplexy) (1,2), its seminal contributions can be tracked across time. Written in Latin, during a conflicting time, it received an imprimatur in 1663 and was published the following year, making year 2024 its 360th anniversary.

Although published under Willis's authorship, the work is a feat of multidisciplinarity, as results from a long, experimental, collaborative efforts of Willis, Richard Lower, Thomas Millington and Christopher Wren, working in Oxford. *Cerebri Anatome* consists of a title page, *Epistola Dedicatoria*, a Preface, 29 chapters on parts and uses (in Galenic tradition) of the brain and nerves, and a conclusion. It presents 23 individual figures in 15 printer's plates. Of these, eight represent exclusively human material (Figures I, III, IV, V, IX-XII) (Figure 1) four deal with animal specimens (Figures II, VI, VIII and Tables I-IV) and two plates present direct comparisons of human and animal morphology (Figures VII and XIII). Besides applying comparative anatomy, it also included pathological anatomy, as Figures III and IV, placed in sequence, introduce comparisons of the brain and brainstem of an adult and a young individual "*fool from birth, with massive head and slender limbs*".

Willis valued method in studying the brain. Having parted from the tradition of *in situ* dissection, and removing the brain from the skull, the presentation of Figures I to IV, show the brain from below, first from anterior (Figure I) and then from posterior (Figures III and IV). While the more artistically elaborated Figures I–VIII are deemed to be penned by Christopher Wren, the author of the highly didactic, schematic figures remains unknown (3).

Cerebri Anatome has been considered a work of philosophy, a political statement, a profession of religious faith, a work of comparative, pathological, clinical and neurological anatomy, as well as a testimony to the evolving views of anatomy that result from a methodical approach and better understanding of embryology and physiology (1-4). It is also a tribute to human curiosity and human capacity of experimenting and reasoning, while actively collaborating.

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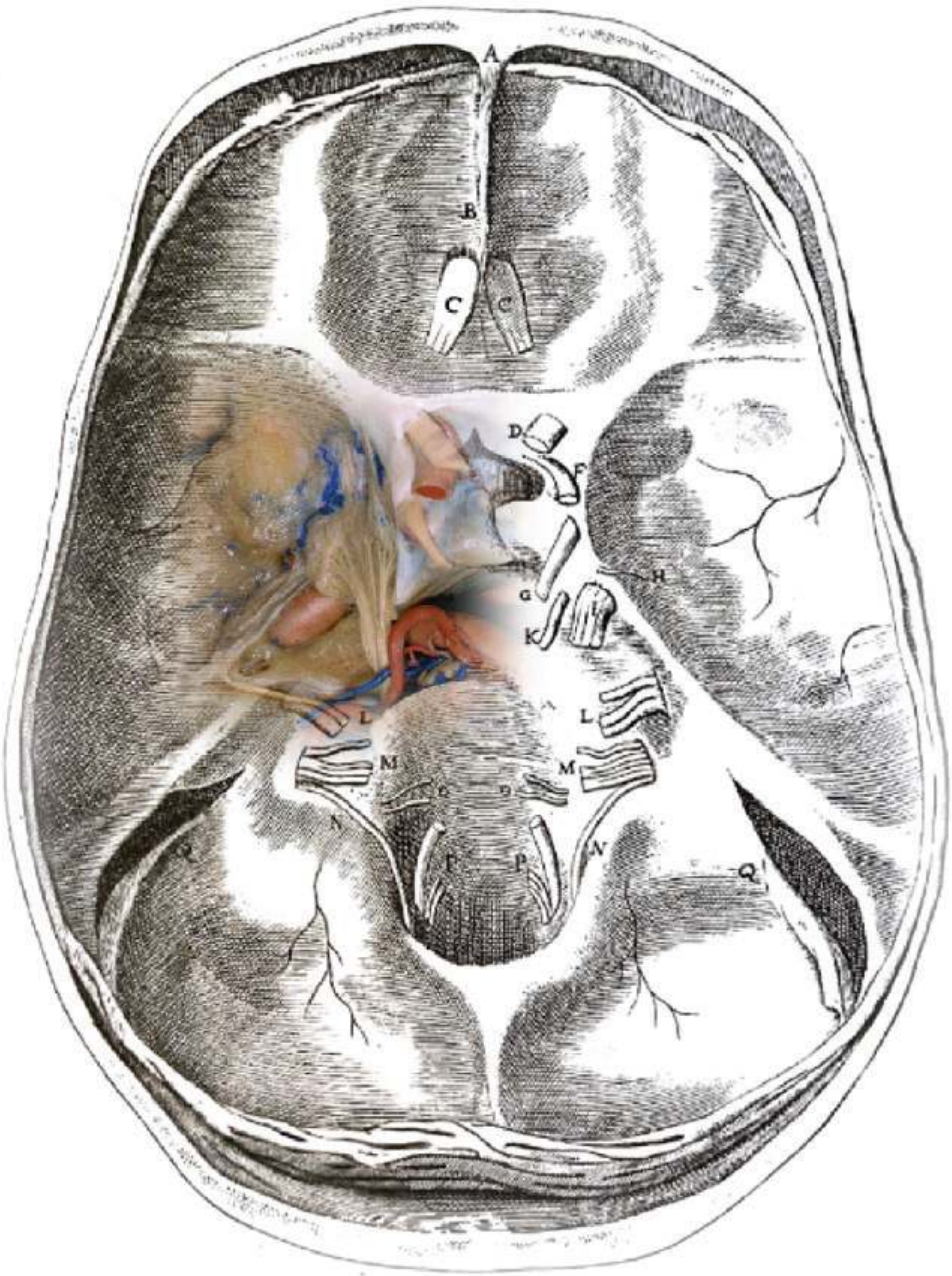


Figure 1. *Cerebri Anatome*'s Fig. V, embedded with a modern image of an injected cadaveric head, dissected under the magnification of the surgical microscope is presented. This is a relatively less-known view from this book - partially because it is the dissection opposite of the better-known, anterior view of the brain and brainstem, frequently used to exemplify the arterial circle of Willis. Nevertheless, neither the injection nor the magnification would be unknown to this group of scholars. Wren and Lower performed dye (as well as other) injections through vessels, which they called *chiringuia infusoria* (intravascular injections) – and these helpes clarify physiological concepts associated with the flow of blood in the cerebral arteries. Furthermore, the application of magnification – nowadays regularly combined with illumination as the fundamental concept to all modalities of microsurgery and used daily in operating theatres and anatomical laboratories worldwide – Where used in the form of magnifying glasses by Willis's group to examine the specimens prior to them being drawn (3). The image also stands for evolving concepts deriving from opportunities brought about by technological advances. The nine cranial nerves as presented by Willis, were a considerable advancement when compared to the Galenic glasses. The image also stands for evolving concepts deriving from opportunities brought about by technological advances. The nine cranial nerves as presented by Willis, were a considerable advancement when compared to the Galenic system and lasted for the next 114 years, until 1778, When the current classification of 12 cranial nerves was introduced. Soemmerring's classification has been in active revision under the advent of data from molecular biology and genetics (4), resulting into counting cranial nerve pairs from 13 up to 21.

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