



Pioneer anatomist of his time: Raymond de Vieussens (1641–1715)

İdil Kaçur¹ · Gkionoul Nteli Chatzioglou² · Özcan Gayretli¹

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The life of Raymond de Vieussens

A little town called Vieussens in the French department of Rouergue is where Raymond de Vieussens was born in 1641 (Fig. 1). The exact year of Vieussens's birth is uncertain. According to some historians, it might have happened in 1633 or 1635 [1, 2].

Early in his career, Vieussens enrolled in Rodez, a tiny city in Southern France, as a philosophy student. Then, he subsequently relocated to Montpellier, where he started his exciting career in anatomical research and medicine at the renowned university that bears the city's name. Vieussens' experience as a medical graduate from the University of Montpellier helped him develop his profession as a passionate anatomical researcher. This prestigious institution was linked to anatomical luminaries like Jean Pecquet, Andreas Vesalius, and Jacobus Sylvius. It was therefore not surprising that Vieussens chose anatomical study as his job [3].

In 1670, he finished his studies at the University of Montpellier and received his medical degree. He was hired as a doctor at Montpellier's Saint-Eloi hospital after graduating. He dissected above 500 cadavers during his first 10 years at Saint Eloys. He worked on the central and peripheral nervous systems in this study. In 1684, he published his pioneering work on neuroanatomy, *Neurographia Universalis* (Fig. 2 and Cover). The spinal cord's distinction from the brain's simple extension as a functionally autonomous component was one of the most significant findings in *Neurographia Universalis* [1–3].

He was presented to the King in 1688, 3 years after the release of his *Neurographia*, and as a reward and to encourage him to conduct more study, the King decided to provide him an annual pension of 1000 livres. Also, The Duchess of Montpensier, who is a cousin of the King, chose Vieussens to be her personal physician [2, 4].

In the early years of his distinguished academic career, specifically in relation to his first 10 years at Saint-Eloi Hospital, his research methods were predicated on studies involving human dissection [2, 3]. In this instance, he is portrayed as an anatomist who is emulating the work of his esteemed seventeenth-century predecessors, including Harvey, Pecquet, Bartholin, and Malpighi. But in the latter phase of his career, especially after gaining royal support, he was more likely to rely on autopsy-based results for his research [3].

On August 16, 1715, Raymond de Vieussens passed away, nearly a year after Louis XIV [1, 5]. His findings and observations made a substantial contribution to the field of cardiology's development and helped it become recognized as a separate field within medicine. As one of the greatest anatomists of the early eighteenth century, Raymond de Vieussens advanced the field of cardiologic anatomy with his meticulous experimental designs and subsequent findings [3].

His anatomical studies

Vieussens played a crucial role as an anatomy researcher, and his efforts helped to shape the development of cardiology into an established discipline in the medical sciences [3].

The anatomy and function of the heart were the focus of Vieussens' future years in Montpellier. He paid significant attention to the clinical and pathological results of individuals with heart disease in his studies [4].

He published the *Neurographia Universalis* in 1684 as a result of his research into the nervous system, which was his first publication. The European medical profession regarded this first publication as one of the most thorough accounts

✉ Gkionoul Nteli Chatzioglou
gkionoul.chatzioglou@istun.edu.tr

İdil Kaçur
kacuridil@gmail.com

Özcan Gayretli
gayretli@istanbul.edu.tr

¹ Department of Anatomy, Faculty of Medicine, Istanbul University, Istanbul, Turkey

² Department of Anatomy, Istanbul Health and Technology University, Istanbul, Turkey



Fig. 1 Raymond de Vieussens (1641–1715)

of the nervous system at the time (Fig. 2 and Cover) [2]. Vieussens' most important work, "Neurographica Universalis," published in 1684, was a comprehensive description of the brain, spinal cord, and peripheral nerves. Among his observations was the independence of the spinal cord as a

functionally distinct structure and not just an extension of the brain. He also studied the relationship between the optic nerve and the thalamus, clarifying the relationship between the optic nerve and the lateral geniculate nucleus of the dorsal thalamus. His work "Neurographica Universalis" contained

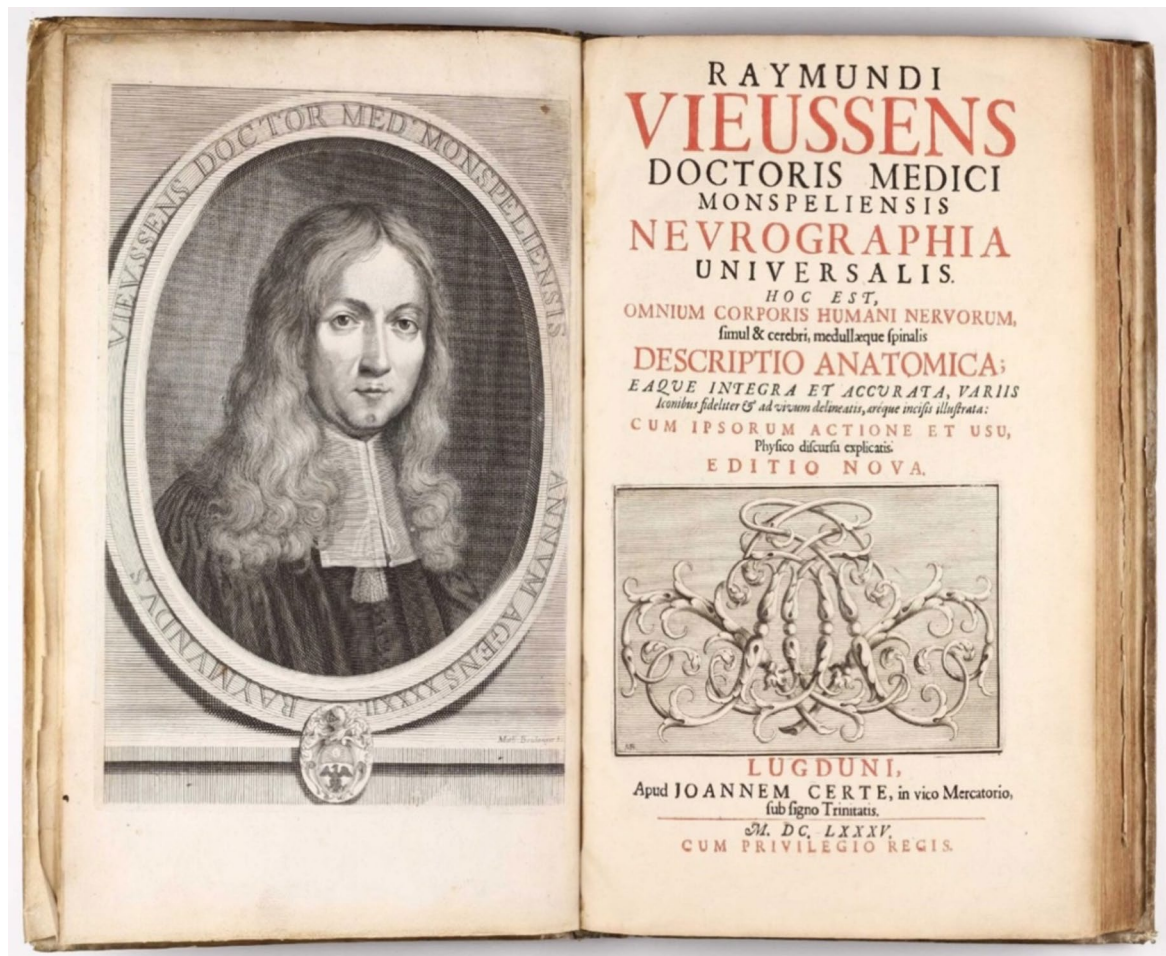


Fig. 2 and Cover The pioneering work on neuroanatomy published in 1684, “Neurographia Universalis”

the first descriptions of dentate nuclei, pyramids, and olivary bodies [1].

Vieussens made a lot of remarkable discoveries, which he later collected in *Novum vasorum corporis humani systema*, which was published in 1705 (Fig. 3) [3].

He was the first to mention the existence of small veins that connected the heart’s chambers and cardiac veins. He expanded on the use of conventional fixing methods and refined them. He injected saffron dye into the coronary arteries after ligating the pulmonary veins and superior and inferior venae cavae. Afterwards, it was seen that in addition to the right atrium and coronary sinus, which were both predicted, the dye had also entered both the right and left ventricles. He described the tiny cardiac venous tributaries and coined the term “ducti carnosii.” However, 2 years later, German anatomist Adam Christian Thebesius enhanced Vieussens’ methods and presented a more in-depth analysis of the architecture of these veins, leading to their current naming as “Thebesian veins.” Even so, the nomenclature that is more commonly used in modern publications is “venae cordis minimae” [1, 3, 6].

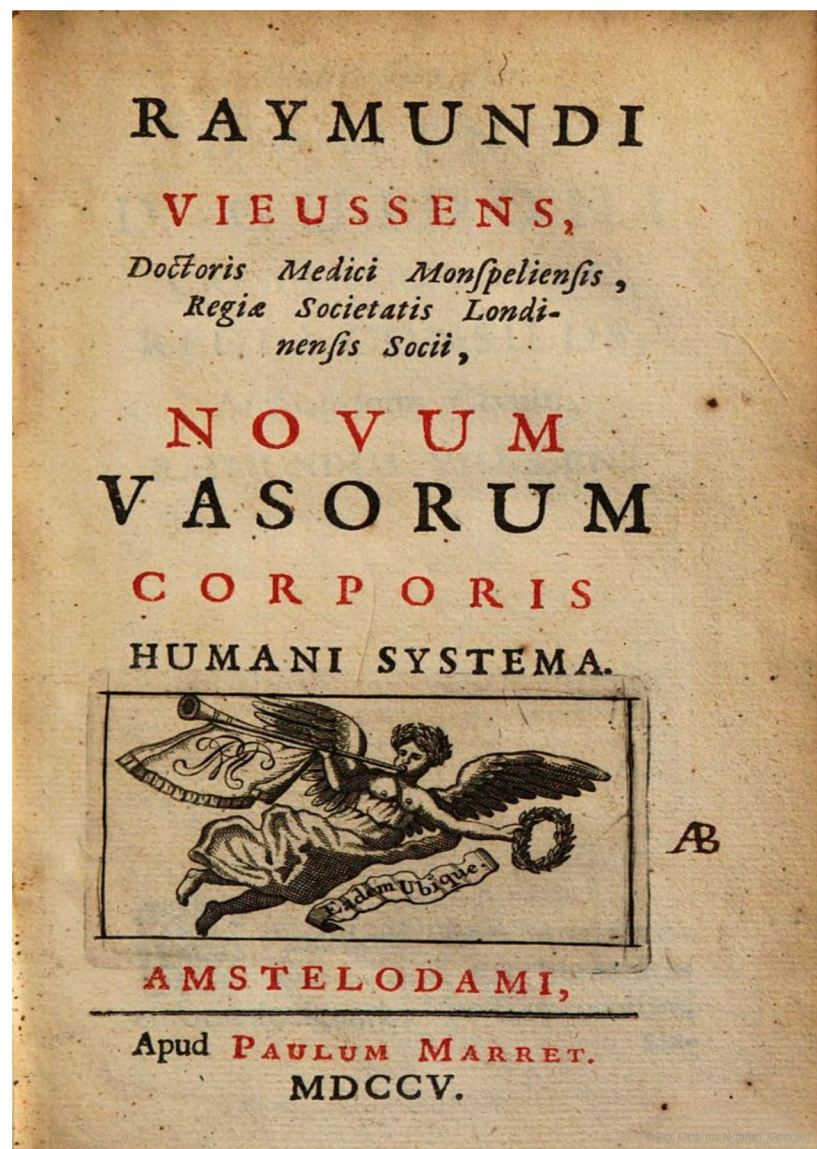
He provided the first explanation of the heart valve bearing his name. He gave a ring-shaped structural anatomy description of this artery route and it is now known as Vieussens arterial ring (VAR) [3].

The distinct oval edge of the adult heart’s fossa ovalis (limbus fossa ovalis) was initially observed by Vieussens. He discovered that, in contrast to the fossa ovalis, this anatomical structure originates from another embryological component. A different name for limbus fossa ovalis is “Vieussens Annulus” [3].

He was the first anatomist to give comprehensive details regarding the position, path, and branching of the coronary arteries [3].

At the intersection of the great cardiac vein and coronary sinus, Vieussens also found the presence of a valve. This anatomical structure, also known as the great cardiac vein valve or “valve of Vieussens,” is referred to as such in the current literature. In the field of clinical cardiology, this anatomical feature is important because, depending on its morphology, it might disrupt cardiac catheterization procedures [3].

Fig. 3 The *Novum Vasorum Corporis Humani Systema* published in 1705



His findings and observations made a substantial contribution to the field of cardiology's development and helped it become recognized as a separate field within medicine. As one of the greatest anatomists of the early eighteenth century, Raymond de Vieussens advanced the field of cardiologic anatomy with his meticulous experimental designs and subsequent findings [3].

His studies are not confined to the heart. He also studied the structure of the brain. Methodologically, he used and developed Willis's dissection technique and Malpighi's technique of boiling the brain with oil instead of water. He distinguished between white and gray matter, emphasizing how the two had different textures. In addition, he provided a thorough description of the corpus callosum and acknowledged its connection to both hemispheres [2].

The superior medullary velum, which makes up the superior half of the roof of the brain's fourth ventricle, is another valve bearing Vieussens' name [1]. He provided a thorough description of the corpus callosum, characterizing it as a white matter structure that connects the two hemispheres of the brain (for which he suggested the name "verum fornix"). One of Vieussens' contributions to the science of neuroanatomy is the coining of the term "centrum ovale." A number of researchers who came after him followed his work and confirmed what he found, detailed it [2].

He pioneered the field of pathologic anatomy, or autopsy-based research, which became the standard model for eighteenth-century anatomists, by closely observing the human dissection-based experimental procedures of the late seventeenth century [3]. Through the numerous eponyms attached to his original descriptions, Vieussens' legacy endures to this day [1].

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Data availability No datasets were generated or analysed during the current study.

Declarations

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Conflict of interest The authors declare no competing interests.

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