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Leonardo da Vinci (1452–1519) and the legacy of a "Renaissance neurologist"

500 Years after

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Leonardo da Vinci, the Renaissance artist, contributed to the early history of neuroscience. Two sketches[1] particularly show that his understanding of the brain and sensorial perceptions developed over time. Figure 1 (c. 1490) demonstrates the importance of theoretical knowledge. The ventricles, the only cerebral structures depicted, appear as 3

Figure 1 Section of the skull and the brain, showing brain membranes and ventricles

Recto: The layers of the scalp, and the cerebral ventricles. Verso: Studies of the head c. 1490–1492 (RL 12603r). Credit: Royal Collection Trust/© Her Majesty Queen Elizabeth II 2019.

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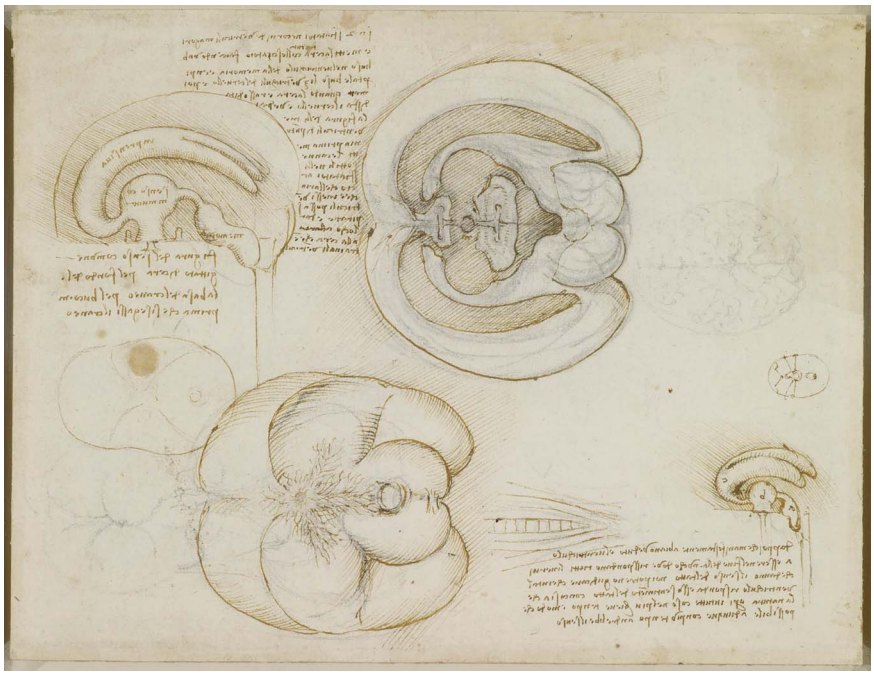
Figure 2 Illustration of brain ventricles based on Leonardo da Vinci's empirical observations, demonstrating a development in his conceptualization of the brain over time



The brain c. 1508–1509 (RL 19127r). Credit: Royal Collection Trust/© Her Majesty Queen Elizabeth II 2019.

connected spheres attached to the eye. This reflected medieval medical theory that associated the ventricles' locations to specific functions, such as memory.[2] In figure 2 (c. 1508), direct observation plays a greater role. Empirical investigations of the brain inspired these later and more anatomically accurate drawings—sometimes referred to as "Renaissance brain imaging." In the accompanying notations, Leonardo concluded that mental functions were not housed in ventricular cavities.

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Appendix Authors

Name	Location	Role	Contribution
Marco Cambiaghi, PhD	Columbia University, New York, NY; University of Verona, Italy	Author	Conceptualized and wrote the paper
Heidi Hausse, PhD	Auburn University, AL	Author	Wrote the paper

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