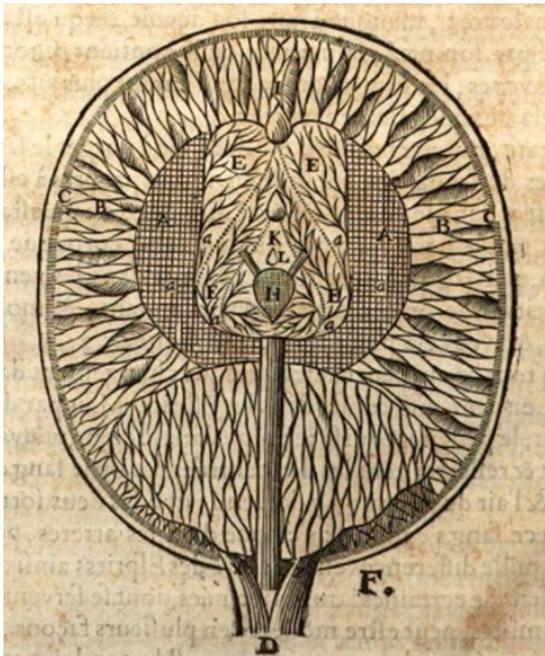


## DESCARTES and the brain

### DESCARTES e o cérebro

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**René Descartes (1596-1650)**, was a French mathematician, physicist, and philosopher, author of numerous texts, among which was the ‘Treatise on Man’ (*L’Homme*). There, he described the brain, after consulting authoritative anatomic texts, watching the work of butchers, and personally dissecting animals, and human material. His text, finished in 1633, and revised in 1640, was not published for religious reasons. A Latin translation was published posthumously (1662), and a French one two years later (1664)<sup>1,2</sup>. The brain, according to his hypothetical description, comprises a solid part constituted by “a tissue composed in a certain particular way” [nervous tissue]. He identified there two regions, a deep or internal one in direct contact with the cavities [ventricles] (EE), formed of a meshwork of filaments or ‘small tubules’ (AA), from which originate many delicate filaments, many occupy an external region, with intervals or ‘pores’ between them (BB), others course to the surface (CC), and longer ones converge caudally to form a stalk-like structure (D). In the middle of the brain is placed the gland H [pineal gland] (place of the ‘rational soul’). The whole structure is enveloped by a double membrane [meninges]<sup>3</sup> (Figure). The ‘animal spirits’ (*esprits animaux*) are filtered by the pineal gland, and fill the cavities, being directed by the gland to the proper tubules, and pores, and from there by means of the stalk, to the rest of the body, constituting the basic mechanism underpinning the presumptive functions of this brain<sup>3</sup>. Thus, Descartes proposed, for the first time, a minute structure for this solid matter of the brain, although hypothetical, and based on it, a presumptive function.



**Figure.** Diagrammatic schema featuring a horizontal view of the brain (produced by La Forge [F]), illustrating Descartes’ description<sup>3,4</sup>. H=pineal gland, AA=inner solid part (network of tubules), BB=outer solid part (interwoven filaments), EE=cavities (filled with animal spirits), D=stem-like structure (formed by long filaments), IKL=ducts for elimination of superfluous spirits.

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