

Malpighi and the cerebral cortex

Malpighi e o córtex cerebral

Eliasz Engelhardt

The microscopic studies of living beings (plants and animals) appeared with the Italian physician, biologist, botanist, and anatomist Marcello Malpighi (1628-1694), later seen as the “founder of microscopic anatomy”¹.

Malpighi’s main results on the brain were published in the section *De cereberi cortice* of his *De viscerum structura exercitatio anatomica* (1666). He was the first to provide a description of the fine structure of the ‘cortex of the cerebrum’ (*cerebri cortice*) [cerebral cortex]. There he explained: “...in the brain of sanguineous perfect animals the cerebral cortex is formed by a collection of tiny glands, found in the cerebral gyri [pyramidal cells?] [artefacts?]... and in which the white roots of the nerves terminate, or rather, from which they take origin [axons?]. Next: “...[these glands] are so adjusted to each other, that they form the

external surface of the brain”. Further: “They have an oval shape, but, as they are compressed by adjacent [glands], some form obtuse angles...” (1666)^{2,3}.

There is no illustration of the cortex in his *De Cerebrum* (1666, 1669). One illustration was reported in the 1669 reprint of a letter from Malpighi to Carlo Fracassati (1664), where they discussed their findings on the structure of the cortex. However, there is an illustration of the cortex as described by Malpighi in Govard Bidloo’s *Anatomia humani corporis* (Table X, Figure 2) (1685)^{2,4} (Figure).

Malpighi’s view and his representation of the cerebral cortex were afterwards reproduced by many authors, until XVIII century.

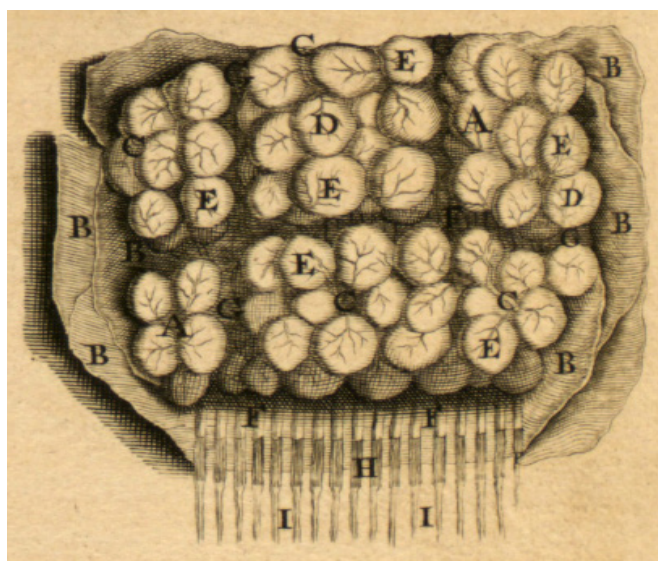


Figure. The cerebral cortex as described by Malpighi (From: Bidloo’s *Anatomia humani corporis* (Table X, Figure 2) (1685)^{2,4}. A. Part of boiled brain. B. Meninges wrapping the brain. C. Blood vessels. D. Their capillary distribution & reticular plexus. E. Various rows of cortical glands. F. Tubules (nerve vessels) assembled in fasciculi, constituting the medulla (white matter). G. Lobular fascicles, or separations. H. Complicated tubules (vessels) (nerve fibrils). I. Nerves. (F+H+I= white roots of the nerves).

CONFLICT OF INTEREST

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Corresponding author:

Eliasz Engelhardt, Cognitive and Behavioral Neurology Unit, INDC – CDA-IPUB – UFRJ

Rio de Janeiro-RJ, Brazil

E-mail: eliasz@centroin.net.br

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