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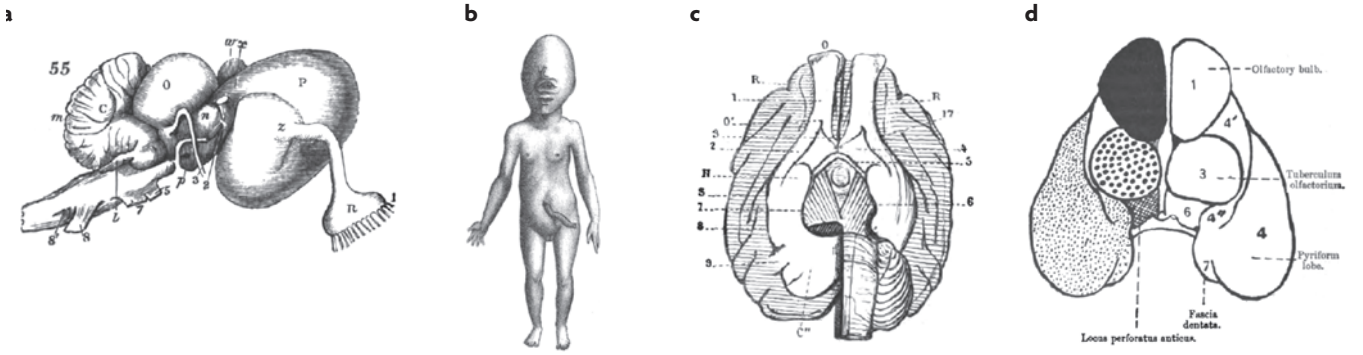

Supplementary information S1 |
A brief primer on the pear-shaped cortex.

The word "piriform" means "pear-shaped," derived from the Latin "pirum." However, piriform cortex bears little resemblance to a pear. In rodents it is long and flat, bordering the ventrolateral edge of frontal cortex. In primates it looks like a "c"-shaped sheet, twisting around the junction of the medial temporal and frontal lobes. These observations beg the question: how did piriform cortex get its name?

Historically, that part of the brain receiving direct olfactory input has been known by various names. It was "pyriform rhinencephalon"[1] (**Fig. A**), or plain "rhinencephalon" in Turner's parlance[2] – although the term "rhinencephalon" as originally coined by Saint-Hilaire[3] referred to a human developmental anomaly (**Fig. B**). It was "pyriform" in the British Empire[4], but "piriform" everywhere else. It was "Riechlappen" or "lobus olfactorius" at the German schools[5,6]. It was "le grand lobe limbique" according to Broca[7] (**Fig. C**), who encircled all smell-related structures with a dotted line, including olfactory bulb, peduncle, anterior perforated space, uncus, fornix, and hippocampus.

This 19th century polyglot of terms led to considerable confusion. Scientists at that time agreed that a large portion of the lateral brain was pear-shaped, hence the denomination "piriform lobe." It was equally clear that the olfactory nerves sank into the anterior piriform edge. However, there was little if any consensus regarding the true extent of the areas that responded to olfactory signals within piriform lobe. According to Sir G. Elliot Smith (1871-1937)[4], an eminent Australian anatomist whose distinctions include the first scholarly survey of Egypt's royal mummies[8], a major problem arose when the German anatomists officially adopted the term "rhinencephalon" in place of "lobus olfactorius"[9]. Their decision was based on Turner's 1890 conception[2] of rhinencephalon as all those regions of the cortical surface that were not pallium, i.e., *the entire piriform lobe*. Thus, an erroneous conceptual foundation for the linking of the olfactory brain and piriform lobe was laid. Not until the histological work of Calleja, Cajal, and others was it determined that olfactory bulb inputs terminated anterior to piriform lobe, thereby motivating the introduction of yet another name, the "pre-piriform cortex." This more accurate but clumsy nomenclature still appears occasionally in textbooks and journal articles, but the simplified misnomer ('piriform cortex') has stuck.

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   In this fascinating article of historical interest, Sir William Turner championed the concept of the 'rhinencephalon' and introduced the idea of 'microsmatic Apes and Man', guiding neuroscientific thought for much of the twentieth century.
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5. Sander, J. in Archiv für Anatomie, Physiologie und wissenschaftliche Medicin (eds Reichert, C. B. & Du Bois-Reymond, E.) 750–756 (Verlag von Veit et Comp., Leipzig, 1866).
6. Zuckerkandl, E. Über das Riechcentrum. Eine vergleichend-anatomische Studie (Verlag von Ferdinand Enke, Stuttgart, 1887).
7. Broca, P. Anatomie comparée des circonvolutions cérébrales. Le grand lobe limbique et la scissure limbique dans la série des mammifères. Revue d'Anthropologie 7, 385–498 (1878).
8. Seipel, W. in Human Mummies: A Global Survey of their Status and the Techniques of Conservation (The Man in the Ice) (eds Spindler, K., Wilfing, H., Rastbichler-Zissernig, E., ZurNedden, D. & Nothdurfter, H.) 41–46 (Springer-Verlag, Vienna, 1996).
9. His, W. Die anatomische Nomenclatur. Archiv für Anatomie und Physiologie. Anatomische Abtheilung (Suppl.), 1–183 (1895).