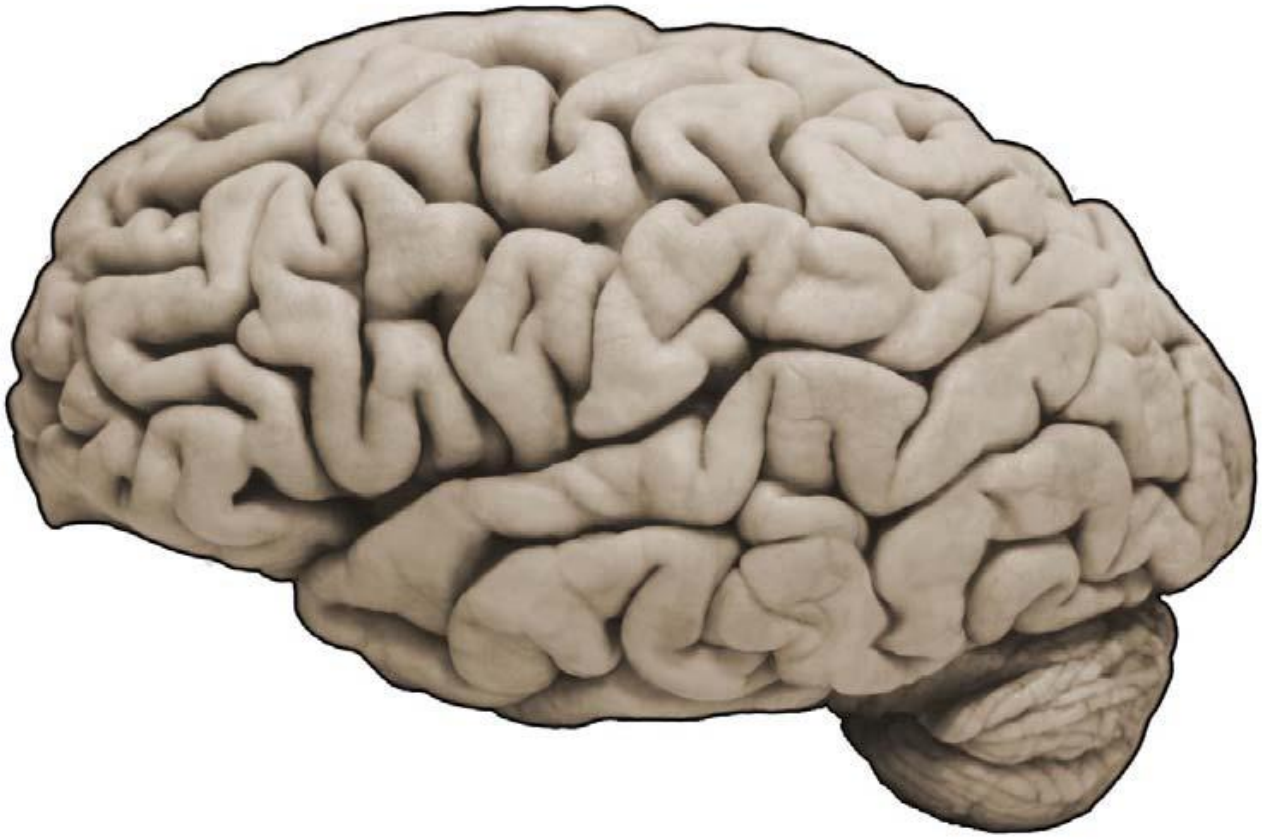

Fig. 1. Lateral surface of the human brain. This figure is not labeled so that you may refer to it for review; see **Figures A3 & A10** for an illustrated and labeled view of the same hemisphere. (Image from ***Sylvius4 Online***)

Just inferior to the middle frontal gyrus, across the **inferior frontal sulcus**, is a much more complex gyral formation. For our purposes, we won't be concerned with the names of these subcomponents or their differential functional contributions to cognition and behavior. Suffice it to say that the **inferior frontal gyrus** contains a critical functional division of the motor cortex that participates in the production of speech. This division has a special name, **Broca's Area**, given in honor of the famous French neurologist, Pierre Paul Broca[5], who first recognized the significance of this gyral formation for human speech in the mid-19th century. Interestingly, the left hemisphere is dominant in most individuals (especially males and right-handers) for this function, such that damage to the left inferior frontal gyrus is more likely to produce an impairment of language expression, called *Broca's aphasia* (aphasia means "without speech"), than a comparable lesion involving the right inferior frontal gyrus. Interestingly, this is also the division of the premotor cortex where in non-human primates neurons with "mirror" properties have been characterized. That is, neurons in the posterior part of the inferior frontal gyrus fire when certain

[5] click here for more on this important figure in the history of human neuroanatomy.