

stimulus. These experiments all indicate a homology between both limbs of the sigmoid gyrus in the Dog and the ascending, superior, and middle frontal convolutions in the Monkey, which is incompatible with the view that the crucial fissure is the homologue of the fissure of Rolando, but quite reconcilable with the theory that the coronal fissure and fissure of Rolando are homologous; for in the respective brains both the coronal and Rolando's fissures lie behind the areas stimulated, with the exception of a small part of (4), which just touches the ascending parietal convolution.

On the other hand, it is more difficult to reconcile some other of Ferrier's experiments with this conclusion as to the homology of the two fissures. For stimulation of area (1), placed in the Monkey in the postero-parietal convolution just in front of the parieto-occipital fissure, and in the Dog in the posterior limb of the sigmoid gyrus just behind the crucial fissure, produced in both animals an advancement of the opposite hind limb as in walking; in the Monkey the area stimulated was distinctly behind the fissure of Rolando, in the Dog well in front of the coronal fissure. Again, the areas (7) (8), which when stimulated gave rise to movements of the zygomatic muscles and upper lip, lie in the Monkey in the ascending frontal convolution, and therefore anterior to the fissure of Rolando; but in the Dog the one is situated in the coronal part of the 2nd external convolution, the other in the anterior composite convolution formed by the junction of the anterior ends of the 2nd and 3rd external convolutions, and both therefore are behind the coronal fissure.

If we regard, however, the whole evidence based on comparative anatomy, on the depth and relative time of appearance of the fissures and on the results obtained by stimulating the brain in front of the fissures, we may, I think, fairly assume the fissure of Rolando to be homologous with the coronal fissure in the carnivorous brain. The sigmoid gyrus with the adjoining part of the sagittal convolution, and in animals which have an ursine lozenge that area also, would therefore represent the superior, middle, and ascending frontal convolutions in the brain of Man and Apes.

But there are other fissures in the brains of these Mammals the homologies of which it is desirable, if possible, to determine. A well-marked fissure in the carnivorous brain is the præsylvian or supraorbital fissure. It is the most anterior of the three primary fissures described by Pansch as appearing on the cranial surface of the brain of the foetal Dog, and it separates in this animal the anterior limbs of the four tiers of convolutions from the supraorbital area and the prorean convolution. If we place side by side the hemispheres of the Human and the Dog's brain we can see in the former two fissures, the præcentral fissure of Ecker and the ascending branch of the Sylvian fissure, one or other of which would appear to represent the præsylvian fissure in the Dog. Meynert was of opinion that the præsylvian fissure is homologous with the ascending branch of the Sylvian fissure. Broca objected to this<sup>1</sup> on the ground that the ascending branch, whilst present in Man

<sup>1</sup> Sur le cerveau du Gorille, *Revue d'Anthropologie*, sér. 2, t. i.