The Giant Macaque of Vatera

Two million years ago, there lived a kind of giant macaque (Paradolichopithecus arvernensis) around Vatera. This monkey was as big as the largest baboons (Papio ursinus) of today. What makes this macaque so special? Not its size, even if it is impressive for a macaque, but its way of life. Paradolichopithecus lived half on the plains, half in the forest. Its home was at the forest edge bordering the savannah. Paradolichopithecus could climb trees but most of the time it walked on two legs (bipedalism).

This way of life is very similar to that of Australopithecus afarensis, one of our distant relatives, which lived between 4 and 3 million years ago in Africa. Australopithecus afarensis is known mainly from two more or less complete skeletons, one of a woman (“Lucy”, or AL-288) and one of an infant (“Selam”, or DIK-1-1). Australopithecus is called an archaic hominin, because its brain, jaw, shoulder, arms, fingers, incisors and hyoid bone - a tiny bone in the throat - are much more like those of a gorilla or chimpanzee than like those of our genus, Homo. This is also true for the semicircular canals in the inner ear: they are chimpanzee-like. These canals are filled with fluid during life, and give information to the brain about the posture and position of the body. Australopithecus still climbed trees, but could also walk on two legs, much better than a chimpanzee can do. Australopithecus has some derived features, too, which distinguish it from the African great apes: the canines are small and the cheek teeth and the tibia – lower limb bone - look more human-like. In features of the talus and calcaneus – two foot bones – and the shoulder bone it is intermediate between African apes (chimpanzees: talus, calcaneus, gorillas: scapula) and modern humans.

The limbs of the fossil monkey Paradolichopithecus look pretty much like those of Australopithecus. From this and other evidence it can be concluded that it had a comparable way of moving around.

One of the foot bones (talus) is crucial to tell us about the way of locomotion. The talus of Paradolichopithecus (5) looks more like that of Australopithecus (2) with its side-ward flap to the right and straight body, than to those of the mandrill (3) and the baboon (4) with their curved bodies. The talus of the chimpanzee (1) is a giant version of that of Australopithecus (2), but with much larger and rounder head, which enables it to climb tree. The head of the talus of Paradolichopithecus has about the same size as in Australopithecus, but so have the mandrill and the baboon, and both are not agile climbers. Difference in Paradolichopithecus is the more flattened head, as in Australopithecus. Figure from Sondaar and Van der Geer 2002. The study of this monkey is very important, because it helps us understanding the evolution of our own kind. The gradual evolution towards extreme terrestriality, including bipedalism, was followed in the baboon lineage by Paradolichopithecus and in the hominin lineage by Australopithecus. Both lineages, however, failed to develop the unique efficient bipedalism that is shown by members of the genus Homo. It is still a puzzle what special feature was present in Homo which made the development of our bipedal way of locomotion possible, and which feature obviously was lacking in the baboons and in Australopithecus. Paradolichopithecus got extinct some two million years ago, possibly due to climatic changes. Australopithecus got extinct some three million years ago, possibly because of the success of Homo, our genus. The puzzle of how exactly Australopithecus lived is still unsolved, and since its discovery fierce debates go on. The problem is how to interpret the enigmatic combination of a derived lower body, suited for walking on two legs, with an ape-like upper body, suited for climbing trees. Some scientists consider the primitive upper body as nothing more than evolutionary bagage, not really useful, but simply still there. Most scientists, however, don’t accept this view, and say that such a thing doesn’t occur in nature. When a structure is not used, it disappears, and when it is there, it is used. The study of the giant macaque of Vatera helps to understand Australopithecus, because this monkey, too, walked on two limbs while at the same time could climb trees to escape danger and to gather fruits and leaves.