THE RISE OF THE HOMINID

The major features of human physical evolution are now fairly well understood. There are still many gaps in the fossil record and many problems remain unsettled. And yet, at the anatomical level the evolutionary sequence leading to *Homo sapiens* can now be traced with reasonable certainty. By contrast, the principal features of human behavioural evolution are less well known and for obvious reasons, are likely to remain so, as behaviour cannot be preserve in fossil form.

The earliest hominoids, the forms ancestral to both pongids (*Pongidae*) and hominids, evolved in Africa around 40miollion years ago during the *Eocene* or *Oligocene epochs* of the *Cenozoic era*. By the beginning of the *Miocene era pongids* ancestral to (or close to the ancestry of) both the African apes and the *hominids* were living in Africa and are known from sites in Kenya and Uganda during the early *Miocene period,* between 20 and 18 million years ago. The sites indicate that at the time of deposition the area was generally forested. The middle Miocene (18 to 20 million years ago) is an almost total blank in the record of both *pongids* and *hominids* in Africa. However, one site in Kenya, Fort Ternen, which has been dated to between 14 to 12.5 million years; has yielded the jaws and teeth of an animal that may well prove to be the oldest known *hominid*. Originally, described as *Kenya pithecus wickeri*, it is

now generally termed *Ramapithecus wickeri*. Unlike the pongid-bearing sites of the early Miocene, the Fort Ternen site appears to indicate a relatively open habitat of grassland and woodland, rather than forest.

Commencing around 18 million years ago, the African continent, which had been drifting north during the middle Cenozoic, came into contact with Eurasia and the species of mammals, including primates, crossed the land bridge. After 18 million years ago, the area encompassing East and North Africa, South-west Asia and the Indian peninsula can be regarded as one broad continental and faunal zone, not to be segmented again until the relatively recent era. Within the zone (rather than in Africa alone) the earliest hominids are 'thought' to have evolved.

It is easier to describe how early hominids looked than how they lived. Although the *R. wicker* is similar in some ways to the chimpanzee, the jaws and teeth of *R. wicker* indicate a shift away from a diet of nuts, fruits, and other vegetable materials to one composed of tougher, smaller items (grains, for example), such as might be found in more open country. It is also possible that *Ramapithecus* might have eaten meat.

There is no evidence as yet to support the claim made by some scholar that *Ramapithecus* was a tool maker. The fact that its canine teeth were apparently already reduced need not

necessarily points to tool-making. On the other hand, since the chimpanzee frequently uses and even modifies natural objects in the wild, it is likely that earliest hominids did too.

The next evolutionary development was the arrival of the small African hominid, known as *Australopithecus*. The oldest known specimen of *Australopithecus* is a jawbone which comes from Lothagam in Kenya, a site dated at around 5.5million years. This jaw is referred to as *A. africanus*. *A. africanus* is known from other sites in East Africa (Omo in Ethiopia, for example) and also from South Africa (Taung, Sterkfontein and Makapansgat). It appears to have evolved around two million years ago, into a form known variously as *Homo habilis*, *Australopithecus habilis* or *A. africanus habilis*, (thus the controversy of the name *A. africanus*). At present, it seems best to refer this form simply as *A. habilis*. The only obvious differences between *A. africanus* and *A. habilis* are the larger brain and somewhat smaller cheek teeth of *A. habilis;* otherwise they are similar. Still a third hominid lineage is known during this period (actually from approximately 4million to some 1.5million years), also classified within *Australopithecus*. It contained creatures larger and more heavily built than the *A. africanus – A. habilis* lineage, with massive jaws and cheek teeth. It is believed that these so-called 'robust' *Australopithecus* became extinct, whereas the smaller 'gracile' forms were, at least broadly, ancestral to the

genus *Homo*. The gracile Australopithecus were small, standing only about four-and-a-half feet tall and weighing probably no more than 50 to 80lbs. Thus they were approximately the same body size as the extant pygmy chimpanzee. They were bipedal, although less perfectly so than the species of *Homo*; apparently they would have had some difficulty in balancing and rotating the trunk on the hind limbs, in particular during walking. Their shoulder girdles were more like those of extant apes than those of man, perhaps because selection had not yet favoured the ability to throw overarm accurately or because these early hominids still retained the ability to climb trees. Their hands were capable of powerful grasping and were morphologically intermediate between the living apes and modern man. The fact that the gracile *Australopithecus species* retained massive jaws and teeth relative to their body size is a sure indication that they or their ancestors were primarily herbivores, eating tough vegetable food. But they also sometimes ate meat.