The evolution of man essay sample

Man obviously shares a common ancestry with the modern apes, such as the gorilla and chimpanzee. We know this from the many characteristics that are shared between apes and man. Apart from obvious anatomical and behavioral similarities, the two groups also have many blood proteins and other biochemical characteristics in common.

A comparison of the skulls of a gorilla and a modern man illustrate the main trends that have taken place in human evolution from an ape-like ancestry. But apart from the skull, there have been major changes in the hipbones of man during evolution, associated with the change from walking on four legs to walking on two. The modern apes and modern man must have had a common ancestry. The earliest apes probably arose in the Oligocene period, and by 25 million years ago had given rise to a large number of forms. Proconsul primitive ape from this period shows some resemblance to Old World monkeys as well as to modern apes.

There is considerable controversy over the progress of human evolution, and particularly over when the split took place between the line leading to modern apes and to modern man.

SPECIES TIME PERIOD

Australopithecus afarensis 4 to 2. 7 million years ago

Australopithecus africanus 3 to 2 million years ago

Australopithecus robustus 2. 2 to 1. 6 million years ago

Homo habilis 2. 2 to 1. 6 million years ago

Homo erectus 2. 0 to 0. 4 million years ago

Neanderthal 200 to 35 thousand years ago

Cro-magnon 35 thousand years ago

Homo sapien 200 thousand years ago to present

PRIMATES

The modern man is spread all over the world. Our closest relatives, the apes, the monkeys, and the lemurs, only live in tropical or subtropical areas.

Today there are 153 different species of primates in the world. They are divided into five main groups:

· Man; 1 genus, 1 species

· Apes; 4 genera, 11 species

· Old World monkeys; 14 genera, 72 species

· New World monkeys; 16 genera, 33 species

· Prosimians; 20 genera, 36 species

The primates evolved from insectivores at the beginning of the Tertiary, about 65 million years ago. In the Eocene there were many different lemurs. The new world monkeys were isolated in South- and Middle America early in the Tertiary, and still live only on that continent. The old world monkeys became numerous and common only towards the end of the Tertiary and in

the Quaternary. The apes had their richest evolution in the Miocene. Today they are rare.

All six main groups of primates that evolved during the Tertiary and Quaternary have living members. Therefore, studies of living species tell us a lot about the evolutionary history of the primates.

FOSSIL APES

The oldest apes are known from the Oligocene. They are about 30 million years old, and are found in Africa. During the Miocene, several types of apes developed. Eventually they spread to Europe and Asia. Towards the end of the Miocene, the diversity was at its largest. It was probably at this time, in the African apes, that the evolution of the human family began.

The apes have always been tree living and associated with forests. At the beginning of the Pliocene, climatic changes led to the disappearance of large forested areas. Many forms of apes went extinct during this period.

Today there are only four genera of apes left. They live in small areas; gorilla and chimpanzee in Central-Africa, gibbon and orangutan in South East Asia.

The apes walk on all four legs, and their arms are longer than their legs. They have both a grasping hand and foot, and lack a tail. The jaws have a characteristic square shape, and the canines are larger than other teeth. An important common trait for all apes is their relatively large brain. Among the apes, the males are usually larger than the females. They are commonly social animals, and live in family groups of varying size.

Hominids

The human family is defined as Hominids. Hominids are characterized by several features, such as their manner of movement (locomotion). We have an upright position, a large reorganized brain, along with a diminished face and teeth. Use and construction of tools are notable characteristics of Hominids. The evolutionary design of man has always intrigued Anthropologists. Climatic changes may have been responsible for the development of the characteristics of Hominids. These climatic changes began 24 million years ago.

Australopithecus Afarensis

Australopithecus afarensis was small and slender, between 1. 1 and 1. 4 metres tall. Proportionately, it had somewhat longer arms than the other hominids. The brain was only about 420 cm3, and the teeth indicate that it ate mostly plants. In 1974, an almost complete skeleton of an adult of Australopithecus afarensis was found in Hadar in Ethiopia. This fossil has become known as “ Lucy” and is about three million years old.

Australopithecus africanus

The main differences between the afarenis and africanus were height and brain capacity.

Australopithecus robustus

Australopithecus robustus had an average height of 1. 5 m. Scientists note that robustus had a flat face. Their skull is very ‘ ape-like’ in that it has a

small brain and massive jaws, but it also shows several hominid characteristics in the dentition. Pelvic girdles of australopithecenes have also been found, which are similar to those of a man, (rather than that of a chimpanzee) and indicate the animals walked on two legs

Homo Erectus

The oldest findings of Homo erectus are known from east Africa, and are about 1. 8 million years old. During the next 1. 5 million years, H. erectus spread to north Africa, Europe and Asia. The size of the brain increased markedly from the earliest to the last members of this species. The volume of the brain varied from 800 to 1200 cm3, but the hemispherical brain was proportionally smaller than in modern humans.

A study of the Peking man, and other fossils of this species, has shown that Homo erectus was similar to modern man in a great many ways. The limbs of Homo erectus are extremely like those of modern man, and we know these animals used fire and made stone tools. Culturally, Homo erectus may have been almost as advanced as some of the less civilised races of modern man. Because of this continuum of characteristics with one extreme nearing the shape and size of Homo sapiens, it is thought that Homo erectus is a direct descendent of modern man, and not a separate and extinct line.

Neanderthal

Before and during the last ice age there appeared a very distinctive type of man, the Neanderthal. Although they appeared later than the Homo erectus

and had larger brains, they showed a number of features that were more ape-like.

The brow ridges were relatively large, with only a slight forehead, and the upper jaw was large while the lower jaw receded. There are also areas on the skull for the attachment of large jaw and neck muscles. The vertebrate joined the skull in a position to the rear of the skull, suggesting that the head had a forehead tilt.

Originally it was thought that the Neanderthals were direct ancestors of man. But skeletal remains of modern man have now been found dating from the same time as the Neanderthals, suggesting that they both arose from a common ancestor. It is now thought that the Neanderthal was a close subspecies of modern man, which became extinct some 40000 years ago.

Cro-Magnon

Cro-Magnon lived from 40, 000 years ago to 10, 000 years ago. Cro-Magnon lived in Africa and traveled to Europe, Asia, and Australia. Later they also lived in North and South America. Their fossils were found in the same places they lived. Cro Magnon looked like modern humans. They were tall like modern humans with no brow ridges, a thinner and more rounded skull, a higher forehead, and a slightly projecting chin. The average brain size was about 1, 350 milliliters. Their bodies were like a modern human. For breakfast they caught fish. For lunch they ate mammoth, ducks and other birds, and for dinner they ate plants, nuts, shellfish, fruits, and berries. They caught , picked, and hunted for their food. They tied antler points with the barbs pointing backwards to wound animals.

Homo Sapien

Towards the end of the last ice age the Neanderthals of Europe were abruptly displaced by modern man Homo sapiens sapiens who had developed somewhere in Africa and had then migrated into Europe.

These early men were mainly hunters, and had developed quite sophisticated tools and weapons, and could use symbols and had a true language. Physically they were identical to modern man, but their better social organisation may have enabled them to displace the Neanderthals.

The early forms of Homo sapiens have left behind large quantities of artefacts, from which it is possible to trace the early development of tool making.

Primitive hand-axes developed out of the same technique as was used for the Olduvai pebble tools: a stone or flint nodule was hit with another stone and a series of chips broken away to leave large, deep flake scars and mould the tool into the form of a pear-shaped axe.

More accurate tools were made later by pressure-flaking, in which a sharper cutting blade was created by breaking away small chips of bone from the edge. Late stone tools were often beautifully made, as fine arrow points, harpoons and blades.

One thing is clear. We are what evolution made us. We are all the result of adaptation and mutation. Yet while we arrogantly pride ourselves on how far we have come since we first began our evolutionary trek, how far have we really come? Even with all our modern machines, we are, essentially, still

wrapped in loincloths–warring, hunting, mating. It might be argued that because of evolution, and natural selection, we are the result of the survival of the fittest. Our ancestors who best adapted to their surroundings, and who reproduced most successfully, spawned others who had to exhibit equal cunning and virility to pass on their genes. Some feel that in the not-too-distant past we were our strongest, most intelligent and most virile. Now that we have labor saving devices, machines do much of our thinking for us.