

Humanism for Secondary School Pupils

S4 – 6



3. THE EMERGENCE OF MAN

THE EMERGENCE OF MAN... AND THE DEVELOPMENT OF OUR CULTURE

We are not descended from the apes; we are apes, African apes, highly intelligent African apes. We evolved alongside other modern apes from a common ancestor who lived several million years ago; the chimpanzee is our first cousin and the mountain gorilla is a distant relative. (GI evolution of man)

All the available evidence - fossilised bones, archaeological remains and biochemical analysis of the human genome - has been used to construct this account, which is now accepted by the vast majority of scientists. However, since new evidence is constantly being uncovered that can either reinforce or modify existing theories, it is important to realise that this is just the story at present, in 2008.



Our Earliest Ancestors

(GI earliest primate)

70 MYA (million years ago) Primates evolved. These were small animals which:

- Were capable of walking on two legs for brief periods
- Possessed grasping fingers, backed with nails rather than claws
- Had forward-pointing eyes giving binocular vision

Throughout the following millions of years they evolved a larger body size, an increase in intelligence, a complex degree of social behaviour and, most notably, the characteristic of "*opportunism*" i.e. they learned to exploit every food source available.

40MYA Monkeys evolved. (GI earliest monkey)

10MYA Apes evolved. (GI earliest ape)

7MYA Bipedalism evolved in one species of ape.

The geographical feature that promoted this speciation was thought until recently to be the opening up of the Rift Valley in East Africa. Our ancestors were thought to have evolved on the east side of it, which was drier and lacked vegetation, particularly trees, and this event has been referred to as "*East Side Story*".

However recent discoveries have raised questions about this theory and a resolution to it awaits further discoveries. Bipedal locomotion was very successful and many species evolved.

The genus known as *Australopithecus*, composed of many species, roamed the plains of Africa from 4MYA until 1MYA. These hominids were about one metre in height with funnel shaped chests, no waist, little necks, projecting faces and small brains of about 450 cu cm capacity. The most famous member of this genus is 'Lucy', a fossilised partial female skeleton found in 1974 in Ethiopia. She is 3-4M years old and is a member of the species *Australopithecus Afarensis*. (GI Lucy)

2MYA The genus Homo evolved.

These individuals were taller with a more athletic build, flatter faces and an ever-increasing brain size.

This genus contained many species. One of them, *Homo erectus* could run as fast as we can, light a fire, make simple tools and probably speak, although they lacked the ability to make our wide variety of sounds because of the position of the larynx in their throat (GI Homo erectus). They walked out of Africa and populated Asia and Europe and they dominated the planet for 1.5M years.

180,000 - 170,000 years ago a very severe ice age nearly brought about the extinction of all human species. It has been estimated that the total population fell to about 1,000 individuals (the population of a small town today). From this small remnant, in Africa, emerged the last species of the genus Homo: us, *Homo sapiens*.

We have a brain size of about 1400cu. cm. with a high forehead, housing the large frontal lobes of the brain where abstract thought takes place and we can speak using a wide variety of sounds. (GI Homo sapiens)



Further research

How many species of the genus Homo are thought to have existed?

Outline the evidence that we have for their existence

SUMMARY OF PRIMATE EVOLUTION

(GI Evolution of primates)

Increase in Brain Size

Many scientists think that the development of language and the increasing size of the brain proceeded in tandem with each other.

From Lucy to Homo sapiens, brain size approximately doubled every 1.5 million years. (GI evolution of human brain)

In *'Unweaving the Rainbow'*, Richard Dawkins suggests that, *"In the case of the evolution of the human brain, I suspect that we are looking for something explosive, self-feeding, like the chain reaction of the atomic bomb or the evolution of the bird of paradise tail. The appeal of this idea is its power to explain why, among a set of African ape species, with chimpanzee-sized brains, one suddenly raced ahead of the others for no very obvious reason."*

A similar situation has been observed in the last 20 years with the rapid co-evolution of computer software with hardware. Here is Dawkins again describing a particular instance of this: *"... an explosion of ingenious software was, in a sense, pent up, waiting to burst on the world but it had to wait for a crucial piece of hardware, the mouse"* (to be invented).

Around 40,000 years ago something very special began to happen to our species; we started to paint pictures on the walls of caves, carve figurines, make music, wear ornaments and bury goods with our dead.

Out of Africa:

120,000 years ago.

Groups of Homo sapiens moved out of Africa into the Levant, an area comprising Syria, Lebanon, Israel, Palestine and Jordan and the eastern end of the Mediterranean excluding Egypt. (GI)

And they died there 30,000 years later when dry glacial conditions returned to the region, causing it to revert to extreme desert.

80,000 years ago. Once again, a group of humans left Africa, this time crossing the mouth of the Red Sea, which was very narrow at the time, and travelled through the southern Arabian peninsula towards India. All non-African people today are descended from this group.

Using a great variety of evidence, viz. fossilised bones, archaeological remains, the human genome and the development of human languages, Stephen Oppenheimer of Oxford University has worked out the route humans took from here. In his book '*Out of Eden*' he documents this exodus and his web page on the Internet shows it in animated form. (GI movement of Homo sapiens out of Africa)



Here is a summary:

- 75,000 years ago, modern humans having moved around the coast of the Indian sub-continent entered Southeast Asia and China. From there they crossed the Timor Sea, which was very much smaller than it is today, and landed in Australia (70,000 years ago).
- 50,000 years ago, they entered Europe.
- 40,000 years ago, they trekked north from Pakistan, up the Indus River and into Central Asia then west along the Silk Road.
- 20,000-30,000 years ago, some of those in Central Asia moved west towards Europe and east towards Beringia (a land bridge joining Siberia to Alaska).
- 22,000- 25,000 years ago, they crossed Beringia and moved down into North America.
- 12,000 years ago they reached South America.

Further research

Using the Google search facility can you find Stephen Oppenheimer's web page and watch the exodus from Africa and the population of the world by Homo sapiens?

The last Ice age

About 18,000 years ago huge ice sheets spread south over Europe; in Britain, as far south as Oxford, in Europe as far south as the Pyrenees and the Alps. All species of the genus

Homo, living in Europe at that time, either moved south or died. Italy, the south of France and part of Spain became the last refuges. (GI the last ice age)

When the ice started to retreat again, 10,000 years ago, we were alone. No other member species of our genus remained. Did they perish at our hands or were they not smart enough to survive the Ice? We do not know...yet...

The Agricultural revolution began

(GI earliest agriculture)

- In Mesopotamia –10,000 years ago
- In China – 8000 years ago
- In the Americas – 7000 years ago
- Along the banks of the Nile - 5000 years ago



Some groups stopped wandering and stayed put in one place, planting crops and keeping livestock. Others continued with their hunter-gathering existence, some to this very day:

- Australian Aborigines (GI)
- The San people of South Africa (GI),
- The Inuit of the Arctic (GI)
- Various Native American Tribes (GI)

The art of writing was invented in:

- Mesopotamia (GI)
- Egypt 3,500-3,000 BCE (GI)
- China around 1500 BCE (GI)

(BCE means “*before the common era*” and replaces BC which stood for “*Before Christ*”)

In Mesopotamia, (the land between the rivers Tigris and Euphrates), the people, called Assyrians, developed many new technologies including metalworking, glassmaking, textile weaving, food control, water storage and irrigation.

They were the first to use copper, bronze, gold and iron. In the field of mathematics they invented a sexagesimal (base 60) numeral system that we still use today: the 60-second minute, the 60-minute hour and the 360° circle. They had a 24-hour day and a 7-day week.

They developed map-making, studied astronomy, could predict eclipses and solstices and they picked out the constellations that we know today. In medicine they made careful observation of the symptoms of illnesses. These records were used centuries later to develop modern medicine. They played on lutes and sang, invented board games and money:

- 1 shekel was worth 180 barleycorn or 24 chickpeas
- 60 shekels =1 mina
- 60 mina = 1 talent which was worth 30 Kg of silver.

Further Research

Can you find out the details of any games that they played and if any were the precursors of those we know today?

They had great cities e.g.

- Babylon in Sumer, to the south (GI)
- Nineveh in Assyria to the north (GI).



Religion

Their religion, which is the oldest on record, was highly *polytheistic* (many gods) and they built *ziggurats* (GI), (huge temples in which to worship their gods), high enough to stay dry when the rivers Tigris and Euphrates flooded.

THE ADVENT OF MONOTHEISM

An Egyptian Pharaoh called Akhenaton is usually credited with the introduction of monotheism (worship of one god) around 1200BCE.

Akhenaton told the people that there was only one god, not several, and that he was in direct communication with this god. He had the people build a large temple to this god and inside it a small room called the "Holy of Holies". He would spend long periods of time in this room before emerging to tell the people what god had said; whether he was pleased or angry with them and what he wanted them to do. It would be a brave man who would laugh. He introduced the concepts of the trinity, the virgin birth and the raising of the body to unite with the soul after death.

Throughout the following centuries, the three main monotheistic religions of the world evolved: Judaism, Christianity and Islam.

The Bible

Although contemporary historians wrote at length about the places, people and events in Mesopotamia, Egypt and the Levant they did not mention many of the characters that appear in the Old Testament, like Abraham, Moses, King David and Solomon.

The archaeological remains of this period, which are extensive, contain no trace of the bible stories. Evidence now suggests that the Jews, held captive in Babylon in the 6th century BCE, made a written record of the legends they heard from the Assyrians, and that this became the bible.

Many of the events recorded in the bible have a basis in history. Examples are:

- There was a farmer who built a raft to save his family and livestock from the annual flooding of the Tigris/Euphrates. (GI The flood of Atrahasis)

- There was an eight-foot high block of black stone inscribed with 3,654 lines of text, the laws of the land, supposedly given to King Hammurabi of Babylon by the sun god Shamash (GI)

Further research

Can you find out the historical basis of any other bible story?

Similarly, only a few of the characters mentioned in the New Testament have any basis in fact. There was:

- A John the Baptist, who may have heard, from Buddhist monks, of the custom of bathing in the Ganges to drive out demons (GI)
- A Judas of Galilee, who led a tax revolt.

Pontius Pilate, Herod, Paul of Tarsus and several others were historical figures, but there is no mention by contemporary historians of a man called Jesus of Nazareth; indeed the town of Nazareth itself did not exist until the fourth century AD.

Christians quote the historian Josephus, who lived in the first century AD and who is supposed to have written a single paragraph confirming the existence of Jesus Christ. However the passage referred to is out of context and written in a language uncharacteristic of the historian. Moreover, before the fourth century AD, not a single writer makes reference to this paragraph.

Nevertheless the cult of Christianity grew and flourished and was adopted by the Emperor Constantine as the official religion of the Roman Empire in the fifth century AD.

The Church and Science

Scientific method – the empirical observation of the natural world, the testing of hypotheses and the revision of assumptions – had no role in an age in which eternal truth had been made known to man by the revealed word of God. Many of the libraries of antiquity were destroyed – Plato’s Academy and the last of the pagan schools were closed in 529 AD.

The church condemned public bathing as immoral and sinful and encouraged the closure of the baths that had done so much to preserve public health in the large metropolises of the Roman world.

The ancient medicine of the Greeks and Romans was declared “*heretical*” and the dissection of the human cadaver was a “*desecration of the Temple of the Holy Ghost*”. Medical research ceased for a thousand years.

As early as 300BCE the Greeks had known that the world was round. They had also measured its circumference with surprisingly high accuracy, and knew that it moved around the sun. Developments in astronomy had previously allowed sailors to navigate accurately out of sight of land. Now they were forced to rely on “*oracles*” and the ship’s bible. It would be 1000 years before Copernicus once again suggested the heliocentric (literally ‘sun-centred’) theory.



The return of the Age of Reason

In 1687 Isaac Newton discovered that the universe is governed by a few physical, mechanical and mathematical laws. This instilled tremendous confidence that everything made sense, everything fitted together and everything could be improved by science. The development of modern science was uniquely encouraged by Europe's economic expansion driven by a network of free city states. By 1900 the status of science had never been higher.

The Enlightenment

During the 18th century an intellectual movement advocated rationality as a means to establish an authoritative system of aesthetics, ethics and logic. Its leaders hoped to bring the world toward progress and out of the long period of doubtful tradition, full of irrationality, superstition and tyranny that had existed since the Greek and Roman thinkers, to which they referred as the *Dark Ages*. Prominent Enlightenment philosophers such as Voltaire, Rousseau and, from Edinburgh, David Hume (GI) questioned and attacked the existing institutions of both Church and State.



The fall of Reason

In the New Scientist Magazine on 24 June 2006, Richard Koch and Chris Smith wrote the following article entitled, '*Suicide of the West*'.

"Over the course of the 20th century science faced two huge challenges. One was internal to science as the Newtonian universe broke down and advances in physics revealed a baffling and inscrutable universe, ruled by mystery, uncertainty and chance.

Up to 1900 science had made the world easier to understand; thereafter it made it more difficult. The other challenge was external: a much more critical view of science adopted by the rest of society.

Suspicious arose that it was dehumanising and the tool of dictators. Then came the atom bomb. Since the 1960s, evidence has begun to pile up that science's triumphs are poisoning the planet. The result is a widespread western, and especially American, descent into superstition. We are witnessing the elevation of emotion over reason, of personal conviction over hard thinking.

There is little justification to abandon our trust in rationality and in science, for the best forms of civilisation depend utterly on them. But in losing the idea that science helps us all make sense of the world, the West has forfeited one of its main sources of optimism, success and commitment to a humane society."

Do you agree with these sentiments? Write an article explaining your views.

And what of the future?

The Hubble telescope is now taking pictures of galaxies that are 13 billion light years away. This means that we are seeing them not as they are now but as they were 13 billion years ago. Recent calculations have put the age of the universe at 13.7 billion years.

A new and more powerful telescope, the James Webb, is currently being assembled and should be in orbit within the next decade. The future could be very exciting.

However, global warming looks certain to cause sea levels to rise to such an extent that most of our major cities will be engulfed and weather patterns will be so changed that we will no longer be able to grow our staple crops. The future looks bleak for our species.

Unlike the dinosaurs, we can see the disaster coming and have the technological capability to prevent it from happening. Unforgivably, we seem to be lacking the will to act.

More information can be found in the following texts:

The Origin of Humankind by Richard Leakey

The Ancestor's Tale by Richard Dawkins

Unweaving the Rainbow by Richard Dawkins

Out of Eden by Stephen Oppenheimer

Jesus Never Existed by Kenneth Humphreys

And on the Internet

