AFRICA: From the First Humans to the 20th Century

(AFRIKA: Fra de første mennesker til i dag)

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Sample Translation

Chapter 1

We Are All Africans

The Family Tree and Other Wild Bushes

Where does history begin?

That really depends on what you are looking for. Some like to start with the birth of the universe, while others look at the history of the earth, or perhaps start with the appearance of mammals some two hundred million years ago. The scope of this book, however, is more modest and we will begin around seven or eight million years ago. It was around this time that a new and important leap in evolution took place, so it is about the right point to start when looking at the origins of human life in Africa.

Early this century, a team of French and Chadian researchers made a remarkable discovery in the southern part of the Sahara Desert - in Chad, to be precise. And even though they found no more of the body than a skull, it was enough for them to hail a new species, *Sahelanthropus tschadensis.* The brain volume of the seven or eight-year-old Toumaï, which means "Hope of Life" in the local language, was not so different from that of a pygmy chimpanzee; perhaps not so surprising, given that we share 98.5 per cent of our genes with pygmy chimpanzees. But it was clear from the teeth and the spine-skull intersection that something new was happening, and that it was not long since the two species had had common ancestors. Once they had started to diverge, they each set off in different directions on the long journey towards what eventually was to become today's chimpanzees and human

beings. It may sound strange that this groundbreaking discovery was made in a desert, but in Toumaï's day, the region was covered in grass and trees and lakes.

Hominin is a commonly used term for all species that increasingly had more in common with future humans than with apes, following this initial divergence. And Toumaï is currently the oldest candidate for number one, though archaeologists are busy in both Kenya and Ethiopia. But it also a matter of definition, as it is the scholars themselves who decide when the differences become so marked that they are dealing with a separate species.

It is not easy to trace a straight line over millions of years. New discoveries are being made all the time in the southern and eastern parts of Africa, and new surprises are expected to cause chaos in the chronology. The fact that something has not been found is not proof that it never existed. Not only were several species alive at the same time, they also lived side by side in the same area. So what we are dealing with is a lot of bushes, rather than a simple family tree. Experts often wonder if narrow classifications are worth the effort, or if it might be better to have a few main groups with variations (Wood, 2019). The latter certainly makes it easier for those of us who might otherwise get lost in the tangle of Latin names. The only thing that is certain, is that *Homo sapiens*, the species we belong to, is the only one that remains, as the other variations have died out one by one.

Another thing that is becoming increasingly certain, is that our origins can be traced back to Africa: it was here that the long journey to modern man started. Charles Darwin had already worked out that this was probably the case in the mid-nineteenth century, without today's dating methods and gene research (see box). But there was little understanding for such a notion in his time, when theologians had calculated that all life had started early one October morning in 4004 BCE. In fact, until relatively late in the twentieth century, many scholars found it hard to believe that such a perfect creation could have originated anywhere other than the centre of the universe, in other words, Europe.

On Two Legs

In the long history of human evolution in Africa there are some milestones, or turning points, that are more important than others. One of them is the ability to move on two legs over longer distances. No other mammals can do that. It was not something that happened suddenly; studies of skeletons and bones show the development of mobile hips, longer legs and bendable knee joints over time. The same is true of arched feet, which allow for greater push on the ball of the foot and faster forward movement.

These anatomical changes appear to be completed in Lucy, or Dinkinesh, who is 3.2 million years. She was reconstructed following excavations in the Afar Triangle in Ethiopia in 1974, and was assigned to a species that goes by the name of *Australopithecus afarensis.* More recent discoveries have shown that she is by no means unique, but has many close relatives who may be more than half a million years older. The name means "Southern ape from Afar". The name *Australopithecus africanus* was first used in the mid-1920s in South

Africa in connection with the discovery of one of Lucy's relatives, the "Taung Child", but at the time there was too little knowledge to place the find in a wider context.

About the same that Dinkinesh became an international sensation, some well-preserved footprints were uncovered in the ash from a prehistoric volcano eruption in the north of Tanzania. The ash had clearly first been cemented by rain and then dried in the sun. The footprints are those of an adult and a child walking together along a river bank, and dating indicates that they walked there around 3.6 million years ago. These creatures still climbed up into trees to sleep, to escape predators and to gather fruit. But their arms were becoming too short to swing easily from tree to tree.

There were huge advantages to walking on two legs in the fight for survival. Five or six million years ago, the global climate entered a cooler and drier phase, which led to reduced growth in the rain forest. This meant that it was harder to gather the fruit, nuts and leaves that constituted to greater part of the hominins' diet, and probably forced them to try out new possibilities, rewarding those who took advantage of the varied resources. Standing on two legs also made it easier to pick fruit without having to climb the tree.

And not only that, out on the savannah, it gave the possibility of standing taller than the bushes and grass, so you could see the lions, leopards and other predators, which also had migrated to the same areas. To be able to see ahead over great distances was particularly useful for species that had limited hearing and a poor sense of smell. Another advantage of walking was that less body surface was exposed to the burning tropical sun. The glands that produce sweat also reduce the risk of heatstroke. When forelegs evolved into arms and hands, they could be used to carry children, food and water. Standing upright also made it easier to wade across rivers.

Tools and innovations

One explanation as to why most of the finds have been in Ethiopia, Kenya and Tanzania may simply be that archaeologists like to dig wherever they have the greatest chance of finding something. But there can be no doubt that it is also largely due to the unique landscape, which provided a rich variety of forest, savannah, plains, rivers, lakes and animals in several of the relevant time periods. It is also possible to see that as the temperature and precipitation patterns changed, our predecessors' repertoire expanded in order survive, albeit slowly. It would appear that it was better to be a generalist than to specialise in a specific ecological niche.

The sites where there have been most finds from the period between one and half to five million years ago, are all in the Great Rift Valley (see map, p.20). This is a series of valleys, or rather trenches, that is approximately 5000 kilometres long and runs from Lebanon via the Red Sea in the north, to the coast of Mozambique in the south. The formation splits in East Africa, with branches to the east and west of Lake Victoria. The rift was created between 35-45 million years ago when the crust of the earth started to crack and

sink dramatically. The rift continues to develop with each year that passes, but there is no need to panic. It will probably take tens of millions of years before East Africa is separated from the rest of the continent. As the continental crust moved, the Ethiopian highlands and mountains like Kilimanjaro were pushed up. These then caught the rainfall that was carried inland from the Indian Ocean by the monsoon winds and the rain shadow effect meant that in more temperate times, there was water enough for animals and to fill the lakes. Lake Victoria is still the world's second largest fresh-water lake, whereas Lake Tangyanika is the second deepest. And numerous volcanic eruptions in the area left the geological layers that have preserved skeletons, bones and tools so well.

The various finds of our earlier ancestors illustrate the anatomical changes that were necessary to be able to hold objects in a different way. The thumb could now coordinate with the other fingers to work with stones and to flake off sharp slivers at the right angle. The new tools could be used to kill animals and to scrape meat from carcasses left by other predators, once they had eaten their fill.

Scientists were so impressed that they coined the name *Homo habilis* (handy man). This was the first of our ancestors to be given a family name beginning with *homo*, in other words, human. The people who made these tools were small. Grown men were no more than 130 cm tall, and the women were a good deal shorter. A brain size of 600 cm^2 was considerably larger than any predecessor, but less than half the size of what we can boast today. *Homo habilis* lived alongside other species for around a million years before dying out.

One of the first finds of *Homo habilis* was in the Olduvai Gorge in the northwest of Tanzania. In 1960, the oldest stone tools here were dated to 2.6 million years BCE, and caused some scientists to coin the concept of "an Oldowan industrial complex". This is perhaps a little extreme, as stone is easier to preserve than other materials such as wood and fibre. There are far fewer traces of baskets, traps and fishing hooks, which could have told us more about daily life, work and hunting methods. Archaeologists have therefore been accused by other scientists of being too caught up in "bones and stones" (Dunbar 2014). It has more recently been discovered that stone tools were also made elsewhere even earlier, and that *Homo habilis* was perhaps not responsible for enough innovations to merit being the first to carry the new family name.

From the Rift Valley to Silicon Valley?

Throughout the history of the earth, long ice ages have alternated with periods of warmer and wetter weather. Around 2.6 million years ago, all of Northern Europe, North America and Siberia were covered in a sheet of ice that was several kilometres deep, in a new ice age. The African continent, with the equator running through it, was too far from both Poles for all forms of life to be lost. But there were some glaciers in the highlands, the remains of which are still to be found on the snow-capped peak of Kilimanjaro. But these are now shrinking fast.

When climatic conditions became more variable about two million years ago, the Eastern part of Africa experienced prolonged dry periods. Many of our ancestors therefore moved to other areas where they were confronted with different animals and new plants, and therefore had to learn to adapt to the new landscape and how to shape it. It is perhaps no coincidence that sharper, more effective hand axes have been found from precisely this period.

These new tools made it easier to dig in the ground for roots and tubers, to fell trees, and to cut up large animals with thick skin, tenderize the meat and remove tough sinews. And if the bones were cleaved, it was possible to suck out the marrow which had twice as many calories as the same amount of meat. So it became it easier to eat and digest animal protein than plants, which were full of starch and fibre, and the extra energy could be used to do other things. Today, when technological changes are often measured in weeks rather than millions of years, it can be hard to imagine just how momentous this development was. But it was the start of a long journey towards increasingly ingenious technology, and the anthropologist Robert L. Kelly has drawn an arc directly from the Rift Valley to Silicon Valley (Kelly 2016).

The new species responsible for these changes, *Homo erectus*, or "upright man", had a brain volume twice as big as its immediate predecessors. This new leap in evolution was therefore about far more than just changes in the skeleton, body proportions, grip and the shape of the cranium. This increase in brain capacity facilitated the gathering, storing and recall of information about water, plants and prey through different seasons, which also made it possible to relate to more people than just the immediate family, so group sizes started to grow. The stone-tipped spear became a more lethal weapon when stronger arms gave a better throw, and eye to arm coordination improved. And when several people hunted together, it was possible to kill elephants and other larger animals.

The most complete skeleton from this era was found in 1984 by Lake Turkana in northwest Kenya, and tells the story of a young boy aged between eight and ten. Nariokotome, or "the Turkana Boy", lived between 1.5 and 1.6 million years ago, and is thought to have died of an illness. Not only was he taller for his age than any earlier species, but also had a narrower, more mobile pelvis. The ability to walk or climb in trees as required was nothing new, but Turkana Boy appears to have been fully bipedal, and able to walk or run over long distances. Having more sweat glands and less body hair or fur would then also have been an advantage.

The ability to run for long distances, which many athletes from this part of Africa are famous for, was an important step in the fight for animal protein. To be fair, no human could ever reach the same speeds as a cheetah or a lion, but these animals soon become exhausted or "run to death" when hunted. They also give up faster when they see that they are not going to reach their goal.

A lot of light and a lot of warmth

Armed with this newly acquired mental and physical capacity, groups of *Homo erectus* left the world they knew behind. Judging by several finds of skeletons and distinctive tools in various places in Asia, this may have happened around 1.9 million years ago. The best known examples are Peking Man, found in the early twentieth century, and Java Man, found at the end of the nineteenth century. Previously, they were used as evidence that human beings evolved independently around the world, however, *Homo erectus* died out in Asia. The link to our own species evolved through those who remained in Africa.

And once again, it seems that the vital driving force was a combination of nature and thought. None of our other relatives in the animal world can generate fire or keep it alive, which is an obvious competitive advantage. Mastering fire was also the prerequisite for many other technological leaps in history, such as the agricultural revolution and the industrial revolution, and the transition to fossil fuels.

As fibre is broken down faster when food is cooked or baked, meat and plants can be chewed and digested more quickly. Chimpanzees, for example, have to spend almost half their waking hours gathering and eating food. A lot of energy can be saved when food is processed in advance outside our body, eliminating the need for more than one stomach or to chew the cud. Such new ways of preparing and digesting food might also explain why our ancestors' teeth were smaller, and less sharp than other predators; the new diet clearly did not require such powerful jaws.

Scientists continue to push back the point at which fire was harnessed. The oldest, indisputable evidence is from South Africa, and dates back some one million years, though it may have been long before that, perhaps even as early as the first days of *Homos erectus*. It is likely that the first step was to control fires that occurred naturally, for example as a result of lightning strikes or volcanic eruptions. The British primatologist Richard Wrangham, among others, has argued that the combination of increased brain capacity and a smaller stomach presupposes the use of fire. Or as he puts it himself: it is cooking that made us human; our predecessors might as well have been defined as cooks, in addition to gatherers, hunters and fishers (Wrangham 2012).

Fire was also a good source of heat, making it easier to get by in new places and cooler times. The light from the fire made the days longer, so social interaction and work became less dependent on daylight. The split between the twelve-hour day and twelve-hour night in the tropics was not so important anymore, to the advantage of a species that was not able to see particularly well in the dark. Another benefit was that fire kept dangerous animals at bay, as they normally slept during the day and hunted at night.

The social brain

Even though the hand axe was the dominant technology for more than a million years, it does not mean that there was a break in evolution. The brain continued to increase in volume and

this stimulated new ways of thinking and awareness. For a long time, it was believed that a more complex brain was the prerequisite for generating and controlling fire. But, as we have seen, the opposite could also be true, that it was in fact fire and processed food that led to an increase in brain capacity. Our brain only accounts for around two per cent of our body weight, but it uses almost twenty per cent of our energy. In relation to body mass, the volume of the human brain is three times that of other mammals. The modern human brain is comprised of around a hundred billion neurons, and simply can no longer be compared with that of a chimpanzee. The use of fire also meant that food was more often eaten together around a fire. This paved the way for more cooperation, intimacy and stronger bonds. People had to work together to gather wood for the fire, to make sure that it did not burn out of control, and to put it out at night. But there was a price to pay: larger craniums made it harder for the head to be pressed down the birth canal, and children therefore had to leave the security of the mother's womb before the brain was fully developed. The alternative would have been a broader pelvis, but that would have required a return to walking on all fours. As a result, pregnancies became shorter than before, and the human child is therefore more dependent on a carer to feed and look after them, than any other mammal. Babies have to learn to crawl before they can walk, and it takes a long time before they utter a word that has any meaning. However, helpless children develop a tighter, lasting bond with other people. This applies not only to the mother who breastfeeds them, but also others in the same family or group. This strengthened the sense of belonging and empathy, as well as a sense of responsibility and the ability to solve problems together. According to Darwin, it was not the strongest – or the most brutal – who carried on the family line in natural selection, but rather the ones who were best at adapting and who were most attractive as potential parents. It might have been the one who looked after the fire, or the one who always gave a helping hand, or looked after their children. In other words, a bigger brain was a more socially-aware brain.

Heading for Homo sapiens

Finds in Zambia and South Africa, among other places**,** have shown that the further evolution that took place in eastern and southern Africa resulted in key features that led scientists to define a new species, which appeared a little less than one million years ago. This species did not stay put either, and some groups started to migrate towards Europe and Asia around 600 000 to 800 000 years ago. It is thus slightly misleading that they were given the name *Homo heidelbergensis*, after the German city of Heidelberg, but it was in the mid-1800s, when European archaeologists were not particularly interested in anything from Africa, unless it was Egyptian. As was so often the case in what we call prehistoric times, the new species spread out in many different directions. Outside Africa, *Homo heidelbergensis* evolved into the Neanderthals and Denisovans. The latter were "discovered" very recently in Siberia, after genetic testing on some bones and teeth. Even though there is not much that differentiates them from the Neanderthals, they are still deemed to be separate species, but without a fancy Latin name. It was those who stayed in Africa that went through the anatomical, biological and behavioural changes that led to *Homo sapiens*. It is widely believed that this process was

completed in the north-eastern part of the continent around 200 000 years ago. The oldest find from these parts was in the Awash Valley in Ethiopia, but archaeologists have to date only covered two to three per cent of the African land mass, so no doubt there will be more surprises. In 2017, it was revealed in scientific journals that finds in North Africa and the southern part of the continent were probably much older than originally thought, dating back to 250-300 000 BCE. However, there is much to indicate there was still some way to go before *Homo sapiens*. Over the past 200 000 years, there have been few substantial changes in appearance, cranium shape, body size and brain capacity. If the very first examples of *Homo sapiens* were to cut their hair, take a shower and buy new clothes, they would as "anatomically modern people" not look out of place on Instagram. However, while there may little difference in appearance, our language, ability to process knowledge and social behaviour have all continued to evolve. And so it would seem that the software developed faster than the hardware, and the process is still ongoing.

Language, learning and collective memory

The difference between *sapiens* and earlier species constantly widened as language and abstract thinking became more advanced. Most people have a vocabulary of around twenty to forty thousand distinct words, which can be put together in endless combinations. This is the result of the interplay, or co-evolution, of cultural, anatomical and genetic changes. For example, a prerequisite for pronouncing all the necessary sounds, for vowels in particular, is that the larynx has been pushed further down the throat. This has not happened with any other mammal, and was not evident in Turkana Boy, 1.6 million years ago.

There is an ongoing, and often intense, discussion between scholars from different disciplines as to when, why and how language evolved into its current form. But as all people learn language in the same way, and they have the same speech organs and brain function, it must have happened in Africa before the last migration around 60-75 000 years ago. And there can be no doubt that this made migration and adjusting to new places far simpler.

The development of language also became the basis of a wider community. No other species in the animal world displays a similar complexity in language and thought patterns. Human speech has not only made it possible to communicate with others, but also to understand how they perceive things. It also allows us to sort our knowledge in to mental files, get lost in thought and have several thoughts in our mind at once. Thus the collective memory could be carried forward, and actions and norms did not need to be reinvented by each new generation. Another unique feature is our interest in history, hence the anthropologist Lewis Dartnell's statement that human beings are nothing more than naked apes, which are differentiated by our concern with our own origins (Dartnell 2018).

And with language and thought, came what we now call art. There are cave paintings in Blombos in South Africa that are around 70 000 years old, engraved in ochre, a clay earth pigment based on ferric oxide. The oldest examples of decorated ostrich eggs were also found in this part of Africa. As has been quite rightly pointed out by many archaeologists, there are

more early cave paintings in Europe than there are in Africa. But that may well be because there are not as many caves in Africa, or that they are better hidden. It is no surprise that the oldest finds have appeared when rocks and mountains have been blasted in connection with mining.

Out of Africa – again and again

We can follow the journey of modern man and the transfer of genes over millions of years, with all its cul-de-sacs, leaps and bounds. But why are we the only line of the *Homo* family who have not died out? And why are we the only members of the animal kingdom who have managed to adapt to the climate and living conditions all over the world, with the exception of Antarctica, while others are more tied to one place?

Once again, we have to go back to northeast Africa. A few individuals of the *Homo sapiens* species left the area and migrated out of the continent around 120 000 years ago, perhaps even earlier. But they did not get far into West Asia before they died out, leaving no lasting evidence. The crucial migration appears to have taken place around 60-75 000 years ago. This coincides with a change in the climate in East Africa, from wetter and warmer to cooler and drier. One incentive might therefore have been the need to find new water sources for both animals and humans, in other words, we were in fact "rain chasers" (Finlayson 2014).

More recent research indicates that the migration from East Africa may have come at a point when there were no more than a few thousand individuals left. And if there was a genetic bottleneck, then we can all trace our roots back to the same few African ancestors. It is also possibly that the eruption of the Toba volcano on Sumatra around 74 000 years ago, one of the largest in history, blocked out the sun and caused a "volcanic winter". This could be the explanation as to why there were so few of the *Homo erectus* species left when humans finally reached the area around the volcano in Asia. It is also interesting to note that there are few finds of fossils or art in Africa from that period.

The way north probably ran through the Nile Valley and on into the Middle East via Sinai, which at the time was a far lusher place than it is now. Another route might have been across the narrow Bab al-Mandab Strait at the southern end of the Red Sea. The sea level was then at its lowest ever, as so much water was bound up in ice in the polar regions. From the Arabian Peninsula it was possible to move quickly along the coast to the southern part of Asia, which had roughly the same ecosystem as the region in Africa they had left. The journey east took longer; it is thought that people have lived in Australia for more than 50 000 years.

It would appear that the migration north and west towards Europe started from the Middle East. The oldest finds have been made in what are now Romania, Bulgaria and Croatia. The journey eventually led to the American continent. This may have happened because hunters followed the mammoths over the Bering Strait, which was more or less dry

before the Ice Age started to ease around 15-20 000 years ago (see map). Language also appears to have spread around the world from that same key area in Africa. For example, the number of sounds and consonants seems to diminish the further from this place people moved. The family of *khoesan* languages of the indigenous people of today's Botswana and Namibia is perhaps the oldest in the world. It was the common language spoken over large parts of Africa at the time of the migrations.

The Only Ones Left

The reason why it is believed that the most important migration took place as "recently" as 60-75 000 years ago, is that the genetic differences between modern human beings are – literally - microscopic. The fact *Homo sapiens* has lived for so much longer in Africa than in any other continent also explains why the genetic differences are greater within Africa than among descendents of those who migrated, no matter where in the world they live (Rutherford 2020).

Visible differences between people today, for example skin colour (pigmentation), may be explained by our adaptation to varying degrees of ultraviolet rays or other environmental conditions. A lighter skin colour is largely due to the need to absorb more sunlight, which is a vital supplement to a diet that is low on vitamin D. It is hard to know how long it took for these changes to happen, as they leave few traces in the bones. But in 2018, a 3-D reconstruction was made of a person who lived in England 10 000 years ago, who would be categorised as black, according to current criteria. The differences are therefore more recent and fare more superficial than previously assumed, and are in fact only skin deep. From a biological standpoint, there is therefore no scientific reason whatsoever to talk about different races.

Homo sapiens met different species in Asia and Europe who had left Africa in earlier migrations. It is thought that they lived with the Neanderthals in southern and eastern Europe for around 10 000 years. The Neanderthals have an undeserved reputation for being primitive, but they clearly were able to adapt enough to survive for hundreds of thousands of years. They also knew how to use fire, were good hunters, communicated in a simple language and buried their dead. Their brain volume was in fact greater than ours, but size is not the most important thing: it is the functioning and linking of neurons that matters. The newcomers had better hunting weapons, a more varied diet and quicker movements. They had also learned to use a needle and thread to make fitted clothes, which kept out the cold. And their language was more developed, so they could communicate better with one another, plan for the next day and work together in larger groups. The Neanderthals were very possibly already depleted by illness, falling numbers and inbreeding, and is it likely that they quite simply died out.

More recent genetic studies of the Neanderthals reveal that the kinship with *Homo sapiens* was so close that they could have children together. And so, most Europeans and western Asians have inherited some two per cent of their genes from the Neanderthals,

including, possibly, a predisposition to red hair. There are also examples of the exchange of genes with a limited number of Denisovans. It is possible that our propensity to mood swings and the ability to stomach great heights originates from them.

The last traces of Neanderthals are around 30 000 years old, in areas within Europe close to Turkey. And so, what we ourselves might call “the wise human”, survived its closest relations. Given that our species has taken control of all the earth’s biological resources, and has fundamentally changed the climate and environment, one could ask whether a more appropriate name for us might be *Homo dominatus*. (Maslin 2017).