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ANDREW MARR

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A History of the World

Part One

OUT OF THE HEAT, TOWARDS THE ICE

From Seventy Thousand Years Ago to the Early Mediterranean Civilizations

So where should we start? Physics and biology push back so far that our brains struggle. There is the Big Bang, 13.7 billion years ago (perhaps only one of many) and its consequences – the coming of the elements and the galaxies and the planets. This is deep time, parts of it still visible in the night sky every day of our lives, through which flow mysteries even today's cleverest humans do not understand, such as dark energy and matter.

We could start more locally, with the early history of Earth, beginning some 4.5 billion years ago and following the growth of life in a thin, fragile membrane wrapped round a whizzing ball of iron and rock. We could begin with carbon capture, and the fifth of Earth's atmosphere being composed of oxygen, without which this would be just another dead, hot lump of wrinkled geology. This is the Creation story of modern mankind – no feathered serpents, giant turtles or six-day creative explosion by a moral experimenter, but something just as awe-inspiring in its scale and mystery.

We could fast-forward through the first half-billion years of the living rock, when it was water-shrouded (a little over 70 per cent of it still is), and talk about the evolution of life on dry earth.[1] We could rehearse our Charles Darwin, telling the story of the first tiny mammals, our ancestors, and how they took advantage of the disappearance of the great lizards, or dinosaurs. More conventionally, we could chart what we know of the complex and delicate family tree of early apes and hominids from which we spring.

Any one of these starting-points would be informative and useful. Our human history, as it is told today, is only a final page after a vast preface of intense astrophysical events, chemical reactions and evolutionary changes. It does not start with a creator moulding men and women from mud or blood with his own hands, nor in the Garden of Eden. What follows here is a history of the social, global human, how-

ever: so let's begin with a woman, and a birth; to put it poetically, an African Eve.

Mother

She had a different name. No one has known it for around seventy thousand years. She had one; for she lived among talkative and highly social people. 'Mother', for reasons that will become obvious, will do. She was probably young, tough, stocky and dark-skinned. She was a traveller, part of a people always on the move. She was also heavily pregnant. Her tribespeople were hunters and expert gleaners of berries, shellfish, roots and herbs. They carried tools and hides and a couple of babies with them, tied with sinews and skins around adult backs, but there were surprisingly few children in the group. Those who didn't learn early to walk, keep quiet and keep up tended to die, picked off by predators following the group.

In their own way the travellers were, however, formidable, armed with spears and razor-sharp chipped-stone cutting edges that had been developed over around a hundred thousand years of hunting, and (if they were anything like later hunter-gatherers) while fighting rival tribes. Their average age was relatively young, something that would remain true of all human societies until very recent history. But there would have been people in their fifties or sixties. It is now thought that the female menopause may have been a useful evolutionary adaptation to provide grandmothers, who could care for the young while younger women were breeding: tribes with grandmothers would be able to support more children to adulthood, and therefore would grow at the expense of tribes without older women.

The men would have been marked by hunting scars but would be vocal and thoughtful tacticians, experienced in tracking game and exploiting their understanding of other animals. The oldest, the father of this clan, might be in his sixties. Hunters in their thirties or forties may have been the most effective food-gatherers. This group had been moving for years, slowly north through what are now called Kenya and Somalia, towards a strip of water that looked possible to cross. The flow of water was lower than it used to be, leaving dry patches of land. Wading between them would have been a risk worth taking,

because the game and the vegetation around them was getting harder to find. Life would be easier on the other side.

The group would have had no idea they were about to leave one continent where all humans originated; nor any notion of just how far their descendants would walk, working their way along beaches, a mile or two every year, clearing out the shellfish and the crabs in rock pools, gorging on a beached whale, spearing ridiculously incurious goats. All life was a journey. Always, a new track must be made. Ahead of them and behind them, once they had moved on, the easier prey would return, but to stay put in a single place would be unnatural and dangerous. Declare anywhere 'home', and you would die of hunger. So though the water was a challenge, and everyone was watching everyone else as they waded – for the group had a language and talked about their plans – this was just another day.

They were probably clothed, in some way: a study of body-lice DNA suggests that they were infesting clothing around a hundred thousand years ago and it is thought humans lost most of their own fur millions of years ago. This group, much larger than a single family, would be accustomed to sharing out tasks; and this was directly related to the problems that started again with Mother's labour pains. Like all women, she knew the birth would be painful. Ever since anyone could recall, human babies had been born with surprisingly large heads, so big that to force them out through the vagina was agonizing. Mother would give birth standing up, surrounded by her sisters. Her baby would be helpless, a wobbling, vulnerable thing, for far longer than the children of other animals.

It was a puzzle, about which many things would be said during the long nights of storytelling. But the vulnerability of the modern human child was a long-term strength because it forced families and tribal groups to share out work and to cooperate. Today's hunter-gatherer societies generally have a clear division of labour between male hunters and females gathering plants, and it is likely this was already happening by Mother's time. It would be many tens of thousands of years before people realized that the big head, the relative helplessness and the consequently painful birth added up to an evolutionary triumph, producing animals able to tell stories.

Historians of human evolution also suspect that our warlike, xenophobic and mutually hostile character likewise evolved in Africa, and for

the same reasons. Tribes, extending beyond family groups, are at an advantage if everyone works together, 'for the good of the tribe', even if what they do is dangerous or unpleasant for them at the time. This means that tribal bonding is very important; without a sense of belonging and mutual dependence, the tribe falls apart. The other side of this is that, in a world where human tribes are moving around, searching for game, the tribal bonding is likely to be reinforced by hostility to other tribes. This obviously continues to matter.

Everywhere on the planet, early human societies seem to have worked hard to differentiate themselves from their neighbours, wearing different headdresses, jewellery, clothing and, above all, speaking different languages. The British zoologist Mark Pagel points out that, even today after so much cultural homogenization, there are seven thousand different languages spoken by humans, almost all of which are mutually unintelligible. Why? Other animals are not like this. He argues that our good qualities – our capacity to be kind, generous and friendly, allowing us to evolve cooperative and bigger groups, to 'get along with each other' – have to be set against bad qualities, 'our tendencies to form competing societies often not far from conflict'. In hunter-gathering groups competing for land, conflict is common and tribal war often a fact of life.

We have been hunter-gatherers, we humans, for far, far longer than we have been farmers – at least ten to fifteen times as long. We are only now becoming a species that mainly lives in cities; but if we say we have been dominated by cities for a century or two, then our hunter-gathering trail is a thousand times longer. So it would be literally unnatural if much of our behaviour did not relate in some way to that inheritance; above all in our combination of sociability and mutual suspicion. And so back to Mother.

For she was the mother of almost all of us. (There is another earlier, even mistier, figure: 'Mitochondrial Eve', who would be the mother of everyone, Africans included, far earlier in the human story, perhaps some 200,000 years ago; but her story is less well understood.) Our character's maternal achievement is to be understood literally, rather than as a parable. There are arguments about this, as there are about every aspect of early society, but the balance of probabilities is that she is your super-Mother. If you are a New York lawyer, she is where you came from. If you are an aboriginal Pacific Islander in a

cancer hospital, or a German farmer or a Japanese office-cleaner or a Pakistani Londoner at university – you come from our Eve. Stephen Oppenheimer of Oxford University, a specialist in DNA studies, says: 'Every non-African in Australia, America, Siberia, Iceland, Europe, China, and India can trace their genetic inheritance back to just one line coming out of Africa.'[2] That is, one group. One journey.

This seems now to be the consensus view. At first sight, it also seems impossible. How can one woman giving birth to one child be the mother of most of the human race? The answer goes by the name of 'matrilineal drift', and works like this. In each generation, some families do not reproduce successfully. It may be because of disease, a hunting accident, incompatibility – but some maternal lines die out. Over very long periods of time, therefore, almost all do. They have gone, and gone for ever. Imagine the process as a huge scythe, sweeping backwards through thousands of generations, gathering up a dark harvest of never-made-its. As the Darwinian writer Richard Dawkins reminds us, we are the children of survivors.

The seeming paradox is that alongside this scythe there is an ever-widening delta of humans being born and actually surviving. Why? Because for those who do survive long enough to procreate, if they can have child-survivors at just a little above the two-for-two natural replacement rate (and the same applies to those child-survivors, in turn), mathematics decrees a surprisingly fast upwards line of population growth – all of which must therefore be children of the earliest survivors. (There were patrilineal ancestors too, of course; it is just that nobody has yet found a DNA trace that helps us pursue them this far back.) Though hard to grasp and feeling like an optical illusion in heredity, 'drift' makes better sense when we recall that this is a period when the overall human population is barely increasing, and when life expectancy is very short. Eve is our universal mother because tigers, snakes, landslides and microbes got the others.

Eve's tribal group was already a remarkable achievement in survival against the odds, part of a human population of several hundreds of thousands in Africa, which had emerged in competition with other varieties of clever ape. Human history, properly understood, starts when we move from being just another form of prey in the cycle of eat-and-be-eaten, a creature blown about by the natural world, to a creature beginning to shape the world. We move from happens-to, to makes-happen.

But *Homo sapiens* was only one branch of a tree of hominids who were learning how to alter their environment, if only in a minor way. There are almost no historical arguments as complex and heated as those about modern man's origins. The reason is straightforward: scientific advances in the study of human DNA and in the dating of bone fragments and other material keep challenging, and sometimes overturning, earlier theories. It may be the furthest-back part of human history but it is changing faster than the history of, say, the Second World War. Amateurs must step delicately across an exciting minefield.

One thing that is now widely agreed, however, is that this is a story in which climate plays a pivotal role, more so than we used to realize. The cooling and warming of the planet because of solar activity, meteorite strikes, eruptions or tiny changes in its angle of spin affect the advance and retreat of deserts, the opening or closure of bridges for migration, and thus the story of our storytelling ape. In general, the more complicated the changes in the climate, even when they produce the extinction of other animals, the faster the advance of hominids seems to have been.

Adversity favours the versatile. The first attempts by tree-living African hominids to live on two feet came after cold, dry weather attacked their forests two million years ago. The open grasslands that resulted made it imperative to be able to run and hunt and see into the distance, and scientists believe this eventually resulted in *Homo erectus*, an important early version of humanity, with a brain around two-thirds the size of ours.

There were further changes in brains, as the warm Pliocene epoch gave way to the ice ages of the Pleistocene and to new challenges. Inside Africa, it now seems, a great complexity of hominids evolved. But *Homo erectus*, which ranged far out of Africa, evolved first into the bigger-brained *Homo heidelbergensis* – people who were hunting and making axes in England half a million years ago, and had a brain not so much smaller than ours, around 1,200 grams compared with our 1,500. Modern 'us-sized brains', had evolved in Africa around 150–100,000 years ago. This gives modern humans the largest brain for body size of any known animal, about seven times bigger than you might expect for our heft.[3]

This picture of human development is a brutal simplification. There

are intimidating-sounding lists of pre-modern human species, varying greatly in height, shape of skull, leg bones and weight. Though scientists name and slot them into seemingly neat divisions, as evolutionary trees are assembled, the truth must have been messier. Chris Stringer of London's Natural History Museum usefully reminds us that species 'are, after all, humanly created approximations of reality in the natural world'.[4] Skulls of similar age, which are alike but not identical, hide subtler variations between early humans lost to us, so we should not get too scared by the thicket of scientific names.

What most needs to be grasped is that modern humans were not just a single super-bright, planet-conquering ape, who leapt as if by magic from an earlier world belonging to dim ape-men. Those earlier species, including the famous Neanderthals, and in Asia the 'Denisovans' (both coming after *Homo heidelbergensis*), also survived dramatic changes in climate and pushed into new territories as pioneers, equipped with cutting- and killing-tools. They probably decorated themselves, may have had some form of language, and may even, at the edges, have interbred with the newcomers, *Homo sapiens*. More interesting to us, though, is what they lacked.

So let us now return to Mother and her tribal migration. Did it really happen that way? Everyone agrees that Africa retains a genetic diversity of humans not found anywhere else, and that all humans began there at some point. But there has been a major argument about whether all non-African modern humans originated in a single (or nearly single) movement out of the continent, spreading round the world from around seventy thousand years ago. The alternative idea is that these other species, which had left Africa and colonized Europe and Asia much earlier, in fact survived. Could they have evolved into, and in places also bred with, *Homo sapiens*?

Between the two extremes there are shades of grey, but these offer two radically different views of today's humanity. One says that, in essence, all non-Africans are close relatives, 'Mother's' children. The other argues that different human populations emerged more slowly and separately in different parts of the world. This, it is claimed, may explain why many of us look and even behave so differently. The latter view has been more popular among academics outside the Western tradition, and our ideas about contemporary humanity barely need spelling out. This is not a dry argument. Are we family, or rivals?

Scientific opinion is now heavily tilted to the 'out of Africa' or 'recent African origin' model, mainly because of advances in tracing one particular form of DNA marker, mitochondrial DNA, leading back to Africa, where modern humanity, *Homo sapiens*, did not begin to appear until about two hundred thousand years ago. But the old picture of apes simply getting cleverer and cleverer until 'our lot' walked out of Africa and began populating an empty Europe and the Middle East seems to be wrong. Just like other animals, earlier hominids had been on the march long before. Recent archaeological discoveries in South Africa suggest that fire, and cooking, were being used nearly two million years ago by *Homo erectus*, though this is a highly controversial issue. It would help explain the growth in brain size, since cooking greatly increases the quantity of calories that can be ingested; and brains are very energy-hungry.

At any rate, before our migration the world was already inhabited by other kinds of people. What happened to them? It is likely that they were victims of changing climate conditions, destroyed by cold and hunger when temperatures fell again, or possibly by modern humans who were better organized and able to adapt. Nor, it seems, did modern humans leave Africa through Egypt, breaking first into the Mediterranean and European worlds, as Europeans once thought. We first went south, heading down along the coast of India and South-East Asia, foraging for shellfish as we went, and eventually somehow made it to Australia across the sea. Again, scientists argue about this, but it seems possible that aboriginal Australians arrived in their land many thousands of years before aboriginal French or Spanish got to theirs. And tracing back through the DNA trail suggests that the Cro-Magnon Europeans were descended from people who, before turning north, lived in today's India. History is the story of migration, as much as settlement, long before Columbus or the Irish arrived in America.

What caused the *Homo sapiens* push out of Africa? Again, there are rival theories.

Around 73,500 years ago a massive volcano erupted in what is today called Sumatra. This was by far the biggest such disaster of the past two million years,[5] and some scientists suggest that modern humans nearly did not make it through at all when the eruption misted the skies and radically cooled the planet. Some argue that the

human population fell back to only a few thousand individuals in southern Africa, causing a bottleneck in evolution for thousands of years. This may have produced a radical pruning-back and regrowth of a more ruthless and organized humanity, better able to migrate round the world when conditions improved – Mother's well organized tribe. Others think this has been exaggerated and that, bad though the conditions were, many species survived them.

Once that human migration from Africa had happened, however, it is clear that further episodes of chilling and heating shaped their later movements and ultimate success. It took a long time for the routes to open up across today's Middle East and into Europe. But once humans arrived there, a later volcanic eruption in Italy, some thirty-nine thousand years ago, and sporadic 'Heinrich events' – when icebergs broke off into the Atlantic producing severe periods of cooling – kept the climate unpredictable. The northern ice cover retreated and then came back again several times. The migration patterns of deer, bison and other animals shifted. Comfortable refuges became grim; and then grim wastelands bloomed. Repeatedly, humans had to alter their habits and behaviour to survive. Again: adversity favours the versatile.

It seems that after the African migration, small numbers of *Homo sapiens* were better adapted to manage these shifts in climate than earlier versions of human had been. If so, this happened not because of classic Darwinian evolution (there wasn't time) but because of the accelerated development caused by culture – language, learning, copying, remembering. We became more skilled with our fingers. In bigger groups, we were able to allow specialization – the best trackers to track, rope-weavers to weave, arrowhead-makers to chip. Working together we were better, more lethal, hunters. Human groups struggling to cope with a cold, drier world had to learn new things, including the ability to make more complex language, empathize with prey (about which more soon) – and both fight with, and learn from, rival groups.

Chris Stringer says that this allowed the acceleration that replaced the 'two million years of boredom': 'Through imitation and peer-group feedback, populations could adapt well beyond the abilities of an isolated genius, whose ideas might never get beyond his or her cave, or might be lost through a sudden death.'[6] It may very well be that

other *Homo* groups were also able to speak, plan ahead, and so on, but not so well, and were therefore destroyed by the rate of change in the world around them; or were wiped out (and possibly eaten) by us. Another historian of early people, Brian Fagan, has argued that this new cooperation involved the invention not simply of speech but of abstract thought, 'a new realm of symbolic meanings, which thrived in a world of partnerships between humans and their surroundings' and which included, for the first time, art and perhaps religion.

Carrying all this with us, we spread first into Asia and then Europe. We reached the far east of Asia around 40,000 years ago and arrived in the Americas, across the 'Beringia' land bridge (long gone), around 20,000 years ago. By 12,000 years ago we had reached the southern areas of South America, and the final areas of human habitation were the islands of the mid-Pacific. Hawaii and New Zealand were reached only a thousand years ago, by people whose culture was still essentially that of the Stone Age yet who had developed impressive star navigation and boat-building. This spread of *Homo sapiens* is very fast compared with the 1.4 million years or so for the development of our previous ancestor, *Homo erectus*, into us.[7] In biological time, it is like an explosion. Everywhere we arrived, there is evidence of the extinction of other large mammals.

We should rid ourselves of any comfortable or complacent sense that contemporary humans, sitting in coffee bars or driving cars, are superior in intellect to the hunter-gatherers who emerged from those hard African aeons. Hunter-gatherers had to be able to do many more different things than today's urban people, and it has been estimated that men have lost around a tenth of their brain size compared with the people of the last ice age, and women 14 per cent. The Australian scientist Tim Flannery points out that the same is true of domesticated animals compared with their wild forebears, and for the same reasons: 'Overall, life for all members of our domesticated mixed feeding flock is made so much more accommodating that its members can invest less of their energy in brains . . . If you doubt how far our civilization has turned us into helpless, self-domesticated livestock, just look at the world around you.'[8] This may seem harsh, but it is a useful corrective to our modern condescension. Early humans, driving out of Africa, were extraordinary, rather terrifying creatures.

Caves of Genius

We know more about the first European settlers, the Cro-Magnons, than we do about the first Asians and Australians, but this is more to do with the history of archaeology, and European self-satisfaction, than with anything else. Predictions are dangerous when it comes to early history, but it seems safe to say that the big new discoveries are likely to come in China and other parts of East Asia. Meanwhile, the Europeans enjoy the odd bits of poetry awarded to early cultures by the accident of where their bones were found. They are 'Aurignacians', 'Magdalenians' or 'Gravettians', which is confusing, though better than the preferred modern academic term 'European Early Modern Humans', or EEMHs.

So, who were they?

Most people living then would have known only small local groups. It has been estimated that throughout this long period there was rarely a gathering of humans on the planet numbering more than three hundred or so. There must have been breeding across different groups, or the genetic cost would have been horrendous, so there must also have been contact between tribes at the edge of their range. We are sure they had language, but what kind? Settled people in Celtic or Chinese cultures had different dialects in different valleys, altering every few score miles. The same is true in Papua New Guinea, Australia, pre-European North America and the Amazon Basin.

The languages that emerged in different parts of the world are very different from each other, though hints of some original or 'Ur-languages' can be traced through common-sounding words. But over larger distances, there are big differences in the way sounds are formed – where in the mouth and throat, how the lips and tongue are used – and the way grammar works. It seems likely that the Cro-Magnon people, like aboriginal Australians, had a kaleidoscope of local dialects and languages with enough familiar words and sounds to allow communication across the edges of rival tribal groups.

We also know that later agricultural societies worshipped deities associated with their survival – gods for water, rain, sun, corn. So it seems likely that hunter-gatherer societies gave a special place to the aspects of nature they relied on most heavily – the animals they killed

and used. Today's hunter-gatherers tend to show reverence for, and close observatory interest in, the birds and animals they live off. African hunters are known to mimic animals they intend to pursue, to try to get inside their thinking. Surely the cave paintings of aurochs and bison have a similar origin? Modern hunter-gatherers also have creation myths, stories about where they came from. It seems unlikely that the darker-skinned earlier versions of ourselves did not have those too.

And indeed, the three hundred or so painted cave sites in Spain and France discovered so far imply a belief system based on animals and the natural world. Looking, drawing, copying – using the hand, eye and memory – seem to constitute a very early human characteristic, and it is always possible that the cave paintings are 'art for art's sake' rather than having a spiritual purpose. Yet the use of cave art by people in Africa and Australia, and the intensely repeated images, suggest some kind of religious system. We have very early bone flutes; and the paintings would have been made in the semi-darkness.

There must have been stories, too. It is not a fantastic leap to imagine music-driven underground rituals intended to ensure that the deer and horses keep migrating, or to honour the giant creatures brought down by spear-throwing hunters. The association of darkness, bulls and mystery is deeply embedded in the European imagination. Similar art may have been made elsewhere, and lost. It may yet emerge in many other places: 6,000-year-old paintings were found recently in a cave in Inner Mongolia, northern China. But what we have in south-western Europe is a wonderful trumpet-blast for the arrival of fully modern humans, art already quite as accomplished and moving as the later drawings of a Rubens or a Van Gogh.

Our relationship with a closer contemporary relative, the beetle-browed humans we call Neanderthal, is a darker story. These people can be defined as a separate species or a subgroup of our own, and were physically distinct: heavier-boned, with differently shaped skulls and perhaps without full speech. They appear fully developed only around 130,000 years ago and survived in Europe until between 30,000 and 24,000 years ago – though they disappeared earlier in Asia. So as an 'unsuccessful' species, an all-round failure much mocked by cartoonists, they survived, roughly speaking, for 100,000 years – much longer than has *Homo sapiens* outside Africa so far, and indeed fifty

times longer than the period that separates you, reading this, and Christ.

What happened to them? There was no cataclysmic event. Modern humans lived alongside their near-relatives for around thirty thousand years. Scattered archaeological evidence suggests Neanderthals may have copied the new super-hunters, altering their own tools. Biologists fiercely disagree about whether the two groups interbred, and the latest thinking is that probably they did – a little; there is (a little) DNA evidence from some scattered communities. The 'new people' clearly enjoyed advantages. The Neanderthals may have used a form of humming or singing communication rather than full-scale language; it has been suggested that because they lived in small groups they did not need to convey complex information, but only emotion.[9] So far as we know, though they buried their dead and may even have used makeup, they made no art and did not invent bows, harpoons, needles or jewellery.

They survived well in climatic conditions that we can barely comprehend; the 'old stone age' was a time of ice sheets arriving and retreating, testing the flexibility of humans to the utmost. Neanderthals had to rely on the skins of the animals they killed to protect them from the cold, but modern humans had a secret weapon, more important even than their better cutting edges, their spear-throwers or the bows that would allow them to kill from a distance: they had sewing. Many beautifully formed needles have been found, as well as the awls to cut the holes needed for the thread to pass through. As with today's Inuit people, Cro-Magnon man could dress in clothes that fitted closely and were worn in layers, giving much greater protection and flexibility than bear-hides. Brian Fagan says: 'The needle allowed women to tailor garments from the fur and skin of different animals, such as wolves, reindeer, and arctic foxes, taking full advantage of each hide or pelt's unique abilities to reduce the dangers of frostbite and hypothermia in environments of rapidly changing extremes.'

The needle plus the better weaponry, and the group-planning allowed by full language, made Cro-Magnons unbeatable. The Neanderthals may simply have been driven to extinction by competition. Or worse: there is unsettling evidence from Les Rois in France of butchery marks on a Neanderthal skull, suggesting that modern humans may have eaten the contents. The Neanderthals were probably canni-

bals, at least some of the time, but it is possible that any interaction we had with them back then was far removed from mere social observation, still less regular interbreeding: 'Neanderthals? Mmm. . . . Far too tasty to flirt with.'

Of course, we have only the bony, stony splinters of lives lived in wood and colour, and enriched by music, stories and ideas about the cosmos lost to us. But such vast stretches of time have left their marks on us. Some anthropologists believe that our preferred, normal size of family and friendship groups – the people we really know and interact with, not our Facebook friends – reflects the size of prehistoric hunting groups. Then, there was even more need for a division of labour. The skinning, curing, cutting, stitching and cooking had to happen alongside the hunting and foraging. Sexual division of labour was already a fact. It has been argued that such seemingly subtle differences between the sexes today as men's greater enthusiasm for strongly tasting food and drink (curries, pickles, whisky) are dim reflections of the hunter-gatherer past, when men foraged further and had constantly to test the edibility of dead flesh and berries.

The way our brains process visual information, ruthlessly focusing on movement, is certainly an early hunting (and running-away) adaptation. Is our readiness to close the curtains and huddle in front of a television set when winter arrives a memory of the safety felt in underground caves? Knowing for sure so little about our early society can make us drily cautious when we try to imagine this lost vast stretch of human history. Probably, the more boldly we let our imaginations range, the more realistic we are being.

But what lessons can safely be drawn from prehistoric hunter-gatherer societies?

First, that we were, from early on, the pawns of climate. Human civilization emerged during a warm, wet phase of Earth's oscillation. Our earlier close-squeak moments came as a result of global cooling, and there is no reason to suppose the cycles of warming and cooling have been for ever suspended. We may be heating the planet up dangerously fast again and we may disappear as a result. But our history reminds us that we are versatile. We are here because we are good adapters.

Second, we are both extraordinarily creative and extraordinarily violent. Indeed, the two seem worryingly inseparable. A range of

modern historians and archaeologists have effectively debunked the myth of the noble savage, which infected European thinkers – reacting against their own leaders' war-making – from the Enlightenment of the 1700s to Communism and into our own times. There is a history of lethal raiding and occasional massacres that has been uncovered from Stone Age Europe to the New Guinea Highlands, from Alaska and the Americas to the Asian steppe, which clearly pre-dates war-making states.[10] As we shall see, it was certainly not universal. But hand-axe-shaped holes in the skulls of murdered Europeans suggest prehistoric man was doing more than making art.

The archaeologists Stephen LeBlanc and Katherine Register, after contemplating the evidence of war and massacre among the Anasazi people of New Mexico long before Europeans arrived, have made a long study of prehistoric warfare, which they conclude was regular and very brutal. They say this about those famous, glorious caves:

> Even more evidence of warfare is found among the paintings at Lascaux and other caves in France and Spain. These earliest known human artworks feature magnificent renditions of bison, mammoth, and deer but also include sticklike human figures with spears projecting into their bodies. Somehow, descriptions of these less-than-harmonious sides of the world's wonders don't often make it into the travel brochures. There is a failure to look for or see evidence of warfare because of a myth and the pre-occupation with the idea that the past was peaceful.[11]

As I have argued earlier, this was probably linked with our strong group-bonding, which allowed us to populate the world in the first place, to celebrate 'us' and, by extension, to demonize 'them'. We probably wiped out other human types, we certainly wiped out other mammals; and throughout our history we have, in the intervals between making art and love, tried very hard to wipe out each other. We began, and we remain, agents of instability.

The Farming Puzzle

In the Introduction, I warned that this would be a 'great man' and 'great woman' version of human history, and that kings mostly

mattered more than peasant farmers. But this is only so *because* of those farmers. Because of agriculture, the human population of the world rose hugely. Because people stopped moving around in bands of hunter-gatherers and settled down to look after crops and animals, they developed villages, then towns, then civilizations. Thicker versions of primitive maize, the heavy seeds of Asian grasses, the collected-and-replanted wild rice in China, are the tiny items upon which the Aztecs, Sumerians, Egyptians and early dynasties stand. And us too. Without farming – no class divisions, no surplus to elevate kings and priests, no armies, no French Revolution, no moon-landing.

So what is the puzzle? It is that people would choose to farm in the first place; because it did not make for an easy life. The chances are that, if you are reading this, then of the seven billion people alive right now you are among the one billion living in the rich world and within that one billion you have lived your life in a town or city. We have lost touch with the importance of farming, its perils, its hopes and timescales. Farming has become something most people who read books like this have never had to bother about. Famines happened in recent European history only because of wars or political incompetence. Our abundance is so great, no disaster-movie producer has even contemplated famine as a Western plot line.

Yet farming, which was mostly back-breaking, boring work, is coming back to haunt us, the victims of its very success. Farming made the human population take-off possible. It took nearly ten thousand years from the first attempts at agriculture for the world's population to reach a billion. Now we are adding extra people at a billion every dozen years. World food stocks, held for emergencies, are tiny. This means that to avoid famine every person needs to be fed by a far smaller patch of land than ever before. This will not be easy. According to the US National Academy of Sciences, measured by weight humans make up less than 0.5 per cent of the planet's animals but consume a quarter of its plants' production. It is time to remember how interesting and important mere farming really is.

And to salute those who began it. For the archaeological record is clear. Early farmers had in general worse health and lived shorter lives than their hunter-gatherer predecessors and rivals. Fused and misshapen vertebrae, bad knees and bad teeth tell a story repeated in

cultures all around the world. In a study by the anthropologist J. Lawrence Angel in 1984, it was shown that human lifespans actually fell between the hunter-gatherers of the Palaeolithic period some twenty-five thousand years ago, when men lived for around thirty-five and a half years, and the height of the agricultural revolution five thousand years ago, when men lived on average to thirty-three. Men lost about six inches in height by becoming farmers; women shrank by about five inches. Later jokes about farmers always protesting about the weather, or being naturally glum, are rooted in a basic truth. It is a hard life, hedged about with worry. For early farmers the basic toil of cutting down trees, irrigating fields, hand-ploughing with branches and harvesting with slate and stone sickles was compounded by the fear of the crop being eaten by wild animals or stolen by better-armed and more aggressive hunters.

So again, why – why in a world of leaping salmon and herds of antelope, a world relatively empty of humans but filled with berries and game, would people choose to stick in the mud? Ancient myths of Gardens of Eden, of a golden age and of carefree people living in the forests are reminders that farming – shaping nature rather than plucking it – has never seemed an obviously attractive bargain. It is no accident that later on, when rulers emerged, they so often had themselves portrayed as hunters, and that even in the modern world hunting is a sport of kings. No monarch has had himself portrayed ploughing, or digging potatoes. The world of the hunter seems somehow nobler, grander and more exciting than that of the farmer, bowed over his furrows or uneasily patrolling the walls of the sheepfold.

One answer to the question of the rise of agriculture is that it simply allows far more humans to be alive. It has been estimated that a hunter-gatherer needs about ten square miles of game and berry-filled land to live on, whereas agriculture can produce enough calories in a tenth of that space to keep fifty people alive. More humans and therefore less available hunting land suggests that agriculture was the only answer. Yet this is to put the question the wrong way round. The increase in population came after agriculture started, not before. Across the planet, throughout this period, vastly more land was inhabited by hunters than by farmers: this is the unrecorded narrative of the Indian forests, the Eurasian steppes, the jungled islands of East Asia and the migrations of the Americas. Most people found ways of *not*

farming. And yet farming was repeatedly invented in completely separate parts of the world.

It happened first in the Fertile Crescent, which curves from today's Jordan and Israel, up to Anatolia in today's Turkey, and then like a sickle back east into Iraq. It happened in northern China next. Then in Mexico; and independently in the Andes; then in what is now the eastern United States. It may have developed independently in Africa too, and in New Guinea. Thousands of years separate these 'origins of farming' breakthroughs, but they are clearly more than a coincidence. And once farming is firmly established, it often spreads, as it did from the Fertile Crescent into Europe some four thousand years after its invention, and into the Indus valley in today's Pakistan, and Egypt.[12]

Though historians argue about the reasons, they mostly agree that, again, climate change was very important. There was no single 'ice age': as we have already hinted. But around fifteen thousand years ago the coldest part of the last ice age was coming to an end, and the climate of the key landmasses north of the equator began to improve. Without the greater fecundity of plants there could have been no farming. In the milder, wetter climate there was an early abundance of animal life too, which provided hunters with an easy living. But from the Americas to Australia, there is enough evidence of mankind's arrival being followed by extinctions of large mammals to suggest that we simply became too good at hunting for our own long-term survival. The game got harder to find. Migrations of deer, horses, antelopes and others shrivelled and changed course. Animal bones found near human settlements actually get smaller over time, as the bigger adults are killed off.

By around eleven thousand years ago, some groups of humans realized that by keeping some animals near by – to begin with, the ancestors of today's sheep, goats and pigs – they could ensure for themselves meat and hides. People had probably been gathering edible seeds for centuries before they started to plant stands of them, then returned to the same place for the annual harvest of seed-heavy grasses or nutrition-rich peas. Most plants and animals are, of course, useless to humans – the indigestible foliage, the poisonous roots, the thin-fleshed, hard-to-catch birds and insects – so careful selection of those species that would repay care and attention was crucial. We have to imagine an individual discovery, repeated again and again – those

grasses, with those slightly heavier grains swaying on that particular incline where the stream turns course, gathered and returned to, and eventually helped along, helped to multiply. In societies where men would be expected to hunt further from their settlements, this was probably a breakthrough made by women.

In this, the people living in the Near East were especially fortunate. There are fifty-six edible grasses growing wild in the world – cereals like wheat, barley, corn and rice. Of those, no fewer than thirty-two grew on the hills and plains of the Fertile Crescent of today's southern Turkey, Syria, Jordan, Israel and Iraq, compared with just four varieties apiece in Africa and America, and only one native variety, oats, in Western Europe. Furthermore, the peoples living in the Fertile Crescent had access to the wild originals of emmer wheat, barley, chickpeas, peas, lentils and flax, as well as more animals suitable for domestication. Over the course of later history, invaded by everyone from Egyptians and Persians to Arabs and Crusaders, this has not been a blessed slice of the world; but it began very lucky indeed.

The Americans had llamas, the Chinese, pigs. But these people of the Fertile Crescent had at their disposal a disproportionate number of the thirteen large animals that can be domesticated. They had not only pigs and nearby wild horses, but also cows, goats and sheep, plus those thirty-two grasses. Jared Diamond has pointed out that, by contrast, the most benign part of Chile had only two of the fifty-six prized grasses, 'California and southern Africa just one each, and south-western Australia none at all. That fact alone goes a long way toward explaining the course of human history.'[13]

So in the Fertile Crescent, people called Natufians were gathering grain around thirteen thousand years ago; and early on – presumably in order to stay close to the precious grain – they settled down in villages rather than moving around as hunter-gatherers. They were not quite alone in this: at around the same time, it is now thought, groups of hunters living near the Yangtze River in China were also gathering and eating wild rice.

But then the climate changed again. The cooling was not as dramatic as during the ice ages proper, nor permanent, but it was dramatic enough. This brief period is known, after a plant whose advance and retreat are used to measure it, as the 'Younger Dryas'. The Natufians found the grain they had been enjoying began to die

out in the colder, drier plains. Higher ground attracts more water and keeps more species alive in hard times, so it was growing in the hills, but they had to go further to find and collect it. Elk and mammoth disappeared at the same time.[14] Something similar must have happened in China too. Never underestimate the power of laziness: under this pressure people seem to have made the next logical step. Instead of going to the bother of migrating and building new villages, following the changing patterns of the wild grains, they started to collect surplus grains, carry them home and plant them. It seems an almost insignificant shift, a labour-saving way of avoiding long walks. But it was a huge one for humanity. In the Fertile Crescent, and in China, where a similar shift happened with rice and millet, agriculture had begun.

This may also explain why the first villages appeared where they did. There is most biodiversity in the hills and mountains, but people prefer to live in sheltered valleys. It was here that they found 'just right' places, not too exposed to wind, but near enough to the wild plants that they could gather and try to grow – from the corn, beans, squash, avocados and tomatoes of the Mexican mountains to the scores of grasses and beans in the Atlas mountains. No doubt plants were regularly brought down and tried out, and only the most promising were kept – those that were most nourishing, those that were hardiest and those that changed pleasingly fast into fatter versions of themselves when selected. To start with, and for a long time, this planting of crops and tethering or tending of animals was accompanied by hunting. The antelope would be culled as they migrated; deer and fish would be brought home.

But farming humanity had walked into a trap. Not for the last time, we had taken a decisive step whose consequences could never have been imagined, and from which there was no pulling back.

The trap was that settled farming communities swiftly produced bigger populations. Even with Late Stone Age technology, each acre of farmed land could support more than ten times as many people as each acre of hunted land. It was not simply about food, either. As we have seen, hunting tribes, always on the move, have to carry their children. That limits how many babies a woman can have. Once people settled down, the birth rate could rise, and it did. Larger families mean more mouths to feed, which means that farming and herding become

ever more important. Once broken, the fields can never be safely abandoned. The herds can never be untethered and returned to the wild. The farming men and women may be shorter in stature, more prone to disease – because parasites and pests settle down as well – and they may die earlier. Their days may be longer and their worries greater. They may have lost the freedom to roam through the wild and magical places. But they are feeding more children – nephews, nieces, even grandchildren.

They cannot stop. Before, they were shaping and taming the plants and animals; now the plants and animals are shaping and taming them, too.

They also had to develop other skills. They had to grind and sift their grain, and store it. Their precious domesticated animals, which had to be protected from wild beasts and allowed to wander for food – but not too far – must be exploited in every possible way. Wool could be sheared and carded and woven. Blood could be drawn off and used to enrich meal. Some farmers developed the odd habit of drinking the milk of lactating goats and cows – and most of their European descendants remain lactose-tolerant to this day. The preparation of hides, the weaving of ropes to help with ploughing, and making baskets and pottery for storing or cooking grain – a whole new world of domestic jobs and skills emerged.

Farming was the most important human revolution of all. It produced not only an immense political change, as hierarchies grew from the sweat and success of farmers, but also less easily tracked changes in human consciousness. Presumably, the settled communities lost touch with the wider geography that their hunting forebears had known; and, with the 'other', the unknown, surrounding them. Villagers turned a little in on themselves and away from the lands of the wild beasts and passing hunter groups. Farming would eventually allow food surpluses for leaders and full-time priests; people able to live without actually ploughing or herding themselves.

But the arrival of farming also meant the emergence of the home, or homeland. And as the archaeology shows, settling down produced people who could pay in grain or hides for 'luxury' materials such as salt, sharp cutting stones, pretty shells and herbs. So quite early on, traders must have been carrying their packs along newly worn tracks.

It turned out to be a rather more complex bargain than the first handful of fatter seeds might have suggested.

The rise of farming does indeed shape all of later history. The relative paucity of animals to domesticate, and the later start at farming that was the fate of the people who had arrived in Mesoamerica, meant that the civilizations established there were about three thousand years behind those of Europe and Asia and so would be very vulnerable to conquest. The degradation of the soil in the Mesopotamian delta led to the fall of the Sumerian civilization, and the overuse of agricultural land in the classical world led eventually to the desertification of North Africa. Both of these farming failures created political vacuums – relatively thinly populated stretches of land – which in due course would accelerate the spread of Islam.

Thin soil propelled both Vikings and Mongols. But first came towns.

Gentle Anarchists

One day, Tokyo and London, LA and Moscow, will be gone and forgotten. One day far in the future – let us hope – undulating mounds of stone, weirdly shaped green cover and buried walls, motorways and metal objects, will lie quietly, as planetary scars. If this is hard to imagine, reflect that the first towns are already long gone. Some are buried deep below today's towns. Long before the walls of Jericho fell to Joshua's priests' trumpets, it had been an ancient settlement, one of the oldest in the world, with a fresh spring, mud-brick dwellings and even a wall and a tower, though these are thought to have been to protect its people against floods rather than attackers.

North of Jericho, on the Anatolian plains of today's Turkey, are scores of odd-looking mounds, roughly symmetrical hills, gently rising above the modern fields of wheat, barley and maize. Quite probably, most of them are the remains of Neolithic towns, each once home to thousands of people: a lost, noisy world of early farmers and their families who had settled down and worked together for many centuries, worshipping leopard-gods, saving up for goods from far away, making jokes, marrying and burying their dead.

All this is a reasonable guess because one of these mounds has

been opened up, initially by British archaeologists. It has proved to be a revelation, a treasure trove of knowledge about what happened after the shift to agriculture. Today Catalhoyuk is a small area of excavated earth under metal canopies, with a modest collection of archaeologists' housing near by. It looks a little like a film director's set for a movie set in the trenches. It is rather less well known than Rome or Angkor Wat, but in human history it is almost as significant.

Its buildings were lived in from around 9,500 to 7,700 years ago. It has no defensive walls. Nor does it have any buildings much grander than the others, or standing apart. There are no signs of rulers, priests, warrior quarters, lesser workers' huts – it is just one egalitarian hive. In some ways the homes feel remarkably modern. With a hearth and a living room, a pantry close by, and other rooms which seem to have been bedrooms, the typical home was kept scrupulously clean with regular whitewashing of the walls and floor. When you walk around, the strangeness vanishes and these dwellings, about the size of a modern city apartment or a cottage, feel familiar – modest, but big enough.

Yet the sense of familiarity is only skin-deep. This is not a town as we know towns. Catalhoyuk had no streets, no squares or public buildings. Its people entered their honeycomb of homes through door-openings in the roofs, with ladders leading down, almost as if they were entering man-made caves. They socialized, we must assume, on the roofs which, connected together, would have made a large, safe, flat space for craft work or gathering and talking, and probably had canopies to keep off the sun. (In this area of Turkey, with its broiling summers, people still often sit out on the rooftop under a shade, and sleep overnight there too.)

The houses were renovated or rebuilt by partially knocking down the original, then building upwards on the ruins, so that they grew almost like a human coral, structure on structure. In places, there are eighteen separate layers of homes. Rooms were ornately decorated with plastered bulls' heads, paintings of leopards and of hunts, and with stone and clay figures of women and animals. Unlike Jericho and other early urban centres, here everything seems to happen in the home. The current lead archaeologist for the site, Ian Hodder of Stanford University, says: 'In a modern town we would expect to identify different functional areas and buildings such as the industrial and residential zones, the church or mosque or temple, and the cemetery. At

Catalhoyuk all these separate functions occur in one place, in the house.'[15]

In these houses people stored their food, enough for a single family, in large carved wooden containers, and wove baskets and mats; they made daggers and belt buckles from flint and bone, polished obsidian mirrors, created bracelets and other jewellery; made curious stamp-seals, perhaps for marking property or their own skin; and they cooked and cleaned. All about was excellent farming land, streams and ponds with fish and birds; and the population grew to around seven thousand, perhaps ten thousand – which made it one of the largest human settlements on earth at the time. From the rubbish tips outside the town we can tell they lived well, on wild pigs, ducks, geese, sheep, fish, barley and oats.

The most striking thing about Catalhoyuk is where the bodies were buried. The dead were carefully curled up – 'lovingly' seems a reasonable description – and then interred under the floors of the houses, under the stoves, or under the platforms where the living slept. Some think they were first exposed to be picked clean by vultures; the current view is that this was not so, and people simply got used to the smell of decomposition. Some of the dead had their heads removed after death, and these were then plastered and painted and kept. Presumably they were the heads of significant people, perhaps the one-time heads of households. They seem to have been dug up, replastered and buried again, a kind of family memento that would be recycled through generations. One house had more than sixty corpses in it.

There are more mysteries in Catalhoyuk: in the houses, the bulls' heads and paintings of leopards suggest a worship of natural power and aggression in the world outside. The inhabitants did not need David Attenborough to bring a sense of the danger of the sunlit outside world into the dark, cave-like womb of the home. But the practice of building home after home on the same site, and burying family members there and preserving heads, all point to ancestor worship, common throughout China and Japan, and indeed in the Mediterranean world up to Roman times.

These are people living in nuclear families, or at least nuclear homes, and identifying themselves with their parents, grandparents and back through the generations. They are saying, 'We *are* this

ground, this place, this footprint on the soil; a strong assertion of settlement after the thousands of years of nomadic roving. Does that sound odd? If so, it is only because most of us are now real city-dwellers who have lost any direct connection with a specific patch of earth, one that belonged to our ancestors. But for most of human history this identification of lineage and land was normal (even if burying granny under the stove was not).

The second part of the Catalhoyuk message is about equality. As time goes on, and layers grow upon layers, there are some houses that are larger, more decorated and with more burials than others – which suggests the slow emergence of dominant or more powerful families. But there is still nothing like a ruling or priestly class. Catalhoyuk offers a glimpse of an alternative society before the rise of class divisions, the warriors, chiefs and kings of later towns. It is a more peaceful society, poised somewhere between the early farming villages and the fighting empires ahead. Catalhoyuk enthusiasts see it as an egalitarian Eden, where women were venerated, there was no war, and families with only small amounts of personal property lived peaceably and cooperatively together.

We are told this simple anarchism is inherently unstable. Perhaps it is, but the people of Catalhoyuk seem to have managed pretty well for at least fourteen hundred years. There was enough surplus wealth for paintings, pottery and weaving, and a good diet; but not enough for swords or taxes. Lucky them.

The Child-people of Stonehenge

Our prejudices about early mankind are so smeared with blood and glinting with warriors that we have to ask whether the Catalhoyuk story of – relative – peace and love was rare, even unique. One way of trying to answer this is to travel forward in time, but to a more primitive part of the world that offers interesting comparisons.

What is now called Britain developed more slowly than the Fertile Crescent, and had a harsher climate. While Catalhoyuk was rising, nine thousand years ago, the ice sheet was only just finally leaving the British highlands, and the lowlands there were thinly populated by hunters and gatherers. As the ice went, Britain became mostly covered

with thick forests of oak, elm, alder and lime, plus birch and willow in the north. A squirrel could have crossed from one side of it to the other without ever setting foot on the ground. Or so it is said.

Two thousand years further on, after Catalhoyuk had risen and was on the way down again, Britain was still a tough place for farmers but they were already changing the landscape. They had started on small strips of coastal land and were now hacking back the forest and planting clearings with wheat. This slash-and-burn agriculture is only a short-term proposition. The soil gets quickly exhausted and more clearing must follow, with the previous 'fields' left to revert to woodland. A thousand years later – for we are still at the stage where change happens slowly – the clearings were bigger. Something like regular farmland was appearing, particularly in the south of what is now England, ploughed and no doubt fertilized and weeded.

The people were growing primitive varieties of wheat and barley and maybe flax. They seem to have grown no vegetables, but added berries and nuts to their diets. They ploughed with oxen, reared cattle, pigs and some sheep, and from very early on had domesticated dogs – the bones of some dogs looking like those of modern Labradors and some like terriers' have been found. Dogs, among the first domesticated animals, contributed vital help for guarding and hunting. But the historian Rodney Castleden has noted that from their bones it is clear that 'some dogs lived to be old, beyond their useful working lives, so their owners kept them out of affection'.[16]

The doggy people themselves did not live to be old. An analysis of bones from one community in Orkney, which was then an advanced part of the British Isles, shows that 70 per cent were either teenagers or in their twenties. Just 1 per cent were over fifty. This was a young society, evidently. The skulls suggest they were delicate, fine-featured people, nothing like the heavy, glowering early Britons of popular legend. We do not have their clothes, of course: a culture existing in a warm, moist Britain that mostly built and carved out of wood, and wore woven wool, leather and possibly flax capes, hats and tunics, leaves very little behind. But by looking at the tiny remnants of similar cultures on mainland Europe, and studying buckles, pins and tools that have survived, it is possible to plausibly posit the kinds of tightly sewn and comfortable clothes the British wore.

Though we call this the Neolithic or 'new stone' age, we might as

accurately call it the age of wood and leather. People started by living in rectangular wooden homes wearing leather clothes (made supple and smooth using disgusting techniques apparently involving copious amounts of urine, cow dung and raw animal brains). They went on to wear woven clothes and to live in larger, communal houses and in villages centred on cleverly built roundhouses, where hundreds could sleep under the same roof.

Speaking of the people living at Skara Brae, the beautifully made stone village started around five thousand years ago on a curving bay in Orkney and uncovered by a storm in 1850, Castleden says the overall impression is of a high level of domestic comfort: 'Living conditions for ordinary people were apparently at least as good as they were in medieval Britain over four thousand years later: at Skara Brae probably rather better.'[17] Walking through some of the homes and passages of Skara Brae today vividly recalls the domestic cosiness of Catalhoyuk – the same family rooms with dressers and places to sleep and corridors, all made in stone, rather than mud and plaster. There may or may not have been chieftains and priests, but this was not a war-torn culture.

In the Middle and Late Stone Age, the Orkneys and Shetlands were, far from being marginal archipelagos, advanced places. Their pottery circulated around Britain, and their stone circles, burial places and villages were unusually large and complex. They were way ahead, for instance, of the damp southern bog now known as London.

For centuries historians have found it impossible to believe that early British culture could have developed so impressively, leading up to the great monument of Stonehenge itself, just by gentle evolution. There must, surely, have been a warrior or priestly elite directing things, and perhaps having arrived as invaders from the continent? Yet there is no evidence of any such elite, nor of a cultural migration. There seems no reason not to believe that the British developed more like the people of Catalhoyuk had, in communities of a rough equality, scattered in their hundreds across the agricultural land and connected by trade links. For all the vivid modern legends of human sacrifice (there may have been some) and violent death, Neolithic Britain has left remarkably little evidence of war or organized violence, and none at all of castles or palaces.

But if so, how were so many people mobilized to create Stone-

henge, or the awesome 'hill' at Silbury – which involved shifting as much earth as the average Egyptian pyramid being built at the same time – or the stone villages and monuments of the Orkney and Shetland islands themselves?

These were astonishing achievements. We are talking of people with no metal, no towns, nothing we would recognize as writing. But they lived on islands traversed by roadways connecting thousands of village settlements – the 'Sweet Track' in the Somerset wetlands, three miles of split oak, needing ten thousand pegs and made six thousand years ago, is Europe's oldest built road – and must have produced the essential tools, including flint blades and axes, on a virtually industrial scale. The flint mines were deep enough to require miners working with little lamps. The boats carrying produce around the coasts must have been comparatively big – either dugout canoes tied together or even animal-skin vessels on a skeleton of wood. There is evidence of windlasses, of sophisticated joinery and immaculately made stonework. This is a sophisticated and patient culture.

Above all, there was time and there was cooperation. Stonehenge grew over a thousand years, more or less, starting with an earthwork, before it became a vast structure including eighty-two bluestones dragged 150 miles from Wales, and the sandstone, or sarsen, blocks weighing up to 53 tons each, taken from around twenty miles away. These were shaped, smoothed, raised and then topped with more, as lintels. How was it done? Various overground and water-borne routes have been proposed. Wheels were known, but it is thought the stones would have been too heavy, and the ground too rough, for wooden axles to cope. They could have been rolled on logs, but that would have been a very long job indeed. Sledges are thought more likely, drawn by oxen or teams of men, after the Welsh stones had been unloaded from boats.

As to shaping and raising them, there are several possible and plausible techniques, including using wedges and fire to crack the stones, digging wood-lined pits to raise them, and building slowly raised platforms to put the huge lintels in place. It is an awesome achievement but it did not require giants – or tyrants. The large tribal communities of the area, by working together and allowing themselves as much time as it took (rather as the later builders of cathedrals worked in generations of time), could have managed the various evolutions of

Stonehenge, and the other great Neolithic sites, even the supremely impressive ziggurat-cum-hill at Silbury.

Hardly anybody disagrees about what Stonehenge was used for. Its alignments to the rays of the rising midsummer sun show that it was a temple of some kind. It was not an accurate stone calendar, as some have claimed, but complex markers for moonrise show a detailed interest in lunar cycles. Some new carbon-dating of post holes, where the measurements were taken, suggests this began incredibly early, around ten thousand years ago – so before Catalhoyuk. We cannot know the details of British beliefs so far back, except that they were associated with the sun, bringer of warmth and fertility, and with the moon, and so must have involved the seasonal celebrations and prayers typical of farming people everywhere. The huge barrow graves, with bones broken and burned before burial, suggest a reverence for ancestors and tribal or family continuity, which is certainly echoed in the white-plastered rooms of Anatolia. Darkness and death, a close interest in the seasons and the awesome power of the sun, family and memory; the rest is detail.

So we must think of an ingenious, patient, skilled and youthful culture, not one of white-bearded Druids or terrifying, blood-soaked chieftains. They come later, in the Bronze Age. The henges and the huge roundhouses were eventually abandoned. We cannot tell why. It may have been because of rising population pressures which caused conflict over scarce and degraded agricultural land. At any rate, a bloodier age lay ahead, as it did for the Fertile Crescent and for Neolithic China too. Yet we should remember that the age of peaceful farming communities, worshipping the sun and moon, tending their animals and crops, trading at their borders with others and eventually building remarkable monuments, lasted in Britain for thousands of years, much longer than empires, dynasties or democracy. It never happened again – in Britain, or in Europe.

The last word on this ought to go to Rodney Castleden:

> With something approaching ecological balance and communities as a matter of routine living peacefully within their means, it is possible to see within the Neolithic culture an object lesson for modern industrial economies and societies in the west. They show few signs of outlasting the Industrial Revolution by more

than two or three centuries, whilst the Neolithic subsistence economy lasted ten times as long.

This is a strong warning, but there are simply far too many of us now, depending on too much consumption, to really be able to heed it. And anyway, even as the British henge-builders were coming to their mysterious end, humanity was about to make the next stride towards recorded history – into the city.

The Cities of the Plain

South-east of Catalhoyuk two mighty rivers run south towards the sea. The Fertile Crescent saw the first farmers and the first large settlements, and so it is not surprising that it also gave birth to the first cities and the first empires. 'Mesopotamia' simply means the land between these two rivers, the Tigris and the Euphrates. As they get nearer the sea, they slow and sprawl, curling into tangled deltas. A wonderfully rich farming area of dark, moist soil became available just before the start of the marshes. It offered similar advantages to the watery land around Catalhoyuk, but on a much bigger scale, and it attracted people from all over the region. They settled down in homes built first of reeds and later of mud bricks, coalescing into villages. What is probably the first city, Eridu, emerged about seven thousand years ago, not so long after Catalhoyuk was abandoned. Within a few hundred years there were many more towns in the area. Eridu was a brick-built settlement with layer upon layer of temple buildings, and may have started as a communal site at which different villages could worship the gods. These were altogether bigger places. There would be no gentle anarchism here.

The villages had had to come together, to create and then to maintain, the complicated system of waterways and dykes needed for agriculture. Workers had to be organized to do this; the excellent farming produced surpluses of grain and these allowed the introduction of rulers and priests, who developed temples and employed servants to tend them. Because the Mesopotamian world was a muddy, watery, sun-baked flatland it is not surprising that its most characteristic major buildings would be ziggurats, raised pyramid-

platforms where gods could be worshipped. All around the world people have associated gods with height, and in this land of no mountains the only way to reach up was to build. Eridu itself was built on a low mound by a freshwater lagoon, with the desert on one side, the marshes on another and the farming land on another.

It was the perfect meeting-point of different geographies and its gods were headed by the male Apsu, who represented sweet water, and the female Tiamat, representing salt water. But the water gods did not pay enough attention: Eridu probably lost its dominance around four thousand years ago when, it seems, there was a major flood. The next great city, Uruk, had begun at around the same time, and at its height had a population of around eighty thousand, which would have made it the world's largest settlement, with ten times as many people as Catalhoyuk. Its king Gilgamesh is the subject of the first work of literature with a named hero – the first name in history. Gilgamesh may or may not have been a real king but his story, which incorporates a biblical-scale Flood, is a very human one of sex and betrayal, friendship and failure, journeying and death.

We know this because eventually it was written down. At Uruk and other towns of the Mesopotamian plain, the symbols scratched on clay tablets, which represented quantities and ownership of corn, beer and other goods that were traded, developed so far that they became writing. Over many centuries a system of notation and recording evolved into a system that could record stories and ideas. The reason was identical to the one that created Uruk in the first place. Climate changes, in this case leading to an even hotter, drier environment, compelled the farmers to build much larger and more sophisticated waterways to keep their land productive. Individual families or villages were far too small, and had too little spare time, to achieve what was needed. Only by combining in large numbers, organized by managers, could they survive. The managers seem to have been priests, or at least to have been based in the temples, from where they oversaw vast irrigation projects.

Once the system of manpower and specialized skills was in place, the managers had the brawn to build ever greater temples. The feedback from successful irrigation to the power of those who directed it is obvious: over time, the managers were able to claim they spoke for, with, and to, the gods. They were responsible for the settlement's very

survival. The original ruling class, high on their platforms, ears tilted to the heavens, had arrived. Below them, totting up the deliveries of grain, beer, meat and metals they required from the toilers, were the scribes or middle management. You cannot have a hierarchically organized society without the paperwork – or in this case, the clay-work.

Feedback is an essential idea. It explains why, once people are organized and crammed together inside a city wall, the rate of development accelerates. For the Sumerians and after them the other people of ancient Mesopotamia, the Akkadians and Babylonians, experienced a speed of change completely unlike anything humans had known before. Priests demand their special places – intimidating, nearer the gods. This required huge numbers of workers and full-time craftsmen, as well as measuring and planning. That in turn meant detailed note-taking, indeed writing. Then, large tributes of food, beer and raw materials were called for, to keep the building workers alive.

Making people pay what were in effect taxes would not have been pleasant; force would have been needed. At the same time, all the accumulating wealth would be a temptation to robbers and ultimately to rival cities. So walls were built and some men given the job of full-time protectors. A warrior class emerged. Nothing, sad to say, has advanced technical progress faster than war. The invention of bronze, replacing flint or bone as the cutting-edge technology, gave the Sumerians a brief advantage. Then came chariots, first slow and four-wheeled, later two-wheeled. (They may have developed first for that next novelty, leisure time, which the upper classes used for hunting.)

Priests of religion. Large-scale building projects. Writing. Taxes. Soldiers. Kings. The ability to make war. All arrive in human history alongside one another, based on the first cities, which are really the first concentrations of stored wealth, themselves based on riverside farming cultures that needed to work together to tame nature. This is the shift that is more powerful than the old ties of clan, kin and lineage, and marks the next important moment in human development after farming itself. Rivalry between cities and peoples will start to accelerate change, unless and until full-scale war brings catastrophe; which from time to time it does. The rise of trained bureaucrats, with their cuneiform writing implements, permits different people with different languages to communicate; Sumerian becomes the lingua

franca for Mesopotamia, and scribes become bilingual. A momentum is under way, which may be lost here or there but which has never stopped since.

The first cities also nurtured a flowering of abstract thought. The ruling class of kings and priests had time to speculate, not least about the mysterious world of winking lights and movements overhead that had also obsessed the builders of Stonehenge. So it is no surprise that Mesopotamia gave us mathematics, both the simple sums to tally trade and taxes and the more complicated ones used to try to track the stars. Looking up, the Sumerians and Babylonians wondered about this nightly message, with its shapes and regular patterns. If the gods were able to send messages back to them, were these the divine writing? Was there a pattern, which could then be imposed on the hazier rhythms of human life?

Reading the stars required measurement of angles. The Sumerians plotted the movements of the five planets they could see – Mercury, Venus, Mars, Jupiter and Saturn – and named a day after each. They then named one day after the Moon and another after the Sun, giving them a seven-day week. Seven was regarded as a perfect number; and the Sumerian week is of course our week, its days still named in the Sumerian fashion, though with Roman or Old English words. Saturn becomes Saturday, Sol ('the sun' in Latin) becomes Sunday. Luna, the moon, becomes *lundi* in French, or our Monday (Moon-day). Mars is *mardi*, though in English, thanks to a Norse god, Tuesday. Similarly, Wednesday is Wodin's day, but Wodin was the god associated with the planet Mercury. Jupiter is *jeudi*; or in English, Thursday, Thor being the northern god associated with Jupiter. Venus is *vendredi*, or Friday. The Sumerians also developed a counting system based on the number sixty, which is divisible by eleven other numbers and so particularly handy for Bronze Age accountancy. From this we get our 60-second minutes, 60-minute hours, 360-day years and 360-degree circles. By Babylonian times, scribes had to be fast and accurate: one examination tablet from their city of Nippur asks, 'Do you know multiplication, reciprocals, coefficients, balancing of accounts, administrative accounting, how to make all kinds of pay allotments, divide property and delimit shares of fields?'[18]

All of this is remarkable enough, but the first cities also bring a flowering of art and design, with gorgeously made alabaster carvings

and mosaics and graceful (as well as useful) stamp-seals for parcels of goods from Uruk, plus inlaid gaming-boards, musical instruments and delicate gold jewellery from Ur – even before we get to the amazing carved reliefs of the Assyrians and Babylonians. Today, thanks to the habits of nineteenth-century archaeologists, the loveliest of these things can be found in Berlin and (to a lesser extent) London, not in Iraq. Each Mesopotamian city had its own gods, culture and reputation. Uruk was famous not only for its huge ziggurat and sky-god but for its sexy female deity Inanna, who was associated with all kinds of fertility and whose rites shocked one Babylonian writer: 'Uruk . . . city of prostitutes, courtesans and call-girls . . . the party-boys and festival people who changed masculinity to femininity'.[19] (And it took a lot to shock a Babylonian.)

So these first cities are among the most important sites in the human story. Successive floods have reduced many of them to gritty stumps, and obliterated others. Neglect, war and the lack of interest of later cultures followed by aggressive, treasure-hunting Victorian archaeology has meant that while some of their greatest carvings and other artefacts are in European museums, the sites themselves are often dusty disappointments. This is tragic, since the achievements of the Sumerians, Akkadians and early Babylonians were huge, and in some ways much more impressive than those of the better-known Egyptians. Their city culture was bureaucratic and clearly in some ways oppressive, weighing heavily on farmers, requiring payment in return for the canals and wells that kept their fields so fertile. It allowed the emergence of kings with enough muscle to go to war against one another, and to carve out the first empires, along with the misery that early mass-killers such as Sargon of Akkad brought to the land. But these first cities were also places of beauty, intellectual advance, wonder and – quite clearly – a great deal of not very innocent fun.

Da Yu to You

You might imagine that the earliest named Chinese hero was a warrior-ruler like Gilgamesh, or some bearded sage; but you would be wrong. He is a public servant, an engineer and only latterly a king. Da Yu, or 'the Great Yu', a figure who stands just on the wrong side of

the line between myth and history, was the man who tamed the Yellow River, that life-giving but capricious core of early Chinese culture. Da Yu's father, so the story goes, was a man called Gun who had been given the job by the local ruler of dealing with devastating river floods. Most early cultures, particularly across Asia and Europe, have flood stories, suggesting that there was a time of flooding so bad that it remained in the consciousness of peoples for millennia.

In China's case, Gun tried to cope by building dykes, presumably using the same rammed-earth technique found in early Chinese towns. But more floods came and simply washed the earth walls away. The king who had commissioned Gun punished him by cutting him into many pieces. Gun's son, the presumably rather anxious Da Yu, then took on the job in his scattered father's place.

Da Yu, it is said, worked ferociously hard – but he did not build dykes. First, he travelled up and down the river talking to the local tribes and persuading people that they would have to work together and accept central authority if the problem was to be coped with. The parallels with the rise of the Mesopotamian cities are obvious. Next, he had channels dug to send the water to other rivers, and irrigation systems built to spread it across the farmland. Instead of confronting his enemy head-on, Da Yu confused the river by dividing it. For thirteen years he worked fanatically, reducing his hands and feet to callused pads. It is said that during that time he passed by his home on three occasions. The first time he heard his wife in labour, but did not stop or go in. The second time, his son was old enough to call out his name. He did not stop, because the floods were in full spate. The third time, his son was over ten years old. Again, Da Yu ignored him, and kept working. Today he would be pursued by the Child Support Agency and condemned by newspaper columnists. Things were different then.

The king was so impressed by his diligence and dedication that he passed the throne to him. Da Yu reigned for forty-five years, and then by passing the throne to his son founded the Xia dynasty.

Later, copious amounts of nonsense were glued onto the story, ranging from Da Yu cutting through a mountain with a magic battle-axe, to his having engaged the services of a yellow dragon and a black turtle to help him. But the first key point is that, according to the earliest Chinese historians, the first Chinese dynasty began with attempts

to control flooding. And that is at the very least a good guess on their part. About four thousand years ago there seems to have been a collapse in Chinese settlements, at just the time when the same was happening in the Middle East and Egypt. Going back to those flood stories, Noah and the rest, the historian Ian Morris asks, 'Could climate change have brought on an Old World-crisis?'[20] The same annals that describe Da Yu speak of rain continuing for nine years, causing catastrophic flooding.

But there is no Noah, no Ark: China starts with a public-servant hero, an organizer working for the state. There is something here that feels very unWestern.

From almost the beginning, Chinese culture looks, as well as feels, distinctively Chinese. Put a reasonably educated person from anywhere in the world in front of certain late-Neolithic pottery, or very early bronze vessels, or show them the first symbols being used for writing – and even if they have never seen such things before, they will probably instantly declare: 'Chinese.' The origins of the Chinese are shrouded in archaeological uncertainty and political argument. Many Chinese insist they did not emerge, like the rest of the world's human population, out of Africa, but evolved separately from an earlier ape migration, that of *Homo erectus*, in China. Thus they are biologically distinct from foreigners – satisfying to the Chinese world view, even if the scientific consensus outside China is that they are wrong.

Overall, human development in China followed along similar lines to that of the Fertile Crescent, but around two thousand years later – though in some things, like pottery, it was more advanced. The breakthroughs in the taming of plants and animals, the appearance of villages, graves suggesting ancestor worship, are all relatively similar. Yet by the time myth first begins to edge into history, Chinese objects are already different-looking. Today's archaeologists tend to emphasize the variation and complexity of ancient China – many cultures, many different kinds of pottery and building, scattered over a wide area. Recent finds have upended the old idea of there being one central Chinese civilization, in the north, which spread to the rest and has carried on more or less intact. But what is very different from the European experience is the emotional grip of a continuity with earliest times on the Chinese imagination.

For instance, the culture known as Longshan lasted for around a

thousand years, from roughly 5,000 to 4,000 years ago, about the same time as the various phases of the Neolithic cultures of Britain. But while Europeans have lost any record or memory of the Stonehenge people, Chinese history claims a link with the first kings and cultures. There were five mythical emperors, primordial godly rulers who gave mankind the key inventions of civilization such as cooking, farming, fire, medicine, marriage, the domestication of animals. The last of these mythic rulers is said to have introduced writing, pottery and the calendar – the very inventions which indeed mark out the Longshan culture from earlier settlements.[21] (In claiming that humans began as parasites or worms on the body of the creator, Pan Gu, there may be an element of early human self-criticism too.)

After the five emperors come the dynasties that are considered the beginning of historic China – the Xia, the Shang and the Zhou. In the almost two thousand years they cover, we have the names of kings, increasingly complicated and beautiful artefacts, evidence of cities, temples and fortresses, and writing that is clearly the predecessor of modern Chinese. In short, we have China.

Right at the beginning of this, however, we are still in the dim and misty place where there is more myth than evidence. Of around 300 BC, the *Shang-Shu*, or 'Book of History', is the first written text about what is called China's first dynasty, the Xia. The same account talks of ten thousand states coexisting at the same time, so clearly the Xia were hardly China-straddling. Archaeology suggests numerous rival chiefdoms. The Xia are said to have been founded in 2205 BC by our remarkable tamer of rivers and floods, Da Yu. All early Chinese history is the history of dynasties, one succeeding another like the succession of kings and queens that British schoolchildren once memorized. Even if he was plucked from half-remembered oral traditions by later writers keen to proclaim one China, Da Yu is in at the start of all this. He was supposed to have divided central China into a neat series of parallel box-like zones. The centre of the nine *zhou*, or provinces, was the province of the king, leading eventually to a zone for foreigners and then to the wilderness beyond – all of which sounds like the Chinese version of the Middle Kingdom and therefore suspiciously like propaganda.

So did the Xia kings even exist, never mind Da Yu himself? Until recently the general view was that this was an entirely mythic story –

with, after all, a gap of almost two thousand years before it was written down. But the discovery of what seems to be a Longshan-culture capital city, at Erlitou, has changed minds. The Xia may not have been a big dynasty but they probably did exist on the banks of the Yellow River, and emerged from the Longshan culture itself. Erlitou, discovered in 1959 in Henan Province, has produced examples of beautiful bronze-cast wine vessels, or *jue*, which have the spindly delicacy of modernist designs. The city was centred on a large palace complex of rammed-down earth walls, a way of building that was very labour-intensive but produced rock-hard structures which still exist across China.[22]

Chinese archaeology is very exciting just now, because so much remains to be discovered: recent excavations of tombs have found beautiful vases, jade ornaments, bronze weapons, very early writing, evidence of the cultivation of silk and the worship of ancestors. Unlike Catalhoyuk, this was a hierarchical civilization, run by kings, or priest-kings, and able to mobilize large numbers of workers.

We know that Chinese farming was heavily based on the rich alluvial plains of the Yellow River and its tributaries. In this, the early growth of human settlement was no different here than around the Tigris, the Euphrates, the Nile or the Indus – all of which produced cities, kings and complex religions. Rivers make rich soil, but they also bring danger. As we have seen, they flood, and their waters need to be unravelled and spread about for maximum farming success. As much as wild plants or wild animals, they need to be tamed. But the necessary work calls for leadership and organization, which in turn means hierarchy and rulers. Farming villages do not need to combine in large numbers simply to grow crops or tend animals. But they do if they want to divert rivers, create networks of irrigation channels and flood-protection systems. The role of civil engineering in human history is often overlooked.

So Da Yu's story is a kind of explanation for the growth of political authority. He becomes king of the Xia because he has earned it by organizing the people for their own good. It is hardly a radical proposition that, in general, kings and emperors bring oppression; they may start small with labour-gangs building dykes, but they progress to fortress walls and armies and tax-collectors. The underlying message of the Da Yu tale is that this imposition of authority is still better than

disorder – in this case, the chaos unleashed by rivers that change their direction, or floods that wipe away the livelihoods of millions. In other words, rulers are better than the alternative. It is a message that would have pharaohs and Babylonian priests nodding in agreement.

But the fact that the story of Da Yu, and then the ups and downs of the dynasties that followed the Xia, were written down and made part of a national narrative matters almost as much. Authority, imposed early on because of the need to mobilize the masses to control nature, is then passed down, generation by generation. And as in the West, the Chinese rulers claim their authority not simply because they are good at organizing, or able to scare their subjects, but because they have a special link with the gods. They can have a quiet word and help end the famine, or stop the rains. So the great leaps forward in Chinese art and technology are closely related to religious rites. Ever more ingeniously cast and elaborately carved bronze vessels, musical instruments and animal bones, baked then broken to read the future, turn up in Chinese archaeological sites. Great squat tripods and bronze drinking vessels whose sides are as mazed and rippled as coral reefs may seem strange things for early cultures to invest so much energy in. In fact they are ruthlessly political: they are about power.

Nile Nightmares

Ancient Egypt, our third river civilization, often seems a culture to gape at, not to love. It touches the modern world hardly at all. Sphinxes and pyramids have become globalized visual kitsch. Museum audiences queue around the world to stare at gold or painted relics. Cultural tourists descend by the planeload to see the temples and funeral complexes of the Valley of the Kings. But for such a long-lasting and successful culture, the Egyptians have left relatively few marks on later ways of thinking. The religion of Horus and Osiris enjoyed a brief revival of interest during the twentieth century among occult dabblers and circus-tent crooks. Pharaonic mysteries have briefly enthused the makers of movie mystery capers. But compared with the deep influence of Judaism and its later developments, or the power of Greek thought, or Roman politics – or even, across Asia, the continuing influence of early Chinese and Indian thinkers – ancient

Egypt has little left alive. The Mesopotamians' stumpy relics of powdered brick are pathetic compared with the physical remains of the Egyptians, but they produced more in the way of science, mathematics and technology to pass on than the creators of this great death cult on the edge of the desert.

Egyptologists (not to mention Egyptians) would say that this impression is ignorant and unfair. The people of ancient Egypt were formidable artists and builders, and they developed a complex religion, sustaining them for millennia. Many humbler grave-sites than those of the rulers show evidence of a colourful culture that had more respect for women than had its rivals and whose people loved life, revelling in the natural world, enjoying beer, food, sex and gossip. Their obsession with the afterlife came about because they liked this one so much, believing that with proper preparation they could have more of the same.

And yet we are left with those forbidding bird- or dog-headed deities, the scarabs and the blank stares of superkings whose vast monuments still insist on awe, but nothing more. Why is this? The culture's lack of portability through time and space seems to be linked with its relative absence of physical movement in its own time – it was just remarkably self-sufficient. Ancient Egypt proper lasted for more than three thousand years, from the pre-dynastic kingdoms to the final disappearance of the Greek pharaohs in Roman times. Very early art from the Nile has an earthy directness that sets it apart; some of the simple clay models of farmers and animals are similar to the attractively human early art of Mesoamerican people. But quite soon an Egyptian style becomes fixed and hardened, and although a practised eye can distinguish between dynasties and even reigns, it barely evolves for two millennia.

There is a well made sculpture of a king (Khasakhemwy) from 2675 BC which would not look out of place among those of his successors fifteen hundred years later.[23] In the great temple of Luxor is a little inner temple built to celebrate Alexander the Great being declared pharaoh in 332 BC. The artwork on one wall faces images from the early so-called New Kingdom of more than a thousand years before; and the two look very similar, though there has been a certain falling-off in subtlety. One obvious reason is that, for the ancient Egyptians, there was no art for art's sake. Art was an expression of religion

and of earthly power. Its job was to describe the hidden world of powerful gods; to record man's relationship with them; and to intimidate travellers or rebels through the power of its kings. This required an art of repetition and sometimes gigantism, not of humanism or realism.

The culprit is also the hero of the Egyptian story, the Nile. The world's longest river, it is unusual in flowing from south to north. Since its prevailing winds blow from north to south, people with simple sailboats found it an excellent two-way conveyor belt. Better still, it not only provided its people with ample fish and wildfowl, but (before Nasser's Aswan Dam in modern times) it flooded regularly every year, bringing fresh water and silt to produce remarkably rich soil. The floods were not entirely regular. If they came late, or too early, or if they were too strong or too weak, they could disrupt the planting and cause hunger.

Ancient Egyptian history is marked by periodic disruptions, revolts and fallings-back; and these seem to have to do with times when the flooding Nile misbehaved. Yet compared with the civilizations on the Tigris, Euphrates, Yellow River and the Indus, in today's Pakistan, the Egyptians were blessed. Not only did they enjoy a four-thousand-mile streak of remarkable fecundity, culminating in a great flood-plain delta on the shores of the Mediterranean. But they were also well protected by deserts and mountains to east and west and by a relatively unpopulated African hinterland in the south. Egypt was invaded, by Libyans and Persians and the mysterious 'sea peoples'; but this happened relatively rarely. The flatter plains of Mesopotamia, or the land highway of Palestine, were much easier prey for armies of chariots and horsemen.

Egypt was a hard place to attack and almost impossible to hold for long; and so, in the ancient world, it always recovered.

The Nile had a political effect too. Though we speak of 'Egypt' there were really two Egypts. The two-way transit system knitted together people along a huge expanse, bringing black African Nubians and Mediterranean dwellers together in a single state. We cannot get a full sense of how ancient Egyptians saw their geography without understanding that for most of the time Upper Egypt, the more African south, dominated Lower Egypt, the more Mediterranean north. Egyptians today are still quick to note the difference, marked in the shape and colour of bodies. Egypt was a late starter compared with the Mesopotamians, partly because the land around it stayed so

rich in plants and wildlife for so long that peoples were not forced to settle. Then the desert encroached further and the first unifying kings arrived from the south, bearing wonderful names such as Narmer, or 'Baleful Catfish'.[24]

As with the story of Da Yu and the Xia, only centralized royal power could have made a single nation of such a strung-out series of settlements. To use the river's bounty effectively, people here too needed a complex network of canals and irrigation systems, which had to be carefully cleaned, dug out and restored every year. So the habit of communal working, people's readiness to dig and build together away from their fields, was set early on.

This would later become very useful when it came to the Pharaonic temples. The Egyptians believed the Nile flowed from the underworld. They spent a lot of time – quite reasonably – worrying about the annual flood. Nile gods featured early in their belief system, so when their kings associated themselves with the flow of the river they acquired huge symbolic power. Geography isn't everything. Often in human history the power of an individual or of an idea turns upside down what we might have expected from the position of rivers, or the shape of a coastline. But if geographical determinism works anywhere, it works for this land made by the Nile, protected by the Nile, serving the Nile's rulers – and eventually limited by the Nile.

Of the monuments of ancient Egypt few are as moving as Deir el-Medina, just round the mountainous corner from the Valley of the Kings and across the river from Luxor. All about are vast monuments. There is the awesome Temple of Karnak at Thebes; then the intimidating one of Rameses III at Medinet Habu, which celebrates that pharaoh's military victories with a manic sense of scale that would leave any twentieth-century dictator jealously gaping. There are the 'Colossi of Memnon', a pair of faceless monsters commemorating King Amenhotep III; and the stage-set remains of Queen Hatshepsut's mortuary temple. All embody everything we have come to expect of the ancient Egyptians; all are intimidating places, impressive in a Nazi or Stalinist way.

Deir el-Medina is very different, a grey maze of stone and mud-brick walls now only a few feet high, looking rather like a very large sheep-pen, or an abandoned village from Gaelic Scotland, somehow lost in the baking desert hills. Above it, on higher ground and cut into

the face of a reddish cliff, are numerous holes, some with tiny brick pyramids near by. Compared to the other sites in the vicinity, Deir-el-Medina has very few visitors. This, though, was where the craftsmen who worked for the priests and the pharaohs lived with their families. They were not slaves.[25] They worked hard, often labouring underground as they struggled to finish a tomb before its patron died. They were paid in wheat, clothes and honey-flavoured beer. They had the weekends off (an Egyptian week lasted ten days, so the break was less frequent). They worked for two four-hour shifts and could call on the work of poorer peasants and slaves to make their lives easier. Organized under two overseers, who lived in the village, they celebrated the death of a pharaoh because it meant more work for them in the years to come. They enjoyed feast days, when there was drunkenness and the occasional orgy, and they passed down their skills from one generation to the next. The Egyptian skill in mummifying corpses, too, was the domain of these artisan workers.

Most remarkably, they found time to build their own funeral temples to take them to the afterlife. The day job meant raising great structures and tunnelling deep into the rock to prepare a final resting place for the great ones of the New Dynasty. But meanwhile they were building their own versions, complete with small pyramids and beautiful painted chambers twenty or thirty feet below ground. Their surfaces, still astonishingly brightly coloured, celebrate the love of a man and wife; the families of the workmen; the surrounding natural world of waving corn, ducks and monkeys; and food in plenty. Here ordinary people were buried and, remote from the grand 'come and get me' monuments that lured grave-robbers to the pharaohs even in ancient times, many of them rested untouched until excavations began in the modern era.

This would be interesting enough. But these people also recorded many of their thoughts on small pieces of limestone, often the waste from all that digging, and on broken pieces of pot, and on papyrus. Written in simplified popular script, then thrown away three thousand years ago, a lot of it has survived. These ostraca record popular stories, legal complaints, love poems, books of dreams, gossip, feuds, wise sayings, the angry disinheriting of children by a woman who feels they did not look after her well enough in her old age, laundry lists, problems with defective donkeys, and even a cure for piles (flour, goose fat,

salt, honey and green beans: mix into a paste and apply to the backside for four days).

One particular bad character, a foreman called Paneb, seems to have been constantly making murderous threats to other workers, stealing from royal tombs, harassing other women into making clothes for him, and having illicit sex with another man's wife, a lady called Tuy, and other married women. He was eventually tried by the pharaoh's vizier and removed from his job, though we do not know what eventually happened to him. This may have been the result of a village feud, but it shows there was a trusted and effective system of justice at work.

The story of this village is not only a refreshing and unusual instance of the voices of ordinary workers – skilled and valued people, but manual workers nevertheless – and their families emerging from distant history. It also shows that they shared the religious convictions of their rulers and, as soon as it was possible, aspired to share their underworld too. Indeed, when we consider the lives of such people – proud of their skills as stonemasons, painters, carpenters, makers of clothing and cooks, who ate reasonably well, mixing fish and meat with a basic diet of vegetables, bread and beer; who had a rich spiritual life that made sense of their world; and who trusted in a system of fair law – the idea of a downtrodden semi-enslaved world of ancient toilers falls away. Were the lives of these villagers not better in most ways than the lives of millions of poorer-paid or unemployed people in tower blocks today?

Back to the Bull

The Minoans were the first European civilization (from around 3600 to 1160 BC, though only just, since their island of Crete lies in the far south of the jagged Greek peninsula. They were trading and seafaring people, whose pottery turns up in Egypt and whose art was influenced by the Egyptians. They were literate, though their form of writing has never been deciphered. They seem to have been relatively unwarlike. Their art and architecture are instantly attractive, giving an initial impression of an airy, tranquil, female-dominated society whose palace walls ripple with dancing dolphins. Amid the fat red columns

and excellent sewerage systems are images of a little bull-dancing here, a moment of saffron-gathering there. But the Minoans are particularly useful as a warning not from history – but about history and how we romanticize it.

The great Minoan palace of Knossos is one of the most popular tourism sites in the eastern Mediterranean, and has been for a century. Sightseers already half in love with this hot, rosemary-scented island idyll learn that it was destroyed in the aftermath of a terrible earthquake at Santorini. The words 'lost civilization of Atlantis' are muttered. This is how many modern Europeans like to think of their earlier selves – peaceable, artistic, liberated and romantically doomed – a story that is half-Eden and half the *Titanic*. But it is almost all bull.

Knossos is an old building, at least by our standards. It dates back to between 1905 and 1930 – AD – and has been described by one archaeologist as one of the first reinforced concrete buildings ever erected on Crete, bearing unsettling echoes of Lenin's mausoleum in Red Square and the modernist architecture of Le Corbusier. Cathy Gere found it suited to the urban sprawl now encroaching on the site: 'today all of Greece is liberally studded with half-built, low-rise, skeletal modernist ruins, stairs climbing to nowhere'.[26]

The dubious reconstruction of a Bronze Age palace, filled with faked-up pictures, was the lifetime achievement of a British archaeologist, Sir Arthur Evans. Knossos had been discovered by a local Greek antiquarian, who had started to dig in the 1870s. But with an excellent classical education and wealthy from the family's paper-mill business, Evans bought the entire site when Crete became independent of the Ottoman Empire. Like his friend the German archaeologist Heinrich Schliemann who had discovered (and accidentally partly destroyed) Troy in 1871, Evans saw himself as reconnecting the modern and ancient worlds and cleansing the dirty industrial mess of modern Europe through the revived memory of simpler, nobler times. As Gere puts it, Evans was infused and animated by spiritual hunger and he wanted nothing less than 'the pagan re-enchantment' of the modern world.

To achieve this, in his hunger, Evans first supported the ruined buildings he was excavating with wood and plaster, and then slowly began to 'improve' them with the flexible and useful recent invention of reinforced concrete. The extent to which his re-imagining of the

Knossos complex is an accurate and reasonable guess, or merely a modernist fantasy, divides even the experts. Evans was searching for a pacific, sexually relaxed paradise and, in Crete, avoiding any evidence of military fortification; later on, he commissioned modern artists to 'touch up' ancient wall paintings so comprehensively that they produced new ones. The Swiss–French father-and-son team, both called Émile Gilliéron, produced reconstructions that go far beyond the evidence, yet are now reproduced around the world, and they probably went on to make full-scale fakes.

The reconstructions included images of black African warriors used by the Minoans, according to Evans's fantasy, to invade the mainland Greeks, whom he associated with Germanic militarism. Shrewd observers noticed something odd. The English novelist Evelyn Waugh, visiting the Heraklion museum where the paintings were on show, wrote of his suspicion that 'their painters have tempered their zeal for accurate reconstruction with a somewhat inappropriate predilection for the covers of *Vogue*'.[27] Even the name 'Minoan' came from Evans's belief that he had discovered the original site of King Minos's famous labyrinth, where according to classical myth the hero Theseus killed the half-bull and half-man Minotaur. The myth placed King Minos on Crete and had it that the Minotaur devoured fresh Athenian children; there is something sadistic about the story. And what the Minoans really called themselves, we cannot say.

So from this rubble, what can we know for sure about the people we call Minoans? Their civilization lasted for around thirteen hundred years and survived not one but a series of natural disasters including a hugely destructive earthquake and two volcanic eruptions, and a tsunami which devastated coastal settlements and their all-important shipping. Recent archaeology, influenced by the huge destructive power of the 2004 tsunami in Asia, suggests similar devastation in Crete. The Minoan 'palaces' that scatter the island, linked by stone roads, are probably urban, religious and trading centres. They traded in tin, very well made and painted (and unfaked) pottery, as well as a wide range of foods, oils and other staples. Their agriculture was sophisticated and it does seem that their religion was dominated by priestesses and by some form of bull-worship. A game or ritual involving leaping over bulls, grasping them by their horns – which must have been far more dangerous than modern bull-fighting – is seen on

genuine images. Even if their art was not quite as sexily exuberant as that of the reconstructors, it was sinuous and immediately attractive.

But there is a darker side to the culture. It is now thought that they did go to war and did protect their citadels with defensive walls. At Anemospilia, a temple near Knossos, as stark and unadorned an excavation as the other is rebuilt and imagined, three skeletons were found by a Greek-led team in 1979. They had apparently all died in the immediate aftermath of the later volcanic eruption. One is thought to be of a twenty-eight-year-old priestess and another of a priest; the third is the skeleton of an eighteen-year-old boy, tethered in a foetal position and with an ornate knife sticking through him. The arrangement of blackened and white bones suggests he was still bleeding to death when the final disaster struck, and the obvious conclusion is that he was a human sacrifice designed to appease the volcano.

Far from being a society of peace and love, wafting about in gossamer garments and admiring the dolphins, the Minoans seem to have been as bloody as anyone else. Just as the first Cro-Magnons were able to combine beautiful art and cannibalism, so the first civilization in Europe combined beauty and human sacrifice. The hunter-gatherers had struggled with the natural challenges produced by an erratic and difficult climate; their Minoan descendants were still struggling with natural threats big enough to overwhelm their way of life. In between, man had begun to learn how to reshape nature; but outside a few specially favoured river valleys this remained a precarious and uncertain victory.

The end of the Minoan story is messy; most scholars now believe they were not wiped out by a single cataclysm as the tourist guides say, but were sufficiently weakened by eruptions and earthquakes to make them relatively easy meat for invading Mycenaean Greeks from the mainland. Certainly, Greek-speakers replaced the late Minoan elites not very long before their civilization, too, mysteriously disappeared. As we shall see later, the end of a lively and sophisticated Bronze Age Mediterranean world is one of history's more tantalizing puzzles.

By this point, Eve's children have already laid the foundations of the modern world. Most of the spadework has been done over a span of fifty thousand years by people whose names we will never know and most of whose languages remain a mystery. They have cleared forests, invented agriculture, raised the first towns and cities, and

advanced enough in learning to use mathematics and writing, preserving their names and stories. They have also begun to develop a class system and fighting elites. They have invented war.