PART I

INTRODUCTION

ONE

WHAT SEPARATES US FROM NATURE?

Not so long ago, every human was a hunter-gatherer. A mere 20,000 years ago, people moved around regularly from place to place, carrying few material possessions. Unlike us, they kept in close contact with their natural surroundings. In places such as Australia and in parts of Africa, Southeast Asia and the Americas, the foraging way of life continued until just a few hundred years ago. This mobile hunter-gatherer lifestyle had served our species quite well for a long while, from the time when we first appeared on this earth around 300,000 years ago – just as it had served our earlier hominin ancestors for more than a million years before us.[1]

Not only were humans once all hunter-gatherers; they were naked. Could it be that these two things – adopting clothes and settling down to live in a world set apart from nature – are connected?

One reason why we might fail to notice any connection with clothes is that naked foragers have now gone from the face of the earth. The only exception is a small community comprised of perhaps two hundred people who still survive to this day as humans completely at home in the wild – and totally comfortable within their natural suits of naked skin. They remain hidden in tropical forests on one of the Andaman Islands in the Bay of Bengal, still living in isolation from the rest of humanity – except for sometimes glimpsing a passing ship on the horizon, or an aircraft drifting high overhead.[2]

The first thing we shall look at in this book is the origin of clothing. The subject has long been shrouded in mystery and confusion. Everyone seems to

have an opinion about why humans first adopted clothes, but we shall depart from a long tradition here and carefully consider the evidence. There are two kinds of nakedness to think about: one is the absence of clothes, and the other is biological nakedness – our lack of a decent fur cover. Next, we shall look at what happened to the hunter-gatherer lifestyle. For some reason (or reasons), people in some parts of the world started to engage in agriculture – and, well, the rest is history. Again, everyone probably has an opinion about why people would start to plant crops and domesticate animals. Indeed, the answer might seem rather too obvious. However, archaeologists have been looking at the evidence for quite a few decades and, as we shall see, their findings raise some serious doubts about the obvious answer, which is that agriculture started because it was a better way of feeding people. In reality, that answer is more of an assumption, and it actually raises some rather awkward questions. There may be a better answer, though not so obvious. What if clothes played a role in the origin of agriculture?

How might the origin of clothing and the origin of agriculture be connected? The answer is climate change. Actually, two climate changes: global warming – not now, but around the time when agriculture began – and before that, global cooling. Climate change is the common thread that can connect the origin of clothing and the origin of agriculture. Speaking of threads, the agricultural revolution was really two revolutions: a revolution in the food economy and a revolution in clothes – the textile revolution.

A WIDER VIEW

Hunter-gatherers were not the same all around the world, and some changes did occur over time, but nevertheless, the lifestyle of foragers was a fairly stable mode of existence – socially, technologically, and ecologically. Their traditional lifestyle stands in stark contrast to the incredible instability and the extraordinary rate of technological change that has typified the entire span of recorded human history – the last 5,000 years.

We take the opportunity here to view this turbulent trajectory in a longer time frame, the one provided by archaeology. Only archaeology can open up the vast expanse of human existence called prehistory – history before writing. And we adopt the broad view of human society provided by anthropology, in the field called ethnography (which studies traditional premodern societies, including hunter-gatherers). We must take this vantage point if we are ever to make sense of what has happened. We need to stand back and get a truly global view: the widest possible view, stretching all the way to remote places, such as Tasmania and to the farthest tip of South America. And we need to take a longer view than history: the longest possible view, one that goes back all the way into prehistory.

History is too late: most of the big changes – like the advent of agriculture (and clothes) – had already happened by the time history began, with the first writing 5,000 years ago. So by the time history started, the story was over, more or less. One exception is the Industrial Revolution, which, as it happens, had a great deal to do with clothes – textiles in particular. When we take the long view, we soon arrive at a rather awkward fact: we have been hunter-gatherers for most of our existence as a species. That prolonged delay before the rise of civilization raises an obvious question about what happened – and why.

Science generally tries to make sense of our modern maelstrom as an outcome of the usual evolutionary processes: adaptation and natural selection. Our inherited talents – such as possessing a large brain, extraordinary language skills, and a knack for inventiveness – helped us to conquer the environment and make the transition to a more artificial existence (or so the story goes). And these very same talents gave us a competitive advantage over other species – like our poor Neanderthal cousins. This conventional narrative can create the comforting impression that civilization is a predictable product of the same evolutionary processes that largely govern the rest of nature. Alternatively, however, it may be more realistic to see civilized life instead as a rather unusual development that has led humanity in a quite unnatural direction.[3]

One common approach has been to stress how certain human talents, such as having more intelligence than our competitors, helped our ancestors in the never-ending endeavor to extract sufficient food resources from the environment. In this popular scenario, our recent emergence as the dominant species on earth reflects a final success in the food quest.[4]

When Agriculture Once Made Sense

Agriculture is the classic example. Sharing the widely held assumption that the shift from foraging to farming revolved around food, archaeologists have tried to find out why agriculture first began when and where it did. Maybe, according to one way of thinking, agriculture was an adaptive response to uncertainties in food supplies caused by the massive upheavals in global climates at the end of the last ice age. Yet after more than a century of research and digging, we are none the wiser about why hunter-gatherers abandoned foraging in favor of agriculture – and that unshaken faith in the prevailing food paradigm may be largely to blame.[5]

Some archaeologists are now suggesting that we need to think about other things besides food. They say we should think about agriculture not so much as a revolution in the economic sphere but as one facet of a wider phenomenon, a subtle but pivotal change in how people were looking at the world and relating to their surroundings.[6]

Time to Forget about Food – and Remember Naked People

A preoccupation with food can lead to a couple of unfortunate consequences. For one, the emphasis on food will narrow our focus to just one aspect of the struggle for survival, limiting the search for causes. And even to describe our hominin ancestors – or recent peoples who were habitually unclad, such as Australian Aborigines – as hunter-gatherers or foragers is a real issue. By saying they are hunter-gatherers we effectively define their entire existence in terms of the food economy. It is like saying that our entire way of life is essentially agricultural. Are we all happy to be defined as farmers?[7]

The focus on food implies that other features, such as nakedness – whether a lack of clothes or a lack of body fur – were of no consequence. In a similar vein, the old concept of civilization is regarded nowadays almost as a dirty word in anthropology, relegated to the history books and replaced with cleaner terms, such as social complexity, that reflect a narrowing of focus. All of the messy morality – and the colonial savagery – of civilizing those naked peoples by coercing them into wearing clothes can be safely suppressed, superseded by a relatively superficial emphasis on economics and social organization.[8]

AN UNUSUAL EVOLUTIONARY HISTORY

If our modern lifestyle is not really a result of typical evolutionary processes, does this mean that we are not a product of evolution? Have our special human qualities allowed us to rise above the mundane struggle for survival that dictates the destiny of every other species?

Many people do not accept the scientific consensus about the validity of evolutionary theory – or at least they are reluctant to accept that we modern humans are simply a product of evolution. Instead they believe we are a special creation. And despite the mainstream view in science that we are merely sophisticated animals, it is hard to deny that we are a special species – more so perhaps than some scientists would like to admit. Nonetheless, our special status is still a product of evolutionary processes – just not the usual ones.

What might be those unusual processes?

The struggle for survival is not only about finding food. All species must adapt to their environments in various ways – and no natural environments stay the same forever. As we are all made well aware by the specter of global warming, a major aspect of the environment is the climate, particularly its thermal component. Extremes of heat and cold exert strong selection pressures on all living things, and every species must adapt to its local thermal environment or perish. Temperature is in fact more fundamental than food: it affects not only all living things all the time but all matter – nothing escapes its control.[9]

Natural Climate Change

In the case of our own evolutionary past, the science of climatology tells us that the earth's climate was far from stable over the last two million years. Hominins first appeared in Africa around six million years ago, and the last third of hominin evolution took place during a time of great environmental instability dominated by ice ages, known as the Pleistocene epoch. During the coldest phases, ice sheets extended over much of the earth's surface. Places like New York and northern England were hidden under thick layers of ice, while in China the zone of permafrost stretched all the way south to Beijing.

The last of these glacial cycles started 120,000 years ago and reached its coldest point 22,000 years ago – which climatologists call the Last Glacial Maximum (LGM). At that time, the average global air temperature had fallen by between 3° and 5° Celsius (approximately 5–10° Fahrenheit). A few degrees might not sound very significant, but this was just a global average that includes a lesser cooling over the surface of the oceans. Humans at the time would have been more concerned about how much the temperatures fell over the land areas. The terrestrial decline in temperature was most marked in the middle latitudes of the northern hemisphere, where winter temperatures often dropped by amazing amounts – between 10°C and 20°C (~20°F and 35°F).[10]

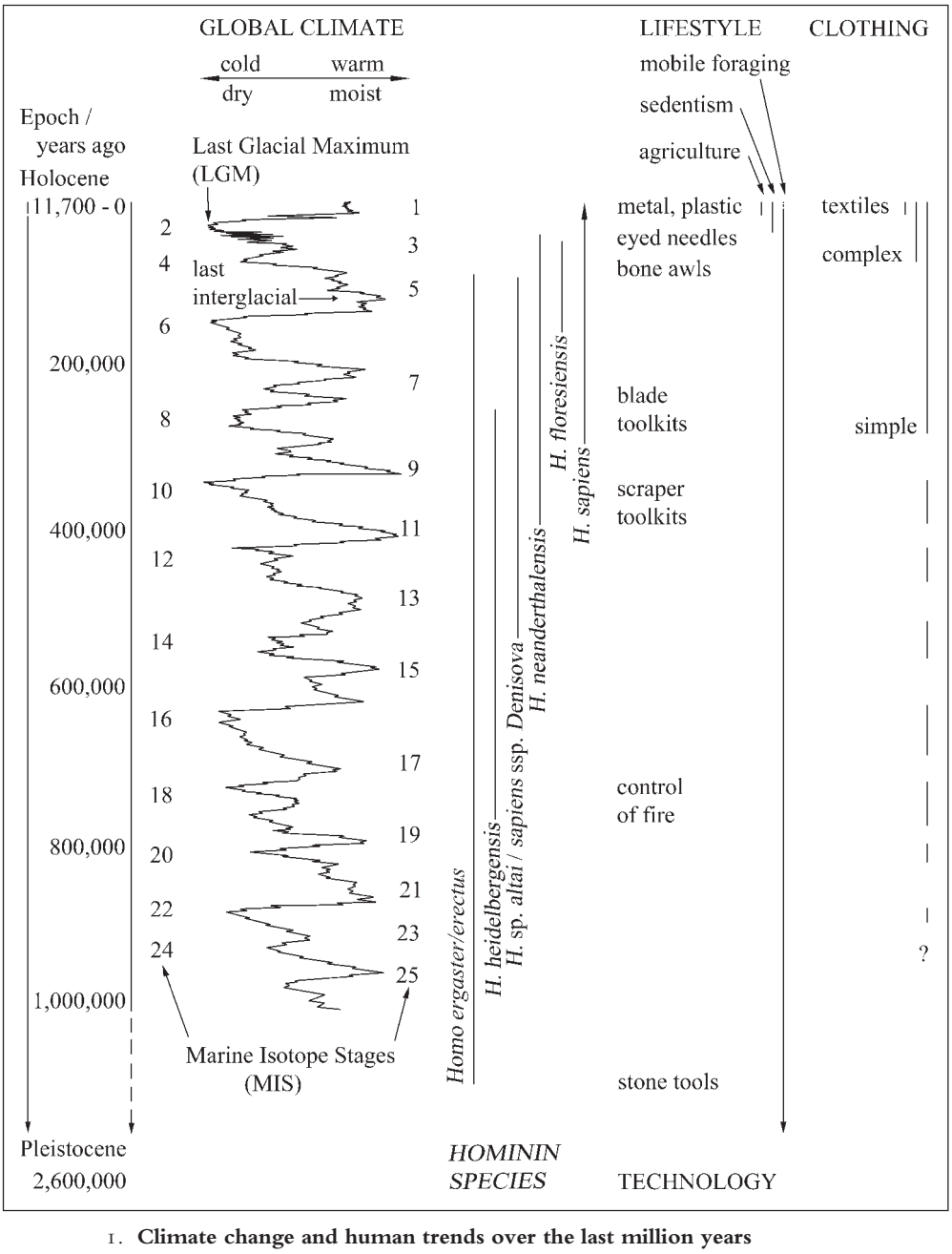
The evolution of *Homo* took place during these protracted cold spells, the last of which finished only recently – a mere 11,700 years ago.

Naked in a Colder World

What makes our evolution really unusual is that we evolved when the global climate was getting colder, and yet we became more vulnerable to cold. Somehow in the process we lost the natural cover of fur that is one of the main traits of mammals. So it is really quite an enigma: we evolved in a colder world and yet we went naked.[11]

The explanation for this odd situation probably relates to the sequence of events. And human nakedness could reflect the fact that in evolution, not every single trait is necessarily adaptive – and even a successful adaptation can later become maladaptive if the environment changes.

Early *Homo* evolved in Africa, and prior to the onset of the Pleistocene, the global climate was actually a little warmer than it is now. Even when the Pleistocene got started, the main impact of climate change in Africa was not cooler but drier conditions. Local climates became drier as vast quantities of water were locked up in the expanding polar ice caps, and water vapor was lost from atmospheric circulation. Our loss of body fur – together with the evolution of sweating as an adaptation to heat stress – happened within this ecological context.[12]



1. **Climate change and human trends over the last million years**
Global climate trends over the last million years, with MIS (Marine Isotope Stage) numbering of the major glacial and interglacial episodes. Shown also are hominin species (and their durations) together with major technological innovations, lifestyle changes, and developments in clothing.
Source: Temperature curve based on proxy data from multiple sources, including the 800,000-year ice core record at Dome C, Antarctica (Jouzel et al., 2007).

Sweating is quite an unusual trait too: sweating only works well as a cooling mechanism in dry conditions – and without a fur cover. The challenge of keeping cool in Africa was made worse by our larger brains: big brains are not just expensive in terms of energy requirements, but they generate a lot of extra heat. Our large brains made us more prone to overheating in the tropics – which probably explains why we have retained some hair cover on our heads, to provide shade. However, the problem with relying on sweating to keep cool was that our need for water increased just as the environment became drier.[13]

2. **Winter landscape in southern Russia**
Even during the present warm interglacial epoch, climates in the middle latitudes of Eurasia pose thermal challenges for humans. Here is a winter scene in the Russian city of Novosibirsk (55°N), southern Siberia.
Source: Photo by Yaroslav Kuzmin, © Yaroslav Kuzmin. Reproduced by permission of Yaroslav Kuzmin.

Clearly, there were competing – and sometimes conflicting – adaptive pressures on *Homo*. Science does not have all of the answers yet, and we shall look at these questions again in more detail later.

When Naked Is Hot – and Not

In contrast to the popular notion that we shed our body fur to cope with heat stress, it turns out that exposing a naked skin surface to the sun probably creates more heat stress. Even in the tropics, having a layer of fur can be quite useful, because it functions as portable shade. Direct exposure of our skin surface to the hot overhead sun led to a higher heat load on the body – and this thermal stress led to that special cooling adaption of sweating. And then there was the opposite problem of cold stress, which became more of an issue when some of our ancestors began to spread into middle latitudes.

No matter how we look at it then, our nakedness is a biological oddity. Whether we consider the risks of heat stress or cold stress, the loss of body fur involved a loss of insulation – from heat as well as from cold. In relation to coping with cold, we may not be the only naked mammal on the planet, but all of the other naked mammals such as elephants and marine mammals seem to have good reasons to dispense with a thick layer of fur. In the case of elephants, their large body mass puts them in constant danger of overheating. But in the case of humans, we have no obvious reason to be naked. Neither have we acquired any compensatory means of coping with exposure to cold. Most other naked mammals stayed in tropical places, while their more adventurous relatives that pushed into colder regions during the Pleistocene often

evolved heavy layers of wool – like the woolly rhinoceros and woolly mammoth. Mammals that ventured into the water had to find new adaptations to prevent them getting too cold – like the thick layers of blubber that protect whales and dolphins in their oceanic environments.[14]

Humans relied instead on an inventive mind, starting with fire. Our ancestors discovered how to tame fire by nearly halfway through the Pleistocene. Yet having a warm fire in a cave was of little help when, sooner or later, they had to venture out into the open. On its own, fire could never have allowed our ancestors to live very far from the tropics at the height of an ice age.[15]

We are not sure when our ancestors became biologically naked, but we do know from archaeology that at least some *Homo sapiens* did survive outside of the tropics during the last ice age without a decent coat of fur.

Yet they did have a coat: they invented clothes. And that is not just an unusual adaptation: it is unique.

CLIMATE CHANGE AND CLOTHING

The evolutionary history of humans is most unusual, not with regard to food, but in relation to keeping warm. Our biological inheritance as a naked primate left us vulnerable to cold. So climate change during the Pleistocene posed a special challenge to human survival, and it posed the biggest threat to those of our ancestors who had migrated beyond the tropics during the warm interglacial periods. Our ancestors met the challenge posed by winter cold with a series of behavioral adaptations: they learned how to control fire; they moved into caves or constructed artificial shelters to escape from wind chill; and they invented clothes. These unusual aspects of our evolution may provide us with some unexpected clues about the origins of our modern way of life.

The key assumption here is that clothing first originated as a solution to the problem of cold exposure during the ice ages. In other words, regardless of all the many functions that clothing has since come to serve, our ancestors first adopted clothes to keep warm.

Our Natural Nakedness

Although almost every human being in the world today wears at least some clothing on a regular basis, the habitual use of clothes has not been a universal behavior of humans from the outset. The evidence from science points to the localized origins of clothing in cooler regions of the globe during the latter part of the Pleistocene.

In ethnography, for example, we can see that humans do not always wear clothes. Unlike the rest of humanity, hunter-gatherers in warmer places typically wore no clothes at all. When they did decide to don a garment, the purpose was

to ward off the cold. We find this thermal pattern for clothing in Australia, where the Aborigines enjoyed an intimate relationship with their environment. Even in the chilly climate of Tasmania,, they might sometimes tie a loose cape across their shoulders to keep warm, but otherwise they went about their business completely unclad. Aborigines were perfectly happy to stroll naked across the landscape – weather permitting.[16]

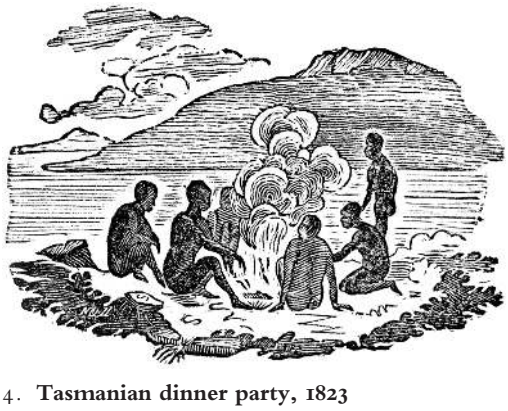
One of the first Europeans to encounter this casual nakedness in Australia was Captain Cook, who led the British expedition that sailed along the eastern coast of the continent during the autumn and winter of 1770. Cook first stepped ashore at Botany Bay, now surrounded by the suburbs and airport of Sydney, where he reported a total absence of clothing:

> No sort of cloathing or ornaments were ever seen by any of us upon any one of them or in or about any of their hutts, from which I conclude that they never wear any.[17]

When their ship *Endeavour* was beached for repairs 2,700km (1,800 miles) to the north of Sydney, the white visitors spent two weeks ashore. During this sojourn they enjoyed the close company of Aborigines for the first time, and although they did see a little more in the way of personal ornaments, they failed to see any clothes. Sir Joseph Banks, the botanist on the voyage, was stunned by the total absence of modesty – a supposedly innate human consciousness of being naked. Banks witnessed their nakedness many times, both with his binoculars and with his own naked eyes:

> That their customs were nearly the same throughout the whole length of the coast along which we saild I should think very probable. . . we saw them either with our eyes or glasses many times. . . they likewise in the

3. **Aborigines in the Sydney area, 1803**
In the Sydney area, Aborigines were typically unclad. This 1803 watercolor illustration, attributed to Philip Gidley King, shows a group of Aborigines at their campfire.
Source: Mitchell Library, Banks Papers Series 36a.04 a2225. Reproduced courtesy of the State Library of New South Wales, [IE513073], Sydney.



4. **Tasmanian dinner party, 1823**
Tasmanians preparing a meal in the vicinity of Lake Echo, March (early autumn), 1823.
Source: An Aboriginal Dinner Party, Ross, 1831:101. Mitchell Library, DSM/986/25A1. Reproduced by permission of the Mitchell Library, State Library of New South Wales, Sydney.