

# **Deadly Harvest**

**The Intimate Relationship Between  
Our Health & our Food**

*by*

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Square One Publishers

Extracted from the published book. More information  
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*To my children—who carry the torch down the generations*

*"I see you stand like greyhounds in the slips,  
Straining upon the start. The game's afoot:  
Follow your spirit ...!"*

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## INTRODUCTION

A zookeeper puts signs in front of the cages saying, "Please do not feed the animals." Have you ever thought about that? If you feed lions on popcorn or gorillas on pizza, they get sick and die. The zookeeper knows that there is a particular feeding pattern that is right for each of these creatures. We now realize that there is a particular feeding pattern appropriate for human creatures as well.

A new science has come into being to explore this fascinating subject: nutritional anthropology. It is the spellbinding story about what it means to be human—in nutritional terms. It provides an extraordinarily powerful understanding of how, by eating in harmony with the way our bodies are designed, we can rejoice in the best possible health and relish the prospect of a long life.

We accept that lions and gorillas have bodies, digestive systems, and feeding patterns that are adapted to the environment in which they live. Lions, who live by catching and eating fleet-footed antelope, have razor-sharp claws, needle teeth, and powerful stomach acids. Gorillas, who live by chomping through vast quantities of vegetation, have massive molars and long colons. Lions' bodies are designed to work on the food that lions eat and gorillas' bodies are designed to work on the food that gorillas eat. Yet we imagine, incorrectly, that humans are made to eat anything.

What feeding environment are human bodies designed for? Nutritional anthropology shows that there is a very precise specification for the human diet, developed by our human ancestors over millennia, and our bodies are designed to work according to those instructions and no others. It is an adventure story, stretching across the globe and into the distant past, to discover what humans were designed to eat. The past is the future: modern-day humans have changed very little, genetically speaking, and we are still living in bodies that nature designed to thrive in that far off time. Examining our ancestors' way of life provides powerful clues to how we should be living today. These remarkable insights show how, in many surprising and unsuspected ways, we can make critical, life-transforming adjustments. The way humans have been eating and living for many thousands of years has not been ideal. In this book, you will learn how we discovered this and come to understand what we can do to improve and enrich our own lives right now.

Our first goal is to open your mind to a whole new way of thinking about the fuel that your body needs. Once this reality is accepted, we can move forward to learning how to practice this way of feeding in today's world. The news is good—we live in a society where there is a huge variety and abundance of food available from all corners of the globe at any time of the year. We just have to learn how to choose wisely.

One of the most troubling aspects of our busy lives is the constant bombardment of conflicting messages directed at us by the health and food industries. In this book, we show you the way to peace of mind. The insights of nutritional anthropology empower you to judge for yourself. They bring clarity to the confusion and allow you to select with confidence which claims to accept and which to reject. After all, our ancestors knew they were living in a dangerous, treacherous, and unpredictable jungle. They had the skills to survive: they knew which mushrooms were poisonous and which berries were safe. This book can help teach you the skills to survive in today's supermarket jungle.

The insights of nutritional anthropology get at the root causes of the "diseases of civilization": cancer, heart disease, stroke, diabetes, obesity, arthritis, osteoporosis, Alzheimer's disease, and many more. These diseases are not inevitable, they are optional. These are lifestyle diseases, which can be avoided and put into remission. By understanding the principles of nutritional anthropology and eating in accordance with our naturally adapted lifestyle, you will be able to choose the right foods to eat and know why. You can improve your health to be better able to combat any disease and

live longer. Your body will find its natural ideal weight, either losing or gaining according to its needs. You will be able to take control of your eating habits and thus your life.

These are powerful claims, but as a scientist I am not given to flights of fancy or guesswork. All the information in this book is based on evidence-driven science. These insights are new, because the various pieces of the puzzle have only recently been put together. For example, peering deep into our DNA is one of the exciting new tools for unlocking the secrets of our genetic heritage. And there are many other fields that are yielding fascinating new insights about how human beings are “designed” to live. This book gathers this scattered, cutting-edge information and synthesizes it into a coherent whole.

But this is not just theory—the ideas work. Over the past decade, thousands of individuals have been empowered by this information. I have personally worked with many of them to understand the nature of disease, to take control of their eating habits, and to help them live a healthier lifestyle. Many people’s lives have been transformed by the insights of nutritional anthropology.

### **The Journey Ahead**

The first part of the book explains nutritional anthropology—how we know what it means to be a human being, particularly in nutritional terms. We highlight the consequences of our divergence from the ideal eating pattern. The middle part of the book deals with how humans moved away from our naturally adapted environment, feeding patterns, and lifestyle and looks at the science supporting our claims. Then, based on these insights, we develop an “Owner’s Manual” for how we should be feeding ourselves today and show you how to put it into action today. Finally, we present an overview of specific diseases and how these relate to the ways we eat and live.

- Chapter 1 describes the remarkable discoveries of nutritional anthropology: about where we came from and how our ancestors made their living there.
- Chapter 2 describes how, over many millennia, more and more foods have become part of our diets (not always for the best) and describes how governments, somewhat arbitrarily, provide dietary guidelines.
- Chapter 3 reviews how we eat today and hints at the surprising health consequences.
- Chapters 4 and 5 go backstage to look at the science behind these assertions, bringing in evidence from other areas of scientific enquiry that satisfyingly complete the picture.
- In chapter 6, we pull all the pieces of evidence together to define the “Owners Manual,” the naturally adapted eating pattern for the human species.
- Chapter 7 sets out the route map for feeding ourselves in today’s world. It gives practical advice, strategies for different situations, and a step-by-step approach for easily putting the principles into practice.
- Chapter 8 shows how we can make adjustments in our lives—to bring them in line with our naturally adapted lifestyle—that can help our well-being. Stress, exercise, spirituality, kinships, family relationships, differences between the sexes, parenting, and other topics are explored.
- Chapter 9 looks at the connection among what we eat, lifestyle factors, and the “diseases of civilization.” Returning to our naturally adapted feeding patterns can greatly improve our health and well-being.

This book’s fusion of healthy eating with healthy thinking could not be more important, dealing as it does with the absolute fundamentals of human nature. It feels

good to know at last that you have a coherent and focused road map for humbug-free bodily nutrition. It is a relief to be clear about where you have to go, and you'll feel better about yourself for taking control of your destiny.

You will find the secret to what it means to be a human being living in close connection with our natural lifestyle. Everyone can use these ideas to enhance their image, inside and out. It contains the easy-to-learn skills of how to harmonize your eating with human genetic programming. We *can* make adjustments to our ways of eating, our ways of thinking, and our lifestyle so that they coincide as closely as possible with our inherited natural traits: they are the key to a healthy and harmonious life. In this book, we dub this process – of aligning our lives with the way nature intended – “The Bond Effect”.

## Chapter 1

### WHAT IS NUTRITIONAL ANTHROPOLOGY?

Much of what we think we know about food has filtered into our minds through our upbringing, our cultural conditioning, and commercial advertising. We absorb still other ideas from the not-so-subtle influences of the health industry, junk science, and the trendy wisdom of the day. Our individual theories are all different and no one could argue that any of them is the complete answer. The reason is simple—even the experts cannot agree. They are like the blindfolded men trying to guess that they are touching an elephant. One touches the trunk and thinks it is a snake, the next touches a leg and thinks it is a tree, and so on.

There is, however, a valid science that has emerged which lifts the blindfold and shows the whole picture. It sees across the barriers between many compartmentalized scientific disciplines and finds new, overarching knowledge in the patterns that are revealed. We sometimes forget that, just like all other creatures on this planet, we sleep, feed, excrete, beget offspring, and indeed bleed. If we are like animals in those respects, then we resemble them in the rest.

This new science studies how humans fit into this vast and complex mosaic of nature. We go back to our origins to understand our place in the scheme of things. We learn what it means to be human—as organic beings—interacting in a multitude of intricate ways with our native environment. Second, it uses a range of scientific disciplines to identify the kind of feeding pattern for which our bodies have evolved over millennia. We learn the kinds and proportions of plants and creatures we consumed, and we match this with what we know makes us ill or well today. Various peoples around the world practice a range of dietary patterns—these practices are not without consequences and we learn from those as well.

This science puts all of these clues together to identify the ideal feeding pattern for the human species. Why is this important? Very simply, we are making ourselves grievously sick and unnaturally shortening our lives by blindly ignoring our nutritional heritage. This new science lights our way to the remedy: it not only gives us the definitive specification for the human diet, it also teaches us how to put it into practice. It is comforting to know that this is not only possible but also easy, once we connect the dots.

What is this science? It links the study of human beings (anthropology) with the science of fueling the body (nutrition). That science is *nutritional anthropology*. It goes right to the heart of what it means to be a human being in nutritional terms.

#### [B] THE “OWNER’S MANUAL” FOR THE HUMAN BODY

It is helpful to think of the human body as being an incredibly complex machine. This machine has a particular construction and functions in a particular way, yet, annoyingly, we do not have an Owner’s Manual. We do not have the specification of the *fuel* that the machine was designed to run on. It is incredible to think that, up until now, so little thought has been given to the matter. We inhabit this wonderful community of minute cells that have come together for a common purpose—to create and sustain life in a human body—and each one of those cells requires to be fueled, but with what?

In this chapter, we start the hunt for the Owner’s Manual by looking at four promising trails:

- We will go on a journey of discovery back to our ancestral human homeland and get to know the workshop where our bodies were forged.

- We will find tribes that, even in modern times, continue to live like our early ancestors.
- We will analyze fossilized bones to see what food nutrients contributed to their structure and we will examine fossilized teeth to see what kind of feeding pattern caused them to wear and scratch in a particular way.
- We will seek confirmation for what we discover by comparing our digestive system with other human-like creatures.

### **[B] OUR ANCESTRAL HOMELAND**

Where do we come from? The answer to this question is of capital importance because it tells us *where* we should look to find the Owner's Manual. There we will find the place where our bodies were fashioned. We need to understand this place's geography and natural history, so we can discover what *use* our ancestors made of it and how it shaped our ideal feeding pattern.

The great explorations of the 15th to 18th centuries found human beings living on every continent, with the exception of Antarctica. Human populations were living in a huge variety of climates, geographies, and cultures. In the 19th century, intrepid explorers discovered the chimpanzee and the gorilla in the jungles of tropical Africa. Their human-like form and eerily human behavior fascinated the people of the time. The great naturalist Charles Darwin (1809–1882) predicted, but could not prove, that humans (*Homo sapiens*) had their origins in tropical Africa too. No one had yet uncovered any ancient fossils in Africa to confirm this prediction.

Then, in relatively quick succession, anthropologists discovered ancient bones not in Africa, but in Germany in 1856 (Neanderthal), in Indonesia in 1891 (Java Man), and in China in the 1930s (Peking Man). They were all remains of humanlike species dating back 50,000 to one million years ago. These creatures had stone tools, made rudimentary ornaments, and daubed crude cave paintings. However, there was no center—these humanlike creatures seemed to be living all over Europe and Asia.

The picture was further confused because, in southern Europe about 30,000 years ago, there was an abrupt improvement in the sophistication of tools and cave paintings. A new type of human, dubbed "Cro-Magnon," appeared on the scene. There was puzzlement about what it all meant.

Finally, in the 1960s, the anthropologists Louis and Mary Leakey (and later their son, Richard) began uncovering extremely old, humanlike bones in tropical East Africa (Kenya and Tanzania). Some of these bones were several million years old. Two famous skeletons are "Turkana boy" and "Lucy." Once again, it was looking as though humans had their origins in Africa after all.

### **[C] Remarkable Insights From DNA**

During the 1990s, from the most unexpected direction, came dramatic confirmation of our origins from an extremely powerful tool: DNA (deoxyribonucleic acid) analysis. It just so happens that our genes contain the key to the whole history of the human race. Our genetic material tells us that, with the exception of the Cro-Magnon, all these human-like creatures that inhabited Europe and Asia for over a million years, including the Neanderthals, are not our ancestors at all. They are a different species. Neanderthals and *Homo sapiens* were closely related species, granted. They were almost as close as the donkey is to the horse, but they did not successfully interbreed; there are no Neanderthal genes in *Homo sapiens*.

Allan Wilson and Rebecca Cann are Berkeley genetic microbiologists who have used sophisticated DNA analysis techniques to trace the ancestry of humans back to their origins.<sup>1</sup> They and other pioneering researchers, such as the geneticist L. Luca Cavalli-Sforza,<sup>2</sup> have built up a remarkably precise picture of our ancient genealogy. The molecular evidence indicates that *Homo sapiens* arose around 250,000 years ago. The population of *Homo sapiens* was small—no more than about 10,000 of them—and the population remained at around this level for a very long time. Furthermore, studies of the genes of different peoples from all over the world show that all their ancestral lines lead back to a single location for our homeland. This key information tells us that our mother country is an area bounded by Kenya, Tanzania, and Ethiopia.

Indeed, these studies show that our ancestors remained in their homeland until about 60,000 years ago. According to the eminent Anglo-American anthropologist Ian Tattersall, we now know that everyone on this planet is descended from a group of people who lived in the savannas of East Africa until just 60,000 years ago.<sup>3</sup> This is a highly significant piece of information—it tells us that our origins are tropical African and *recent* in evolutionary terms.

We can now piece together what happened. Over a period of a million years, successive waves of humanlike creatures overflowed out of Africa to populate most of the Old World. They had brains about half the size of ours, but walked upright and had many humanlike traits. They have been broadly called *Homo erectus*, of which the Neanderthals were just one branch. Then, about 250,000 years ago, a radical thing happened: a new breed of *Homo erectus* arose in East Africa, our own ancestor, *Homo sapiens*.

*Homo sapiens* were brainier, more agile, more inventive, but more lightly built than *Homo erectus*. They were successful in their ability to survive and to multiply. However, to feed themselves, they needed around 100 square miles of living space per band of 50 people. So, in their turn, about 60,000 years ago, they overflowed out of Africa into Asia.

#### [C] How Humans Migrated Around the World

*Homo sapiens* spread further than *Homo erectus*. They migrated along the coastlines of India and Indonesia and got to Australia approximately 50,000 years ago. That continent was empty of humans at that time. Within 2,000 years, they occupied every corner of it, from the harsh Central Desert to the lush tropical rainforests. These are the ancestors of the Australian Aborigines.

On the one hand, those areas that are rich in game and vegetation could support a relatively dense population of up to 50 people per 25 square miles. On the other hand, the early European settlers thought, wrongly, that the deserts and 'outback' were empty. But even they were populated, but at lower densities—down as far as 50 people per 300 square miles.

#### The Human Timeline

We have our humanlike beginnings with East African *Homo erectus* over 1,000,000 years ago. Out of that population, *Homo sapiens* arose and existed for 190,000 years before leaving Africa about 60,000 years ago. This period, from over 1,000,000 years ago to 60,000 years ago is critical—it is our *formative era*. It is the time when the African environment forged the bodies that we possess today and when the "Owner's Manual" was written.

I will refer to this formative era frequently throughout the book, so I will give it a specific name. Geologists have a convenient, often-used epoch for this approximate time period—the Pleistocene, which runs from 1,600,000 years ago to 10,000 years ago. However, I want to conclude the formative era earlier, at about 60,000 years ago. Since our ancestors spent this time entirely in Africa, I will call this critical formative era the "*African Pleistocene*."

The total Aboriginal population of the Australian continent (about the same area as the continental United States) stabilized at around 800,000 people. The population density is said to have reached "saturation." These densities are, of course, much lower than we are used to seeing in the industrialized West today. The U.S. supports 280 million people, an average density of 50 people on only 480 acres, or three-quarters of a square mile.

About 35,000 years ago, *Homo sapiens* was knocking at the doors of Europe. Here they found themselves in stiff competition with the Neanderthals. John Kappelman, an anthropologist who has written about the biology of ancient, humanlike creatures, reports that the Neanderthals were massive, at least 30% larger than the ordinary human today.<sup>4</sup> They had the heavily muscled body and stature of an Olympic wrestler and weighed up to 200 pounds (91 kg). On the other hand, their brains were somewhat smaller than modern man's is today.

We will never know exactly what happened to the Neanderthals. However, every human male was a potent "Jack-the-Giant-Killer:" he was smarter, wiler, and more organized than the more powerful, yet dim-witted, giant of the forest. Over several thousand years, it is probable that he killed them all off. That is what happens when too-similar species compete for the same living space.

By 30,000 years ago, the Neanderthals had gone and the *Homo sapiens* newcomers had introduced their own, developing culture. This explains the quantum leap in art and technology of the time. These new people were the Cro-Magnons, the ancestors of Europeans. Meanwhile, in the Middle East, India, China, and Siberia, other *Homo sapiens* similar to the Cro-Magnons drove all the other branches of *Homo erectus* into extinction. By 20,000 years ago, humans had fanned out over the whole of the Old World.

About 15,000 years ago, toward the end of the last ice age, sea levels were still low and it was possible to canoe or walk from Siberia, across the Bering Strait to what is now Alaska. Finally, the first few humans broke out of the Old World and penetrated into the Americas. There they found a New World rich in plants and game, empty of humans, and free of competition, and they prospered well.

As they multiplied, their frontier advanced south. The swelling population spread, at an average rate of 8 miles per year, through territories that now include Canada, the United States, Mexico, and Central and South America, right down to Patagonia. By about 10,000 years ago, the Americas were peopled 'to saturation' for their ancestral lifestyle. We must remember that 'saturation' is still a very low density by modern standards: an average of 100 square miles of living space per band of 50 people. These first, pioneering peoples became the indigenous Indian tribes or "Amerindians."

The essential idea to retain about our past is this: that we are all still tropical creatures who only left our homeland 2,400 generations (60,000 years) ago. While 2,400 generations might seem like a lot, it is just an eye-blink in evolutionary terms. The bacteria in our guts go through that many generations in the space of two months. We do not expect a species to change much, if at all, in such a short space of time. We know that our bodies are still the same, we have the same biochemistry, and we have the same digestive arrangements.

We look a little different on the outside, of course. Over the last 2,400 generations, superficial racial differences

#### **How Long is a Human Generation?**

A human generation can only be approximated and we have to work with averages. In the past, female *Homo sapiens* were child-bearing from the age of about 15 to about 35 years. Thus, *on average*, people were born to mothers who were 25 years old (halfway between 15 and 35). The rough-and-ready length of a generation is therefore taken as 25 years.

have evolved, but underneath we are all still the same. We all have a common recent origin. In other words, everyone on this planet still inhabits a body designed for life in our ancestral homeland, the tropical, east African savanna. The DNA evidence is a ringing endorsement of the Leakeys' fossil evidence. The cradle of mankind is in the African Rift Valley stretching from Olduvai in northern Tanzania, all the way through Kenya to Lake Turkana in southern Ethiopia.

### **[D] What was Our Homeland Like?**

What was this overflowing pot, our homeland or Garden of Eden, like? This environment and lifestyle shaped our natures, our bodies, and our biology. Let us look at a snapshot of this place.

If we conjure up a picture of the African savanna landscape, it is the classic image of open, rolling grassland with the occasional tree, bush, and shrub. In the wetter areas, there are thickets and groves of beautiful flowering shrubs and trees. In parts, termite mounds stand up to 25 feet (8 meters) high. The floor of the African Rift Valley is not very high above sea level, but there are nearby plateaus; some mountains rise to over 10,000 feet (3,000 meters). There are several large, and many small, lakes, many waterholes, and some streams and rivers. Many of the watercourses are dry for most of the year, but flood during the rains.

The weather fluctuates between mild and hot for most parts of the year, about 55°F to 90°F (13°C to 32°C). There are rainy and dry seasons. Annual rainfall is moderate: between 35 inches (900 mm) and 60 inches (1,500 mm), and the rain comes in unpredictable storms and showers.

Our ancestors were not alone in the savanna. They shared the land with a wide variety of creatures: giraffe, lion, elephant, warthog, rhinoceros, hyena, antelope, gazelle, zebra, baboons, chimpanzees, vultures, eagles, flamingos, and many more. In addition, there were snakes, porcupines, crocodiles, lizards, tortoises, snails, grasshoppers, and a myriad of small mammals, reptiles, and insects. The lakes, streams, and waterholes teemed with many species of freshwater fish, shellfish, frogs, toads, ducks, geese, and other aquatic creatures.

Our ancient ancestors lived for countless generations in these circumstances. This environment fashioned our bodies, our naturally adapted lifestyle, and our mentality. With this sketch of it in mind, we can discover how nature designed us to live in this environment. In particular, we will focus on the kind of eating pattern that is right for us.

### **[B] THE SAN BUSHMEN**

How did our human ancestors make use of this environment? We can learn a great deal by examining how primal tribes live today. However, there are allowances to be made: such tribes have been pushed into more marginal lands, and sometimes modern materials filter in from the outside world. Nevertheless, working from studies carried out over the past 150 years, we can piece together a good, solid picture of our ancestors. As our main illustration, we will look at the San Bushmen who live in southern Africa.

The San Bushmen (more correctly called by their own name, the !Kung) at one time occupied a large part of southern Africa. Negroid Bantu herders (Zulus and Xhosa) migrating from West Africa have pushed them into a smaller, remote area—the Kalahari—over the past 600 years. The Kalahari is a sandy wilderness, well covered with trees, scrub, vines, creepers, and grasses. The sand drains the rainfall fast, so there is little surface water, just scattered waterholes. Animal life is varied, and many

species such as antelope, lion, giraffe, zebra, and elephant thrive there. It is very like our ancestral homeland, but without the streams and lakes.

The San are short, slender, and fine-featured with a reddish-yellow skin. Laurens van der Post describes the color as "Provençal apricot."<sup>5</sup> The San have tightly coiled, peppercorn colored, and woolly hair. Their noses are broad, and they have pointy ears with no lobes. They have high cheekbones and somewhat Mongoloid eyes.

The Italian geneticist Ornella Semino and others have shown that the San are southern Africa's most ancient inhabitants.<sup>6</sup> In 60,000 years, they have migrated only 1,500 miles from humanity's homeland in the African Rift Valley. Anthropologists have studied the San extensively since the 1950s and found the San living the same way that our ancestors have since the dawn of time.

The San live in groups of 40 to 60 people (about 6 to 10 families). A typical group (or band) has about 15–20 men, 15–20 women, and a further 15–20 dependent children. The group "owns" their territory of some 125 square miles (320 km<sup>2</sup>) within which they roam. They camp for a few days in a place and then move on. In the space of six months, one band was recorded by the ethnic archaeologist John Yellen, as having moved 37 times, an average of once every five days.<sup>7</sup> When they have exhausted the food supply of the area, they travel to the next site, which can be up to 20 miles away.

The San wear no clothes. They do not have any possessions beyond what is easily portable and can be carried long distances. Babies-in-arms are carried by their mothers, but everyone else has to walk. They carefully choose the next campsite for the availability of plant and animal food. Sometimes the whole group will move to the place where the men have killed a large animal and then stay until the meat is all gone. Game animals that come to waterholes are a rich source of food. To avoid frightening them away, and in spite of the inconvenience, they camp at least a quarter mile away from a waterhole.

### **[C] How the San Feed Themselves**

What use do the San make of their feeding environment? The Japanese anthropologist Jiro Tanaka and others have lived among the San and monitored their lifestyle for years at a time.<sup>8</sup> The only "work" to be done by the band is the daily quest for food. The roles adopted by each member of the band are natural and instinctive.

### **[D] Women's Work**

Almost every day a large proportion of the women set off, in a group, on a food-collecting expedition. Nursing mothers carry their babies in a leather sling. Older women, old men, and the men not hunting that day stay at the camp with some of the children. The American anthropologist Richard Lee, an untiring researcher of hunter-gatherer societies, reports that during the expedition, the women walk 2 to 12 miles (3 to 20 km).<sup>9</sup> They gradually separate but always stay within hailing distance of one another. On the return leg, a woman will be carrying 7 to 15 kg (15–33 pounds) of collected food. Her family will receive a share of most of it.

The women have two types of activity: picking and digging. From above ground, the women pick fruits, nuts, berries, flowers, gums, stalks, pods, leaves, and all kinds of edible plant parts. From below ground, they poke out, with their digging

#### **The Digging Stick and New Food Resources**

The women's digging stick gives humans a big advantage over their competitors in the same ecological niche. Baboons, for example, often get to a fruiting tree and strip it before the humans arrive, but baboons are incapable of digging down to underground foods.

sticks, a whole variety of stems, bulbs, corms, and roots.

It is estimated that the San use over 100 species of plant as food, although many of them are tiresome to collect and not always agreeable to eat. Given the chance, they tend to concentrate on just 15 to 20 species that are reliable to find, tasty, and easy to gather. The most consumed species is the fruit and nutlike kernel of the mongongo tree. Groves of these trees are found all over San territory, and their edible parts are available for large parts of the year. The baobab fruit is another staple. It is delectable, rich in vitamin C, calcium, and magnesium. It too has a kernel that is nutlike. Raw, the tsin bean is slimy and inedible, but once roasted is an enjoyable delicacy.<sup>10</sup>

John Yellen and Richard Lee record the San as eating peanuts on a regular basis.<sup>11</sup> This demonstrates some of the difficulties of reconstructing the ancestral diet. The peanut is native to tropical South America and was introduced to Africa by European explorers only around 400 years ago. Since then, it has spread so rapidly that hunter-gatherers in the Kalahari desert can think of it as a normal native food. However, we can be sure that our African Pleistocene ancestors never ate peanuts.

Green salad vegetables, such as scilla and talinum (a kind of purslane), appear at the start of the rainy season. Fruits, such as the !igwa, ochna, and grewia berries and the ivory fruit, yield hundreds of pounds during their seasons. None of these fruits is sweet and many are bitter. Most foods are highly fibrous. Jiro Tanaka estimates that the San eat on average 2 pounds (900 g) of plant food per person per day.

Plant foods are an important, even critical, source of water. One of the most important is the bitter-juiced tsama melon, from which our familiar (but sweet) watermelon is descended.<sup>12</sup> Indeed, the San obtain more than 90% of their water needs from plants. This is not typical for our African Pleistocene ancestors, who would have had access to waterholes, ponds, and streams year round. It is fascinating to realize that the human body can survive without free water at all, provided there is access to enough plant food of the right type.

The women also collect eggs of all kinds and capture small animals such as locusts, caterpillars, grubs, toads, tortoises, and snakes. Ostrich eggs are particularly valued. The contents supply a good portion of food, the shells make containers for water, and bits of shell are carved into beads.

On their gathering trips, the women will note and report to the men any signs of game that might be good to hunt. Both men and women live in an intimate relationship with the natural world around them. They are incredible botanists and can identify all the plants and know exactly which ones are good to eat and what else each plant might be good for. They are amazing naturalists—they live in close contact with animal life and seem to know what it is like to be in the mind of the larger mammals, such as elephants, lions, or antelopes.

### **[D] Men's Work**

The men concentrate almost exclusively on hunting. This is sporadic and depends entirely on their reading of the opportunities. Hunting parties are small: usually just one or two men in a party; more if it is a big animal. Hunting trips are made an average of three times a week. The men are away for several hours, sometimes up to 10 hours. Frequently, the hunters return empty-handed.

Most of the hunting is unspectacular. The men go after small creatures using snares, traps, and guile. Commonly, the San hunt for springhare, a type of large rodent that sleeps in its deep burrow during the day. The hunter pokes a flexible, barb-tipped 20-foot pole down the burrow until he has hooked the animal. He then digs the creature

out. Porcupines and 150-pound 'antbears' are smoked out, dug out, or even speared by crawling down the burrow. Warthogs are run to death with hunting dogs. A fire is lit at the entrance to the tunnel and then they are speared as they try to escape. The warthog is highly prized for its fatty flesh, a rarity in the San diet.

Game birds like guinea fowl, francolin, and bustard are captured in cunning snares. Ostrich is hunted on occasion. As mentioned earlier, the San do not have much access to water, but when they get the chance, they spear fish, trap toads, and collect shellfish.

Big game, such as eland (a huge, ox-like antelope weighing up to one ton), gemsbok, and wildebeest, are hunted as the occasion presents itself. However, the effort required is enormous and the outcome uncertain. In one incident, the San tracked a herd of eland for eight days and finally shot one of them with poison arrows. They followed the wounded eland for another three days before it collapsed and could be killed and butchered. Giraffe are occasionally hunted, but not with much success.

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#### **How Important is Hunted Food?**

Hunted food does not actually provide a large percentage of the diet. Jiro Tanaka measured the number of game animals caught by one San band. The hunters brought in just 140 animals in six months—about three for each member of the band. About one-third of the weight of an animal (consisting of bones, horns, hooves, and so on) is inedible waste. Tanaka estimates that the weight of game animals actually consumed per person averages about 5 ounces (150 g) per person per day.<sup>13</sup>

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When the kill is made, the hunters are allowed to eat the liver immediately and they will eat more of the meat as necessary to satisfy their hunger. If they are far from base, they will eat the parts that spoil fast first. The animal is butchered on the spot. Only the gallbladder and the testicles are discarded. Everything else is taken back to base and will be eaten. Blood is carried in bags made from the stomach or bladder. The hunters wring out the half-digested grasses in the paunch and drink the fluid to save precious water.

Back at the camp, they dry surplus strips of the meat to a kind of pemmican. Even the hide is pounded up and eaten, or parts are kept to make leather artifacts as needed. Soft parts such as udders, fetus, heart, lung, brains, and blood are given to old people with worn down teeth. The intestines are emptied of their excrement, cleaned, and are much prized as a delicacy.

Hooves and trotters are picked clean; gristle is dried and pounded. Sinews are used to make string. The major bones are eagerly cracked open for their fatty marrow; marrow fat is mainly of the monounsaturated kind. The conventional muscle meat is, of course, much desired. Nothing is wasted.

Children eat what the adults eat. Babies and toddlers are breast-fed until they are about four years old. The mother introduces easily chewed, solid foods after the first teeth have broken through.

The search for honey occupies an inordinate amount of effort, guile, and time. The reason is simple: it is just about the only source of sweetness in the San diet. When they find a bees' nest (usually in a hole in a tree), they waft smoke from a smoldering bunch of specially selected herbs toward the bees. The bees think a forest fire is coming, gorge themselves on honey, and then flee the hive. In this state, they are both absent and docile. This is just as well: these insects are the fearsome African killer bees that make mass attacks and kill anything that gets in the way.

When the coast is clear, the San puts his hand into the nest and scoops up a handful of comb, dripping with honey and flecked with half-developed grubs. This is shared out and eaten on the spot, wax, grubs, and all. The San try to leave enough intact comb so that the bees are not driven away permanently. That way they can come back from time to time and harvest more honey. The San are so possessive about this resource that ownership of the nest is passed on from father to son. From a nutritional point of view, the amount of honey is insignificant; they only get the equivalent of a candy bar three or four times a year. However, from a psychological point of view, this is a high point in the San life.

### **[C] The San Food Supply**

Total animal matter consumption (that is, game animals plus eggs and all the gathered and fished animals) is no more than around 8 ounces (225 g) per person per day. Plant food is about 2 pounds (900 g) per day. This weight of food is rather less than even the San would like to be eating and we will see how this relates to the way we eat today. Nevertheless, the proportions are worth noting: about 20% animal food to 80% plant food measured by weight. Measured by calories, Richard Lee estimated the ratio to be 33% animal food to 67% plant food.<sup>14</sup> The reason for the difference is that there are more calories per pound in animal foods than plant foods.

The San can survive very well without hunted food at all. However, it is certain that they could not survive without the women's gathered animal and plant food. The men's work—hunting—is an optional extra. In spite of that, hunting preoccupies the thoughts of both men and women. It inspires songs, dances, storytelling, and interminable plotting and cogitation. Why this might be so, and why men are necessary, especially husbands, is discussed in Chapter 6.

Richard Lee estimates that an adult San spends about 12 to 19 hours per week getting food.<sup>15</sup> That is the only "work" there is; after that, it is just lazing around, chatting, singing, dancing, making the odd piece of body adornment, and preparing hunting equipment. It is a very easy-going lifestyle. Compared to today's average 40-hour work week, which does not include food shopping and preparation time, the San lifestyle was very leisurely. This is all very agreeable, but what is the effect of this lifestyle on the health of the San?

### **[C] The State of the San's Health**

Austrian biologist Sylvia Kirchengast reports that the San are, above all, slim and they stay slim throughout their lives.<sup>16</sup> Their average body mass index (BMI) is around 19. That corresponds to a weight of 110 pounds (50 kg) for a height of 5'4" (163 cm).

Stuart Truswell and John Hansen are medical doctors who conducted nutritional and medical research on the San in the 1960s. They found that, predictably, the San do not suffer from diseases associated with obesity.<sup>17</sup> Diabetes is unknown. They have one of the lowest cholesterol levels in the world: total cholesterol levels for all age groups are around 120 mg/100 ml; phospholipids and triglycerides are low too.

The diet is very low in fats of all kinds, and the types of fats are healthier. They are mainly polyunsaturated fats with very little saturated fat. It is interesting to compare the fats in the San's blood with those in the average European's blood. The San has a much higher percentage of the polyunsaturated omega-3 fat (26% to 9%) and a lower percentage of the polyunsaturated omega-6 fat (34% to 40%). This is not surprising: in contrast to Westerners, the San are eating a diet that contains roughly equal amounts of omega-3 and omega-6 fats. The main sources of fats for the San are nuts and wild creatures, both of which have very different fatty acid profiles to the

foods habitually consumed in the West. In addition, their bodies are not fabricating fats out of the kinds of food that are making Westerners fat.

There is no sign of coronary heart disease, atherosclerosis, or thrombosis. Researchers have found no case of varicose veins, piles, or hernias. No cases of cancer or osteoporosis were seen either. Average blood pressure is a low 120/75 and it does not increase with age; not a single case was found of high blood pressure.

In 1966, the South African ear, nose, and throat specialists John Jarvis and H.G. van Heerden made hearing tests on 10 old Bushmen and found that they had perfect hearing.<sup>18</sup> There was little or no earwax and the drum could be easily seen. Teeth were also free of caries (cavities). In old age, eyesight still remained excellent for distance, but, in a few, the lens has lost some transparency.

Other researchers found that the San received healthy levels of vitamins A, B<sub>12</sub>, C, and D, folate, thiamine, riboflavin, niacin, iron, calcium, iodine, zinc, copper, and other trace elements.<sup>19</sup> The human body is designed to manufacture vitamin D from sunlight. The San, like our African Pleistocene ancestors, lived in a sunny place and spent all day outdoors, with no clothes on. Their bodies manufactured all the vitamin D they needed. Nobody suffered from anemia or protein deficiency. The kidneys were functioning normally on the low-salt diet and were excreting very little salt in the urine. Levels of phosphorus in the urine were very low.

Lactose is a type of sugar found uniquely in milk. It is an aggressive allergen for most adults, although some Caucasians can put up with it. The San, in common with most peoples of the world, are uniformly intolerant of lactose. In glucose tolerance tests, the San had responses that are within the normal, non-diabetic range. Insulin response was slow, as is normal for humans who have virtually no sugars in the diet.

The San are in excellent health by any terms, let alone under the arduous conditions in which they live. Their old people live to a venerable yet healthy old age, in good shape right to the end. The "end" comes when they are too old to walk the 10 or so miles to the next campsite. The aged San makes contact with the spirits of his waiting ancestors. He is propped up under a bush with a supply of water, food, and weapons; he is surrounded with a thicket of thorny branches to keep the predators away. Sorrowful goodbyes are said and the band moves on. That is how it has always been, and there is nothing else to be done. After a day or two, the carnivores will snout the thorns aside and close in.

### **[C] A Potent Lesson**

For most of us, this lifestyle seems remote and outlandish, yet that is how our ancestors lived for endlessly cycling seasons in harmony with our African Pleistocene environment. Time is now out of joint and we have to make a mental leap to accept that the San's present is a potent lesson about the past that shaped us. We have spent some time on the San for a very good reason: their lifestyle gives a very good picture of how our African Pleistocene ancestors lived for eons. It is the way of life for which our bodies are designed. Our studies of tribes like the San give a good picture of the kinds of foods that fueled the machine of our ancestral bodies. We are starting to get an idea of the composition of these foods and the proportions in which they were consumed.

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### **The Australian Aborigine**

Another example of a primal tribe, very remote from the San Bushman, is the Australian Aborigine, who lived a completely primal existence until European settlers

first arrived in Australia 200 years ago. The continent of Australia has a wide variety of climates, ranging from tropical in the north to temperate in the south. The vast interior of Australia is very dry and much of it is desert.

Remarkably, in spite of the wide variation of climate and geography, the Aboriginal living arrangements hardly differed from the Bushman. They lived in bands of 30 to 50 people, men, women, and children included.<sup>20</sup> Each group circulated in its territory, which could have an area of up to 300 square miles in barren regions. They were constantly on the move, camping for a few days and then moving on 10 to 15 miles to the next campsite.

### **How the Aborigines Feed Themselves**

The basic food collecting patterns were similar to the San's, especially in the savanna areas that mirror our African homeland.<sup>21</sup> The women gathered and the men hunted. The women used digging sticks and collected plants, insects, and small animals, providing the base load of food on a daily basis. The kinds of plants collected were quite different species to those of the Kalahari, but had very similar characteristics: young leaves and shoots, roots, tubers, bulbs, fibrous fruits, nuts, gums, flowers, water lily roots, and berries.

The animal food collected would be eggs, turtles, snakes, shellfish, crabs, caterpillars (e.g., the witchety grub and the bogong moth), land snails, and the goanna (a giant lizard). Sweet foods were very rare but much prized. Disproportionate amounts of time were spent on finding a bees' nest to smoke out. Other sweetmeats were the honey ant, gorged with nectar, and "lerp," a sweet insect secretion on eucalyptus leaves. In times of scarcity, grass seeds were collected, winnowed, and ground between two handheld stones.<sup>22</sup> The drudgery of this task was viewed with such distaste that it was only done very rarely.

The men would spend a lot of thought, ingenuity, and time on the hunt, which was often unsuccessful. Stories about the hunts, past, present, and future dominated their conversations. Unlike the San, the Aboriginal did not have the bow and arrow—they still used spears, traps, snares, boomerangs, and fire. They hunted and trapped wallaby, kangaroo, freshwater fish, snakes, platypus, possums, birds, ducks, and emu.

### **The Aboriginal Food Supply**

The Aboriginal food supply was similar to the San in the proportion of food coming from animals and plants. About 35% of calories came from animal sources and 65% from plant sources. In traditional aboriginal diets, the animal matter was very low in fat (less than 3%).<sup>23</sup> It was mainly polyunsaturated fat, and there was little saturated fat. The polyunsaturated fat was composed of equal percentages from the omega-3 and omega-6 families. As with the Bushman, fat was much sought after: fatty parts of the carcass were prized, distributed with ceremony, and eaten with relish. The witchety grub was rich in monounsaturated fat, similar to olive oil.

The Aborigine ate most plant food raw, but if it tasted better roasted, some was tossed into the embers of a fire. Animal food was mostly cooked. Small game, snakes, lizards, and grubs would be baked in the embers. Larger animals would be gutted and the variety meats (offal) cooked and eaten separately; the carcass would be baked whole.

## The State of the Aborigine's Health

At the time of European settlement 200 years ago, the Aboriginal was described as being in good health and of athletic physique. In the 1960s, researchers studied Aboriginals still living the traditional way and found that they were incredibly lean by our standards, with body mass indexes ranging from 16 to 20.<sup>24</sup> They also had low blood pressure, low cholesterol, and no atherosclerosis or diabetes. Their blood samples showed high levels of hemoglobin, vitamins C and B12, folate, and a good sodium/potassium ratio. However, the Aborigines' health disintegrates when they adopt a European lifestyle.

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## Fossil Evidence

We have looked at what primal tribes do today; but what can we learn directly about our ancestors who lived in African Pleistocene times? Ancient bones are a rich source of a surprising amount of information. Rutgers University anthropologist Robert Blumenshine and others have discovered that Stone Age humans were scavengers.<sup>25</sup> He and other researchers excavated the fossilized bones of butchered carcasses. By clever analysis, they found that the marks from the stone chopping tools came *after* the marks from the predator that did the killing. In other words, the lion killed his prey and took his fill, then the humans rushed in to fight the hyenas for the leftovers. As anthropologist Pat Shipman observed, "meat-eaters scavenge when they can and hunt when they must."<sup>26</sup>

However, there is more to bones than just the marks on them. A person builds bones from the foods that he or she eats, so it is possible to analyze the chemical composition of a bone to find out the foods eaten to make that bone. Michael Richards, a specialist in prehistoric diets from the University of Bradford, finds that, 30,000 years ago, the Cro-Magnons of Europe ate fish, turtles, shellfish, and birds.<sup>27</sup> Meanwhile the Neanderthals, who lived alongside them, ate reindeer, mammoth, and other large herbivores.

Ancient teeth are another rich source of information. Have you ever wondered why your back teeth have those difficult-to-clean biting surfaces? Dental researchers like Peter Lucas and W. Maier studied what is so special about these shapes. They find that they are best for grinding up plant food; on the other hand, they are not very good for meat or seeds.<sup>28</sup> Other researchers have examined the tooth enamel and find that the thickness and strength of human enamel is designed for a plant food diet that is halfway between that of a chimpanzee and a gorilla.<sup>29</sup> A chimpanzee eats mostly soft plant foods like fruits and tender leaves, while a gorilla eats tough leaves and even twigs and branches.

Yet other researchers look at the scratches and wear on ancient teeth. The Spanish biologist Carles Lalueza and others find that Neanderthals have tooth wear typical of a meat diet.<sup>30</sup> In contrast, the teeth of African Pleistocene humans show that they were eating an abrasive, high plant food diet.

Remarkably, fossilized excrement, known as coprolite, has been discovered and is a good source of information. Michael Kliks, a specialist in intestinal health, has studied ancient coprolites and reports that, until quite recently, human populations took in impressive amounts of plant fiber—around 130 grams per day.<sup>31</sup> Fascinatingly, also in the fossilized excrement, he found undigested residues of bones, teeth, hair, feathers, fish scales, and insect shells.

## **[B] Circumstantial or Indirect Evidence**

Up to this point, we have been examining direct evidence—data that we can measure directly and is fundamental to understanding our ancestral nutritional heritage. It paints a picture of human beings as a species and gives strong guidance to our naturally adapted feeding patterns. But we must also take into account other fields of scientific research which have an *indirect* bearing. This is a demonstration of our approach set out at the beginning—to break across barriers between scientific compartments and bring a satisfying harmony to the totality of knowledge. Understanding this circumstantial evidence brings unexpected insights on a whole range of perplexing health mysteries. Here, we look at some of this intriguing indirect, or circumstantial, evidence.

## **[C] The Path of Least Work**

The review of foraging tribes such as the San and Aborigine sets the scene for understanding the kind of lifestyle led by our ancestors for eons. One factor that emerges very strongly is that humans are *economical* with their energy. They seem to have a calculator in their heads, whirring away, working out what is the best return for the effort they spend. This is known as finding “the path of least work” to get what they want. (No surprises there!) In terms of finding food, this is known as “optimal foraging” strategy. Very simply, how does a human being efficiently find food in the African savanna with only bare hands, a pointed stick, and loads of ingenuity?

Several studies have examined the effort compared to the benefit for various feeding patterns. Not surprisingly, they find that, overall, it requires the least effort to collect foodstuffs that stay still or only move very slowly. Therefore, plants of all kinds, eggs, and slow-moving animals provide the vast bulk of the diet. In addition, foods that require little or no *processing* are given top priority. As we saw, the Aboriginal only ate grass seed as a last resort; it was just too time-consuming and tedious.

These optimal foraging analyses all reinforce our picture of the true eating pattern practiced by the San and Aboriginal. However, it begs the question why humans bothered with *hunting* at all: it is dangerous, it requires lots of energy, and the results are uncertain. Worse, the hunter, instead of finding dinner, could *become* dinner! The answer to this fascinating question is explored in chapter 6.

## **[C] What Kind of Food is Our Digestive System Designed For?**

Another piece of indirect evidence comes from answering the question, “What kind of food is the human digestive system designed to operate on?” After all, we know that a canary eats birdseed but a cat eats canaries—and they each have a digestive system and enzymes to suit their particular natural diets. One illuminating approach is to take a critical look at creatures that are most similar to us in biological terms.

The closest relatives to humans in the evolutionary tree are the chimpanzee and the gorilla. Since we share the same lineage, we can expect to share similar, if not identical, eating habits too. At the very least, our digestive systems will share a common heritage, even if they have been pressed into slightly different uses since our ancestral lines diverged. Several groundbreaking studies, including those by the geneticists Charles Sibley,<sup>32</sup> Jeffrey Rogers,<sup>33</sup> and Morris Goodman<sup>34</sup> show that the chimpanzee and the gorilla share over 98% of their DNA with human DNA. Their body plan is almost the same as each other’s and ours.

The gorilla is what is known as a vegan, a creature that consumes no food of animal origin whatever. A male gorilla is a gentle giant weighing 450 pounds of solid bone and muscle. He can climb trees with ease and swing his great weight through the branches. Even so, to keep his body supplied, he needs to eat 50 pounds of

vegetation per day. His diet is chiefly leaves, fruit, and even small twigs and bark. He can spend up to eight hours eating. Vegetation is not rich in calories, so the gorilla has to economize energy expenditure—he is a slow, deliberate mover.

Chimpanzees are rather smaller than the average human and they are much more active than the gorilla. They, too, have a diet that is focused on plant food, but more oriented to ripe fruit and young leaves. In addition, they kill and eat small creatures, particularly monkeys and small wild pigs. Some chimpanzees even poke a stick into a termite nest and eat the termites that crawl out. It is estimated that around 6% of the chimpanzee's calories are of animal origin.

Humans, gorillas, and chimpanzees share an ancestral line that goes back to fruit-eating creatures. Over the millennia, their eating pattern has diverged somewhat, but the same digestive system is pressed into service. All humanlike creatures share the same basic pattern. As anthropologist Katherine Milton observes, they have a simple stomach, a lengthy small intestine, a modest-sized cecum, and a corrugated colon.<sup>35</sup>

The cecum is the first region of the colon. It has a deep layer of muscle that kneads the contents and propels them forward. In contrast to the human cecum, the carnivore cecum is much smaller. There are other differences too: in the cat and dog, muscle contractions of the cecum are much more vigorous and they can reverse direction, sending the contents back up into the intestine.

Humanlike creatures also have an appendix. This is an unusual structure and contrary to popular belief, it serves a useful purpose. It secretes digestive helpers such as mucin, eripin, and amylase; the appendix is also a powerful producer of antibodies for the immune system. The only other type of creature that has an appendix is leaf-eating animals (folivores), notably the rabbit and the capybara (a large, vegetarian, South American, semi-aquatic creature related to the guinea pig).

Surprisingly, it is difficult to be precise about the true dimensions of a digestive system. The various components are particularly elastic and the proportions can vary significantly from one individual to another. According to an individual's eating habits, the stomach is contracted or bloated; the colon longer or shorter. Indeed, a baby's colon has proportions similar to those of other apes. As humans mature, their colon, relatively speaking, shortens.<sup>36</sup> But this may only happen to Westerners on a low-fiber diet. It is suggestive that in other apes, the opposite happens—their colons get longer with age. It would be surprising if ours were not intended to do the same. Gorillas have long colons anyway compared to humans. This is where they digest their large intake of plant material.

However, we can learn even more from the curious fact that our digestive system is even closer in design to that of the capuchin monkey. Capuchins are little, stocky, nimble creatures that live in Central America. Like humans, capuchins have a small intestine that is lengthy compared to the colon. The overall length of gut (small intestine plus colon) compared to body size is also small compared to other apes and monkeys. This indicates that humans are designed for a similar type of food supply. Capuchins eat a high-quality diet made up of unusually rich wild foods, both fruits and oil-rich nuts. They also spend a disproportionate amount of time seeking out animal matter, including grubs, grasshoppers, and small animals.

Similarly, savanna baboons painstakingly seek out small nutritious food items—up to 3,000 in a day, including gums, flowers, fruits, and small animals and insects. Neither the baboon nor the capuchin monkey is as close to us genetically as the great apes. However, they have feeding environments that are more similar to the human one and they evolved digestive systems that have a similar design to ours.

**[C] What Kinds of Foods are Our Bodies Designed to Capture?**

Just like the gorilla and chimpanzee, our jaws and molars are designed for chewing and grinding. Like the great apes, we have front teeth in the shape of a chisel—good for taking a bite out of an apple. As we saw earlier, we have back teeth made for grinding. Unlike carnivores, our jaws can move from side to side for better chewing. Our teeth are closely spaced, unlike those of a carnivore, who has needle-shaped teeth with wide gaps. Our saliva contains the enzyme ptyalin, which powerfully pre-digests plant carbohydrate.

Chimpanzees and baboons use their hands a great deal to prepare their food. It is no coincidence that the same hand, with its ability to grasp an object, is also one that is good for grasping a branch. Like us, these creatures show great dexterity: they will pick out the choice part of a plant or unwrap a leaf to find a grub inside.

**[B] LIVING THE WAY NATURE INTENDED**

In this chapter, we have set the scene, noting many facts and describing the remarkable advances in knowledge about our human origins. It is a story that could not have been written even ten years ago. We can now properly understand how human beings are a part of nature—it is liberating to know how to live the way nature intended.

We have built up a picture of the lifestyle experienced by our ancestors for hundreds of thousands of years. We have identified the kinds of feeding opportunities they had and described the use that they made of their environment, including their behavior within it. We know that even today, our digestive systems, biochemistry, brains, psychology, and bodies are still those designed for life in the savanna of East Africa. I call this lifestyle the “Savanna Model.”

We have not yet done any interpreting or drawn any conclusions, which will come later as we piece together yet more evidence. However, already we can discern the major outlines of our Owner’s Manual. Our African Pleistocene ancestors had a food supply in which plant material was a major component and animal matter was a moderate component. We have seen that the *types* of plants and animal matter were quite different from what we consume today. We will discover that these differences are of capital importance. Their diet contained certain types of fat but not others. What they did *not* eat is of equal importance: we eat many groups of food today that did not form part of our ancestral diet.

Contrary to modern myth, those far-off ancestors lived long, healthy lives. In so many fundamental ways, our modern lives have diverged from the lifestyle that Nature intended. It is estimated that the average Westerner loses 10 to 15 years of life thanks to dysfunctional eating habits. Furthermore, those extra years would be lived in great physical shape to the end.

This ancestral lifestyle seems exotic—far removed from how we live today—and few would like to return to it. Indeed, population densities are now so high that there just is not enough space to go around. So, we are stuck with what we have got; there is no going back. However, the good news is that we can work intelligently to get the best of both worlds, ancient and modern.

In the next chapter, we look at the distortions that have occurred in human dietary patterns worldwide since that far-off time. We will see what impact these distortions have on our health and well-being, and we will use these insights to write more segments of the Owner’s Manual.

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