

The era of the hunter-gatherer was not the social and environmental Eden that some suggest

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HUMAN beings have spent most of their time on the planet as hunter-gatherers. From at least 85,000 years ago to the birth of agriculture around 73,000 years later, they combined hunted meat with gathered veg. Some people, such as those on North Sentinel Island in the Andaman Sea, still do. The Sentinelese are the only hunter-gatherers who still resist contact with the outside world. Fine-looking specimens—strong, slim, fit, black and stark naked except for a small plant-fibre belt round the waist—they are the very model of the noble savage. Genetics suggests that indigenous Andaman islanders have been isolated since the very first expansion out of Africa more than 60,000 years ago.

About 12,000 years ago people embarked on an experiment called agriculture and some say that they, and their planet, have never recovered. Farming brought a population explosion, protein and vitamin deficiency, new diseases and deforestation. Human height actually shrank by nearly six inches after the first adoption of crops in the Near East. So

was agriculture “the worst mistake in the history of the human race”, as Jared Diamond, evolutionary biologist and professor of geography at the University of California, Los Angeles, once called it?

Take a snapshot of the old world 15,000 years ago. Except for bits of Siberia, it was full of a new and clever kind of people who had originated in Africa and had colonised first their own continent, then Asia, Australia and Europe, and were on the brink of populating the Americas. They had spear throwers, boats, needles, adzes, nets. They painted pictures, decorated their bodies and believed in spirits. They traded foods, shells, raw materials and ideas. They sang songs, told stories and prepared herbal medicines.

They were “hunter-gatherers”. On the whole the men hunted and the women gathered: a sexual division of labour is still universal among non-farming people and was probably not shared by their *Homo erectus* predecessors. This enabled them to eat both meat and veg, a clever trick because it combines quality with reliability.

Why change? In the late 1970s Mark Cohen, an archaeologist, first suggested that agriculture was born of desperation, rather than inspiration. Evidence from the Fertile Crescent seems to support him. Rising human population density, combined perhaps with a cooling, drying climate, left the Natufian hunter-gatherers of the region short of acorns, gazelles and wild grass seeds. Somebody started trying to preserve and enhance a field of chickpeas or wheat-grass and soon planting, weeding, reaping and threshing were born.

Quite independently, people took the same step in at least six other parts of the world over the next few thousand years: the Yangzi valley, the central valley of New Guinea, Mexico, the Andes, West Africa and the Amazon basin. And it seems that Eden came to an end. Not only had hunter-gatherers enjoyed plenty of protein, not much fat and ample vitamins in their diet, but it also seems they did not have to work very hard. The Hadza of Tanzania “work” about 14 hours a week, the !Kung of Botswana not much more.

The first farmers were less healthy than the hunter-gatherers had been in their heyday. Aside from their shorter stature, they had more skeletal wear and tear from the hard work, their teeth rotted more, they were short of protein and vitamins and they caught diseases from domesticated animals: measles from cattle, flu from ducks, plague from rats and worms from using their own excrement as fertiliser.

They also got a bad attack of inequality for the first time. Hunter-gatherers' dependence

on sharing each other's hunting and gathering luck makes them remarkably egalitarian. A successful farmer, however, can afford to buy the labour of others, and that makes him more successful still, until eventually—especially in an irrigated river valley, where he controls the water—he can become an emperor imposing his despotic whim upon subjects. Friedrich Engels was probably right to identify agriculture with a loss of political innocence.

Agriculture also stands accused of exacerbating sexual inequality. In many peasant farming communities, men make women do much of the hard work. Among hunter-gathering folk, men usually bring fewer calories than women, and have a tiresome tendency to prefer catching big and infrequent prey so they can show off, rather than small and frequent catches that do not rot before they are eaten. But the men do at least contribute.

Recently, though, anthropologists have subtly revised the view that the invention of agriculture was a fall from grace. They have found the serpent in hunter-gatherer Eden, the savage in the noble savage. Maybe it was not an 80,000-year camping holiday after all.



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In 2006 two Indian fishermen, in a drunken sleep aboard their little boat, drifted over the reef and fetched up on the shore of North Sentinel Island. They were promptly killed by the inhabitants. Their bodies are still there: the helicopter that went to collect them was driven away by a hail of arrows and spears. The Sentinelese do not welcome trespassers. Only very occasionally have they been lured down to the beach of their tiny island home by gifts of coconuts and only once or twice have they taken these gifts without sending a

shower of arrows in return.

Several archaeologists and anthropologists now argue that violence was much more pervasive in hunter-gatherer society than in more recent eras. From the !Kung in the Kalahari to the Inuit in the Arctic and the aborigines in Australia, two-thirds of modern hunter-gatherers are in a state of almost constant tribal warfare, and nearly 90% go to war at least once a year. War is a big word for dawn raids, skirmishes and lots of posturing, but death rates are high—usually around 25-30% of adult males die from homicide. The warfare death rate of 0.5% of the population per year that Lawrence Keeley of the University of Illinois calculates as typical of hunter-gatherer societies would equate to 2 billion people dying during the 20th century.

At first, anthropologists were inclined to think this a modern pathology. But it is increasingly looking as if it is the natural state. Richard Wrangham of Harvard University says that chimpanzees and human beings are the only animals in which males engage in co-operative and systematic homicidal raids. The death rate is similar in the two species. Steven LeBlanc, also of Harvard, says Rousseauian wishful thinking has led academics to overlook evidence of constant violence.



I know it's a drag Godric, but it's progress

Not so many women as men die in warfare, it is true. But that is because they are often the object of the fighting. To be abducted as a sexual prize was almost certainly a common female fate in hunter-gatherer society. Forget the Garden of Eden; think Mad Max.

Constant warfare was necessary to keep population density down to one person per square mile. Farmers can live at 100 times that density. Hunter-gatherers may have been so lithe and healthy because the weak were dead. The invention of agriculture and the advent of settled society merely swapped high mortality for high morbidity, allowing people some relief from chronic warfare so they could at least grind out an existence, rather than being ground out of existence altogether.

Notice a close parallel with the industrial revolution. When rural peasants swapped their hovels for the textile mills of Lancashire, did it feel like an improvement? The Dickensian view is that factories replaced a rural idyll with urban misery, poverty, pollution and illness. Factories were indeed miserable and the urban poor were overworked and underfed. But they had flocked to take the jobs in factories often to get away from the cold, muddy, starving rural hell of their birth.

Eighteenth-century rural England was a place where people starved each spring as the winter stores ran out, where in bad years and poor districts long hours of agricultural labour—if it could be got—barely paid enough to keep body and soul together, and a place where the “putting-out” system of textile manufacture at home drove workers harder for lower pay than even the factories would. (Ask Zambians today why they take ill-paid jobs in Chinese-managed mines, or Vietnamese why they sew shirts in multinational-owned factories.) The industrial revolution caused a population explosion because it enabled more babies to survive—malnourished, perhaps, but at least alive.

Returning to hunter-gatherers, Mr LeBlanc argues (in his book “Constant Battles”) that all was not well in ecological terms, either. *Homo sapiens* wrought havoc on many ecosystems as *Homo erectus* had not. There is no longer much doubt that people were the cause of the extinction of the megafauna in North America 11,000 years ago and Australia 30,000 years before that. The mammoths and giant kangaroos never stood a chance against co-ordinated ambush with stone-tipped spears and relentless pursuit by endurance runners.

This was also true in Eurasia. The earliest of the great cave painters, working at Chauvet in southern France, 32,000 years ago, was obsessed with rhinoceroses. A later artist, working at Lascaux 15,000 years later, depicted mostly bison, bulls and horses—rhinoceroses must have been driven close to extinction by then. At first, modern human beings around the Mediterranean relied almost entirely on large mammals for meat. They ate small game only if it was slow moving—tortoises and limpets were popular. Then, gradually and inexorably, starting in the Middle East, they switched their attention to smaller animals, and especially to warm-blooded, fast-breeding species, such as rabbits, hares, partridges and smaller gazelles. The archaeological record tells this same story at sites in Israel, Turkey and Italy.



Another fine environmental mess we've got ourselves into Bridgeman Art Library

The reason for this shift, say Mary Stiner and Steven Kuhn of the University of Arizona, was that human population densities were growing too high for the slower-reproducing prey such as tortoises, horses and rhinos. Only the fast-breeding rabbits, hares and partridges, and for a while gazelles, could cope with such hunting pressure. This trend accelerated about 15,000 years ago as large game and tortoises disappeared from the Mediterranean diet altogether—driven to the brink of extinction by human predation.

In times of prey scarcity, *Homo erectus*, like other predators, had simply suffered local extinction; these new people could innovate their way out of trouble—they could shift their niche. In response to demographic pressure, they developed better weapons which enabled them to catch smaller, faster prey, which in turn enabled them to survive at high densities, though at the expense of extinguishing many larger and slower-breeding prey. Under this theory, the *atlatl* or spear-throwing stick was invented 18,000 years ago as a response to a Malthusian crisis, not just because it seemed like a good idea.

What's more, the famously “affluent society” of hunter-gatherers, with plenty of time to gossip by the fire between hunts and gathers, turns out to be a bit of a myth, or at least an artefact of modern life. The measurements of time spent getting food by the !Kung omitted food-processing time and travel time, partly because the anthropologists gave their subjects lifts in their vehicles and lent them metal knives to process food.

Agriculture was presumably just another response to demographic pressure. A new threat of starvation—probably during the millennium-long dry, cold “snap” known as the Younger Dryas about 13,000 years ago—prompted some hunter-gatherers in the Levant to turn much more vegetarian. Soon collecting wild grass seeds evolved into planting and reaping crops, which reduced people's intake of proteins and vitamins, but brought ample calories, survival and fertility.

The fact that something similar happened six more times in human history over the next

few thousand years—in Asia, New Guinea, at least three places in the Americas and one in Africa—supports the notion of invention as a response to demographic pressure. In each case the early farmers, though they might be short, sick and subjugated, could at least survive and breed, enabling them eventually to overwhelm the remaining hunter-gatherers of their respective continents.

It is irrelevant to ask whether we would have been better off to stay as hunter-gatherers. Being a niche-shifting species, we could not help moving on. Willingly or not, humanity had embarked 50,000 years ago on the road called “progress” with constant change in habits driven by invention mothered by necessity. Even 40,000 years ago, technology and lifestyle were in a state of continuous change, especially in western Eurasia. By 34,000 years ago people were making bone points for spears, and by 26,000 years ago they were making needles. Harpoons and other fishing tackle appear at 18,000 years ago, as do bone spear throwers, or *atlatls*. String was almost certainly in use then—how do you catch rabbits except in nets and snares?

Nor was this virtuosity confined to practicalities. A horse, carved from mammoth-ivory and worn smooth by being used as a pendant, dates from 32,000 years ago in Germany. By the time of Sungir, an open-air settlement from 28,000 years ago at a spot near the city of Vladimir, north-east of Moscow, people were being buried with thousands of laboriously carved ivory beads and even little wheel-shaped bone ornaments.

Incessant innovation is a characteristic of human beings. Agriculture, the domestication of animals and plants, must be seen in the context of this progressive change. It was just another step: hunter-gatherers may have been using fire to encourage the growth of root plants in southern Africa 80,000 years ago. At 15,000 years ago people first domesticated another species—the wolf (though it was probably the wolves that took the initiative). After 12,000 years ago came crops. The internet and the mobile phone were in some vague sense almost predestined 50,000 years ago to appear eventually.

There is a modern moral in this story. We have been creating ecological crises for ourselves and our habitats for tens of thousands of years. We have been solving them, too. Pessimists will point out that each solution only brings us face to face with the next crisis, optimists that no crisis has proved insoluble yet. Just as we rebounded from the extinction of the megafauna and became even more numerous by eating first rabbits then grass seeds, so in the early 20th century we faced starvation for lack of fertiliser when the population was a billion people, but can now look forward with confidence to feeding 10 billion on less land using synthetic nitrogen, genetically high-yield crops and tractors.

When we eventually reverse the build-up in carbon dioxide, there will be another issue waiting for us.

Links

1. <http://www.economist.com/printedition/2007-12-22>

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