

# The unexpected origin of human values

by Ian Morris

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“NEVER work with children or animals,” the saying goes. Fortunately for science, Sarah Brosnan didn’t listen. Plenty of researchers had already trained primates to earn snacks by performing simple tasks; but what would happen, Brosnan asked, if she paid some subjects better than others?

The capuchin monkeys in the Yerkes National Primate Center quickly learned that when Brosnan gave them a granite pebble, they could get a slice of cucumber by returning the pebble to her. To a few monkeys, though, she gave a better reward: a tasty grape. Seeing their

undeserving colleagues earning higher wages for the same work, some monkeys sulked and refused to eat their cucumber. Others flew into a rage, hurling the vegetable back at the biologist. It’s just not fair, they seemed to be telling Brosnan.

The experiment implied that monkeys have an innate sense of fairness. Encouraged, Brosnan extended her research to chimpanzees and human children. Her work seemed to show that all primates have moral values of some kind.

But how did these values develop? Biologists and psychologists are increasingly suggesting that human values are an evolved adaptation – one which functions, in part, to maximise the likelihood that their bearers will pass genes on to the next generation. That would explain why virtually everyone in the world has a sense of right and wrong.

What it wouldn’t explain, though, is why we humans disagree so much over what counts as right or wrong. If you were an anthropologist studying the Hadza people in northern Tanzania, for instance, you would discover that your hosts think it right and proper that women and men should be equally free to pursue sexual partners. If you moved just 100 miles to live with the Nyamwezi people, you would find that your new hosts consider such behaviour anything but right and proper. How can there be such cross-cultural variety in human values if they are biologically evolved? Have the anthropologists got it wrong? Or the primatologists?

I suggest that neither group is wrong: it is just that scholars cataloguing human values have stood too close to their object of study, making it difficult to see the forest for the trees. We need to back away from the details of Hadza and Nyamwezi life – so far that we can see not only the whole planet, but also the full 20,000 years that have elapsed since the coldest point of the last ice age. When we do that, the chaos of detail simplifies into three broad systems of values; and when we ask what explains the systems, we get an answer that unites moral philosophy with primatology.

I call the first of the three systems foraging values, because it is associated with societies that support themselves primarily by hunting and gathering wild plants. For tens of thousand of years, everyone on Earth lived this way, but now barely one person in a million does so. This presents a problem: archaeologists cannot dig up morality, so we have to extrapolate forager values from the handful of modern examples. Worse still, modern foragers have been shoved on to lands that no one else wants, and must differ in many ways from their prehistoric brethren, who had the run of the most fertile spots.

The good news, though, is that on almost every point where archaeology allows us to compare prehistoric and modern foragers, the similarities outweigh the differences. It seems that many



Groups living just 100 miles apart can have opposite views of morality (Image: Roger De La Harpe/Gallo Images/Corbis)

aspects of foraging life have probably changed little since the ice age.

No two modern foraging bands are identical, but virtually all agree that a fair world is one where everyone is treated more or less the same. No one should be much richer than anyone else or much more politically powerful; and men and women should have roughly equal freedom to do what they think best. Upstarts who subvert these values will be cut down to size with mockery, ostracism and even violence. A !Kung San forager in the Kalahari desert, asked by the anthropologist Richard Lee



Our values were once shaped by agriculture (Image: Josef Koudelka/Magnum Photos)

about chiefs, put it best: “Of course we have headmen! In fact, we’re all headmen... Each one of us is headman over himself.”

The second moral system, which I call farming values because it is associated with societies that support themselves primarily with domesticated plants and animals, could not be more different. Farming was invented around 9500 BC in what we now call the Middle East, and by AD 1500 it had taken over every usable niche in the world. For more than 5000 years, almost everyone on Earth belonged to a farming society. Virtually all these groups operated on the principle that a fair society was not one where all were

treated more or less the same; rather, it was one where different individuals were treated differently. Some were wiser and more virtuous than others, and deserved to be rich and powerful. It was right to own slaves, for women to defer to men and everyone to defer to rulers who had been chosen by the gods – or actually were gods – because people who were male, free and royal were better than people who were not. Hierarchy was fair.

### **“It was right to own slaves and to defer to rulers who were chosen by the gods”**

Studying farmers’ values raises just as many problems as studying foragers’, but this time not because we lack evidence. The historical record is enormous; what makes the job tricky is that nearly all of our written sources were penned by small groups of elite males near the top of the pecking order. It is hardly surprising that such men thought hierarchy was valuable; but what about the women, serfs and slaves at the bottom of the pile?

Here the anthropology of modern peasant societies partly comes to the rescue. What the downtrodden disagree with, ethnographers find, is not hierarchy as such, but their own place in it, or the suspicion that their so-called “betters” are not living up to their moral obligations. Resisting specific husbands, masters or lords who are abusing their authority is right and proper; resisting authority itself is not. And we find similar attitudes even in texts from now-vanished farming societies. “The Tsar is good, but the boyars [local elites] are bad,” a typical Russian peasant saying went; rebellion was justified if its goal was to let the tsar know that his agents were failing him, but not if it intended to challenge the divinely appointed tsar himself.

The third moral system is once again wildly different. I call this fossil-fuel values, because it is associated with societies that augment the energy they can extract from living plants and animals with that from fossilised plants, by burning coal and oil to power machines.

Fossil-fuel society began in Britain around AD 1800 and spread rapidly around the world. As it did so, farming values simply collapsed. Opinion pollsters tell us that by the 2010s, huge majorities – varying only slightly with age, sex, religion and nationality – were insisting that political, economic and gender inequalities are bad. Steep hierarchies, say fossil fuellers, are not fair, and people who disagree seem as immoral as democrats, socialists and feminists would have done 1000 years ago.

So is everything relative? Is the mind really a blank slate, on which we can write whatever story we want? No.

Forty years ago, the naturalist E. O. Wilson suggested that “the time has come for ethics to be removed temporarily from the hands of philosophers and biologicized”. It may not be the prettiest word in the dictionary, but biologicization is exactly what we need here.

## Cultural evolution

Somewhere between 50,000 and 150,000 years ago, evolution put a kilogram of magic inside each human’s skull. The 22 billion neurons that make up the brain gave us the intellectual wherewithal to invent culture –that cumulative body of information we acquire through teaching, imitation and other transmission. With minor exceptions, humans are the only animals that have culture, and we are therefore unique in our ability to respond to environmental changes by evolving culturally, rather than waiting millions of years to evolve biologically into new creatures. Cultural evolution cannot change our biological hardwiring to make us stop believing that fairness and justice are important: but it can change what we think fairness and justice mean.

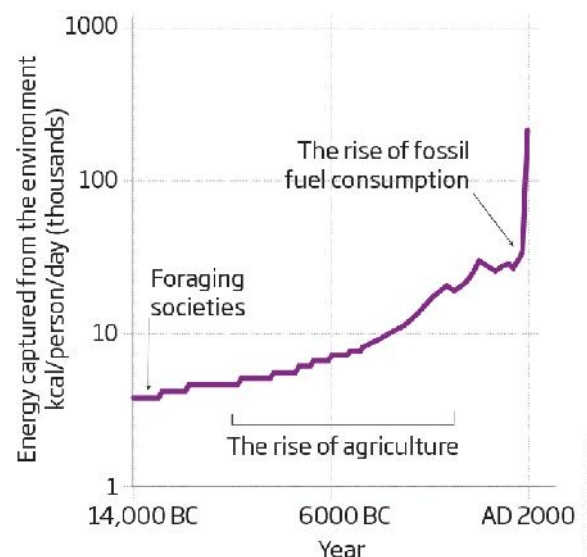
This, I suggest, is exactly what has happened across the last 20,000 years. Modern humans evolved largely in ice-age conditions, moving around constantly in pursuit of ripening plants and migrating animals. Foragers captured very little energy from the world – typically, no more than 5000 kilocalories per person per day, to use as food or fuel – and they had to live in tiny bands, usually less than 10 people strong. This made it impossible to create steep political, wealth or gender hierarchies; which, in turn, meant that those who interpreted fairness as treating everyone roughly the same tended to do well, while those whose idea of fairness was treating people differently did not. A competitive, evolutionary process pushed people towards foraging values.

That stopped when the world warmed up at the end of the ice age, making farming possible. Shifting from foraging to farming had many drawbacks. Farmers generally worked longer hours than foragers, ate more monotonous diets, had poorer health and died younger. The upside of farming, though, was that it unleashed a flood of energy: by my calculations, the amount of energy used per person roughly doubled between 10,000 BC and 4000 BC, to reach 10,000 kilocalories a day (see “Energy-hungry humanity” graph at right). By 1 BC it had risen to 30,000 kilocalories a day. As this happened, farmers turned much of the extra energy into more of their own kind. In 10,000 BC, there were no farmers on Earth, but there were about 5 million foragers; by 1 BC, there were 250 million peasants, who had driven the few surviving foragers on to lands the farmers did not want.

By that point, the biggest city – Rome – had 1 million residents. To feed itself, it drew in food from all over the Mediterranean, creating a hugely complex division of labour – one that simply could not be sustained without elaborate hierarchies, reaching all the way down to the individual household. One result was that economic inequality exploded. Using the Gini coefficient, a simple index scoring a society from 0, meaning everyone has exactly the same, to 1, meaning that one person has everything, the average foraging society scored 0.25 for income equality (see “Inequality through the ages”). The average farming society scored 0.48, and 18th-century France managed an astonishing 0.59.

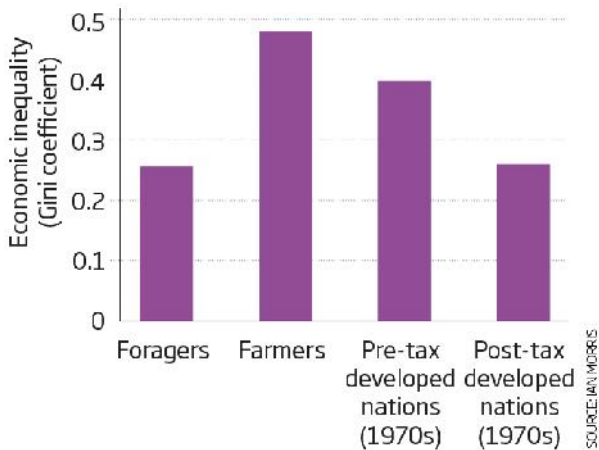
## Energy-hungry humanity

The amount of energy that humans extract from the environment has risen since our hunter-gatherer days, and the average American today burns through 46 times as much as a forager



## Inequality through the ages

Economic inequality changes dramatically between types of societies. One measure is the Gini coefficient. A score of 0 would mean total equality, 1 would mean total inequality



Steep political, wealth and gender hierarchies became not just possible but necessary, reversing the selective pressures on moral values that had existed in the foraging world. In the age of farming, people who interpreted justice as treating people differently tended to do well; those who interpreted it to mean treating everyone roughly the same did not.

The industrial revolution increased energy capture even more dramatically. Around AD 1700, the average north-west European used about 32,000 kilocalories a day, but by 1900 this had nearly tripled, to 92,000. Today, the average American burns through 230,000 kilocalories a day. Once again, we turned a flood of energy into more of ourselves. In 1800, there were 1 billion humans. Today, there are 7 billion of us.

The remarkable thing about this energy surge, however, was that rather than pushing the farming world toward even steeper hierarchies, it did just the

opposite. Today, 60 per cent of the world's population live in democracies, and in almost all of these places women can vote and economic inequality has tumbled. By the 1970s, the average Gini coefficient for income equality (after tax) in the nations belonging to the Organisation for Economic Co-operation and Development was just 0.26. This is close to the levels last seen in the foraging era. Since then, Gini scores have been rising, but even in the 2010s they remain far below the standards of farming societies.

Hierarchies became shallower after 1800. This was because fossil-fuel economies work by converting an energy bonanza into vast quantities of goods and services, but these vast quantities are no use unless there are consumers able to buy them. Such economies need an affluent middle class, and ideally one that is educated and free to make decisions. Consequently, societies that moved towards free markets, democracy and liberalisation flourished, with the predictable result that people for whom fairness meant treating everyone roughly the same did well.

The lesson of history seems clear. Human values are biologically evolved adaptations, just like the values of other primates; but the ways we interpret these values are culturally evolved, and this makes us different from all other animals.

If this is true, then several consequences seem to hold. First, moral philosophers' long-running struggle to define a perfect, one-size-fits-all set of human values is doomed to failure. Aristotle believed that slavery was acceptable because he lived in a farming society where it was necessary. The philosopher John Rawls, best known for his 1971 Theory of Justice, believed that slavery was unjust because he lived in a fossil-fuel society where slavery was not only unnecessary, but also downright harmful.



Today fossil fuels rule (Image: Millennium Images, UK/Laura Liverani)

**“The struggle to define a perfect set of human values is doomed to failure”**

Second, the values people hold today are bound to change. For 200 years, interpreting justice to mean that steep hierarchies are bad has been a helpful strategy, but energy capture will be different in the future. Maybe the changes in energy capture will reward people who are even more radically egalitarian. This might mean that China and other emerging economies will have to become more liberal if they want to flourish. Or maybe the changes will start rewarding steeper hierarchies. After all, wealth inequality has been growing in most countries since the 1970s.

This kind of inequality, though, might be just the beginning. Within a generation or two, a tiny minority of genetically modified, technologically enhanced post-humans might have outstripped the rest of us as completely, as we modern humans once outstripped the Neanderthals. Human values have come a long way from the simple sense of fairness that Sarah Brosnan found among her capuchin monkeys, but we ain't seen nothing yet.