

## How social evolution works

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### *1. The human revolution.*

Only about 10,000 years ago the entire human race lived as small groups of hunter-gatherers. The adoption of farming and the domestication of animals set in motion a vast transformation of our lives, with the discovery of metals, the rise of powerful states, writing, mathematics, philosophy, the harnessing of water and wind power, the emergence of modern science, and the technology of industrial society. In a few millennia man's capabilities have been transformed, from a primitive state of ignorance and technological impotence, into being not just the dominant species of the earth, but one whose achievements in thought, art, science, technology and government have taken him entirely beyond comparison with the animal kingdom.

All this was made possible by something uniquely human – culture – and by culture I do not mean simply learning new behaviour and passing it down the generations, which many animal groups can do. I mean the ability to use language to transmit ideas – knowledge, customs, and social institutions to other people. However language originated, once it had developed it allowed human beings to be linked together not just by purely physical relations such as mutual grooming, or sharing the same odours, but by shared ideas. Human society is a new kind of system altogether because its institutions only exist in people's heads as ideas, that have to be communicated by language: one cannot *see* the Prime Minister, for example, but only a man, and what being a Prime Minister *means* has to be explained to someone who does not know. This can only be done properly by explaining how his role fits into the British Constitution, which in turn involves explaining all sorts of subtle distinctions between the Prime Minister and a dictator or a king, cabinet government, the rule of law, democracy, and so on. Rules of marriage and inheritance, money and the financial system, trade unions, companies, and nations, too, are all ideas in people's minds that have had to be communicated by language, like the ideas of right and wrong, or of honour.<sup>1</sup>

These extraordinary powers of culture have led some anthropologists to make the extreme and foolish claim that there is really no such thing as basic human nature at all, so that everything we do is the result of the culture in which we have been brought

up – even that all the differences between males and females are culturally conditioned. But the fact that in all societies, past and present, males, and young males especially, are responsible for the great majority of physical violence is enough to refute such a theory. There are many other universals in human thought, feelings, and behaviour that clearly have a biological origin: our amazing ability to learn language from infancy, for example, is obviously innate, and the same six basic emotions of anger, fear, surprise, disgust, joy, and sorrow, together with their facial expressions, that occur in all human beings derive primarily from biological rather than cultural roots.<sup>2</sup>

But while there are far more universals of human nature than some anthropologists have been willing to admit, these are not of much help in explaining the *differences* in human behaviour, the particularities, and this is because what we do is not solely dictated by our genes – it depends on our cultural environment as well. We may have an innate ability to learn to speak, but we must still be brought up in a human society for this ability to be developed into actual speech. One can agree that the capacity for physical aggression is part of human, and especially male, nature, but it does not express itself willy-nilly whatever the circumstances, and the motivations for warfare in tribal society and in modern industrial states have quite different patterns. Killing one's hated neighbours from across the river in revenge for their murder of one's relatives, and thereby gaining the sexual favours of the women of one's own group, has no resemblance to the motives of politicians who order soldiers in modern armies to kill complete strangers in distant countries, or to the motives of the soldiers who obey those orders. Appealing to human nature and to 'genes for aggression' is entirely inadequate to explain these very different patterns of warfare: as one distinguished anthropologist has put it, 'the reasons people fight are not the reasons wars take place'(Sahlins 1977:8). So while human nature has been an essential part of social evolution, this has been a complex process involving many other social and cultural factors besides our biology,<sup>3</sup> and to which we can now turn.

## 2. *Darwinism and social evolution.*

Even though the rapid social evolution of the last 10,000 years involved much more than the biologically-based motives of individuals, many people believe that, at least in broad outline, it can still be explained by Darwinian theory because this is supposed to be so simple and so powerful that it can be extended far beyond the realm

of biology to human society. Darwin's theory explains biological evolution by two simple ideas – random genetic *variation*<sup>4</sup>, and the *selection* of those variants that are successful in the competition for survival. In the same way, it has been suggested, why can't we treat new ways of doing and thinking, inventions, institutions, customs, ideas, and so on, as appearing randomly, like genetic variations, so that those novelties that are best adapted are then selected in the vigorous competition of daily life? They will survive and be imitated in large numbers, while the failures will dwindle and die out. So the rise of civilisation over the last few thousand years has been a process of blind trial and error leading to discoveries, new ways of doing and thinking, that were better adapted than others, and gave a competitive advantage to individuals and groups who adopted them whereby the strongest and most efficient emerged on top of the heap. By the same process, too, knowledge and science and technology accumulated by trial and error, and gradually triumphed over ignorance and superstition. This version of Darwinism is often called social or cultural selection, and on the face of it seems a perfectly reasonable idea.<sup>5</sup>

When trying to explain the evolution of culture the Darwinist treats the origin of new ways of doing things or of thinking as rather trivial and uninteresting, just 'blind variation'. Instead he concentrates on what he thinks is the real key to evolution, which is supposed to be competition and the survival of the fittest – the selection of the best adapted. But the idea of random variation actually explains very little about social change: we do not find, on the whole, that people try out vast numbers of different ways of doing things, and that the most efficient is ultimately selected by a process of competition, in which inferior variants are eliminated. There is usually only a limited range of choices, and people opt for the one that is the easiest or most convenient – it would be very odd if they didn't. So, for example, just about every verbal number system in the world is based on 10. Are we to believe that this was the result of some trial-and-error process in which thousands of societies tried out all sorts of other numbers, and that only those systems based on ten survived? Or, did people almost always go for ten in the first place, without any trial-and-error, simply because we have ten fingers, and that was the easy and obvious choice?

But once we accept that people *do what is easiest*, this contradicts the whole notion of blind variation, because what is easiest – physically, psychologically, technologically, socially and so on – will be very restricted and the complete opposite of what is random. Trying to account for change by talking of random variation is in

fact a camouflage for ignorance, that excuses us from investigating how the significant innovations in human history have really occurred. While this is much more intellectually demanding than just assuming random variation, it is only this that will show us how things first appear within any society. Instead of randomness or accident we more often find that not only may there be a limited range of options, but that there can be easy gateways into new ideas or discoveries, or that some important change has been made easier by a particular set of conditions that can themselves often be explained. Logically, too, it should be obvious that before we discuss why something may have survived, we need to understand how it appeared in the first place. The understanding of *origins*, then, must be our first and fundamental concern, and the idea of random variation contributes very little to it, as we shall see.

The other pillar of Darwinian theory is the assumption that competition for survival between different ways of doing and thinking in human society has always been very severe. But this is not so. In our modern capitalist world of rapid innovation, financial rewards for commercial success, and advanced communication there is obviously a very high level of competition; this is true not only of goods and services, but of the market place of ideas and our notions of how we should live. These conditions, however, are highly unusual. In earlier periods, and especially in small, technologically primitive societies, the rate of innovation is very slow with few alternatives to choose from, and, just as important, a number of different ways of doing things may all be viable, so that the competition between them is actually very weak. So a widespread custom or institution, such as magic or warfare, has not necessarily proved itself in the rigorous struggle for survival – it may be that there are simply frequently recurring features of human nature and society that produce it. And if conditions are undemanding, then it will be easy for the inefficient to survive indefinitely because competitive pressures are low. (Conquest warfare, trade, commerce, and capitalism, debate and logical argument, and scientific experiment are other examples where levels of competition have increased in the course of social evolution.)

The survival of particular customs or institutions does not, then, prove that they must be better adapted, more useful, than their alternatives. They may be useless but harmless, or positively harmful but combined with other customs that *are* useful, or not so harmful that they destroy the society in question. The conviction that everything that has survived *must* be well adapted, and if only we were clever enough

we would see how, often creates a credulous attitude of mind that is the reverse of scientific. Because anthropologists have been convinced that if a custom or institution survives it must, somehow, be adaptive, they have looked for any sort of beneficial effect it can have for the group. When they have found one, which is not normally very difficult, they then claim that this explains its existence, regardless of the people's own explanations which are regarded as superficial and unscientific. For example, anthropology is littered with feeble explanations of vengeance, warfare, cannibalism, ceremonial exchange, religion, witchcraft, divination, sacred cows and so on, based on their assumed survival value, and which entirely ignore their actual historical origins and the beliefs of the people themselves. (A large number of social institutions and practices clearly *are* useful – village councils, courts of law, defensive walls round settlements, and so on – but we don't need any kind of Darwinian theory to explain these sorts of things, because their uses are obvious to the people themselves.)

We must therefore escape from the mind-set that believes that history has been a continuous struggle between the better and the less adapted, and recognise that things happen because they are easy to do or because conditions are right for them, not because they are necessarily in people's best interests, or are more efficient solutions to their problems. Rather than the survival of the fittest, we often have the survival of the mediocre.

Magic, for example, was universal in pre-modern society, but this is not because people all over the world performed experiments and found that certain spells worked very well – the reality was the other way about. People who are still at a certain stage of intellectual development find some ideas and ways of thought inherently convincing – such as 'like affects like', or that the name of something has an inherent power over it – and for these reasons will continue to believe in magic even though it doesn't work. It is actually very difficult to disprove magical beliefs experimentally, because all sorts of excuses can always be found to explain why they failed on particular occasions. So the theory that these beliefs have been selected because of their survival value to the individual or the group gets the matter exactly wrong: they are universal because they simply express the way in which the human mind thinks at a certain stage in its development. And they have survived not because they have withstood some rigorous selection process, but precisely because it is so difficult to bring them into a decisive confrontation with the facts, because like so much else in

early culture they *seem* to work without in fact doing so very well. Indeed, one of the most obvious facts of life in general is that when people encounter evidence that contradicts their beliefs they do not accept it/ignore it/ excuse it/do not understand it/define it away and so on.

Once we cease to be obsessed with competition, and realize that it is easy, especially in a primitive milieu, for a whole range of mediocre practices and institutions and beliefs like magic to survive, then we are free to look in quite another direction. This is the possibility that a way of doing things, whether it is a kind of technology or a type of social organisation or an idea, may also have the unsuspected potential of doing other things as well, which will disclose themselves later when changed circumstances are favourable. Competition focuses upon the victory of the winner over the loser, but this is often very misleading, because in many cases the loser provides the very basis for the winner, and the means by which it comes into existence.

For example, Sir James Frazer in *The Golden Bough* proposed an evolutionary sequence in which Magic was displaced by Religion, which as an explanation of nature has in turn been displaced by Science, where development occurs by the overthrow of the predecessor. This looks backwards and therefore sees only failure falling by the wayside; but if instead we look *forward* I shall show how magic and religion, particularly in the forms of alchemy, astrology, and the idea of cosmic order were essential foundations for the eventual development of science. This same principle of *evolutionary potential* is found in many other areas of culture, where the first reasons for being interested in something may be very different from what turn out to be its most important possibilities. There are sometimes easy pathways into complex discoveries, so that difficult ideas first appear in simple forms that often have no practical value. This all casts an entirely new light on the whole notion of the survival of the mediocre because what is really significant is not just what use something has here and now, but also on its properties and on what evolutionary potential they could have in the future. We begin to think, in other words, of *construction* rather than selection, of how more complex systems of all kinds are built up, but before we can take this theme further we need to deal with a third major Darwinian fallacy, its materialism.

### 3. *Materialism*

The first question a Darwinian asks himself in trying to explain why a particular custom, or institution, or belief was selected is ‘What *use* does it have?’ Darwinian theory itself arose from a utilitarian and materialist view of man, always competing for scarce resources and using the least effort, and who is driven by a fundamentally animal agenda of mating, parenting, and trying to increase the proportion of his genes in the population. Our physical needs have priority over all others, which is why material factors such as population growth, geography, the modes of production, and the need to harness energy, have really determined the course of history. The objective realities of the natural world, too, are inescapable, and cannot be altered by how we think about them. Nature, then, has a fundamental priority over mind, and the notion that ideas and beliefs are essential factors of human behaviour can be dismissed as ‘mentalism’.<sup>6</sup>

This world view was the product of the Age of Steam, of nineteenth century economics and notions of the survival of the fittest, the school of hard knocks, the ‘weakest go to the wall’ philosophy of life of the iron-masters and mill-owners of the industrial cities, immortalised by Dickens in the imaginary Coketown of his novel *Hard Times*. This begins with the famous words of the schoolmaster, Mr Gradgrind, ‘Now what I want is Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else and root out everything else. You can only form the minds of reasoning animals upon Facts: nothing else will ever be of any service to them.’ No room for Fancy here, just hard Facts, buying cheap and selling dear, and the workhouse and the pauper's grave for those without the grit to succeed in life.

The whole of social evolution has been seen by many anthropologists as a kind of gigantic Coketown, in which the only really important facts are the material ones of food and shelter, energy maximization, and reproduction, and where life is a grim struggle for resources in which the weak and the dreamers are trampled underfoot, and institutions and customs are selected for their survival value. And it is supposed that in primitive society, due to its elementary technology and limited resources, the struggle for existence will be particularly severe and selection will operate most rigorously, especially through warfare. Ideas and beliefs are little more than the reflections of social organization and material needs, mere froth on the surface of reality, while ritual, religion, magic, and other forms of superstition will all be

selected for the contribution they make to social solidarity or individual self-confidence.<sup>7</sup>

This has not been my experience at all: the Tauade of Papua with whom I lived (see Hallpike 1977a) were endowed with rich supplies of natural resources, and in particular with vast areas of land, and yet in pre-colonial times had one of the highest levels of violent conflict in the world. Their major interest was in raising large herds of pigs which devastated their gardens, and produced innumerable quarrels and even homicide, and which were then slaughtered in such quantities that some of the meat was thrown to the dogs. Enormous labour was spent in erecting imposing villages for these feasts to honour the bones of their dead, but after only a few months these villages and their great men's houses were abandoned to decay. Large areas of barren grassland had been produced by unnecessary burning for their amusement, and it was their traditional practice to keep the rotting corpses of their important men in their hamlets, to absorb their vitality through the smell even though they found the stench disgusting.

These are definitely not the sorts of things that Mr Gradgrind would have approved of at all. He would have grimly censured the Tauade for their lack of forethought and their improvident use of their resources, their irrational violence and, above all, for regulating their conduct by Fancy instead of by Fact. But the Tauade have nevertheless survived perfectly well, and they have done so because Coketown is not actually a very realistic model of the world. In primitive society the material conditions of life are certainly restrictive – there is only a subsistence level of food production, a limited variety of building materials, a small workforce, and a simple technology, but for these very reasons there are many different ways of organising social life, all of which will work. As long as we satisfy our basic material needs, nature is indifferent to how we do this, and how we spend our spare time. For example, a group of men with stone tools can be organized to cut down trees and make planks out of them by clan, or by age-group, or by rank, or by where they live, or by who their friends are. The belief that in each primitive society there is a single optimum solution to every ‘problem’ of survival, that will inevitably be discovered by natural selection, is therefore a complete fallacy. What we find instead is that as social organization becomes more complex, the range of options becomes increasingly limited: there is only one way of organizing the workforce of a large modern saw-mill, for example, because this must operate at a profit to pay for the expensive plant,

and therefore needs a high division of labour, good transport links, and so on. In Coketown the same principle applies – the immense technology and the vast proliferation of goods (even for the workers) require the factories to be concentrated in the town, the trains of iron ore and coal to run on schedule, the factory hands to report punctually for work, the police to maintain order and all the elaborate apparatus of finance and government to function smoothly. These complex requirements explain why all modern industrial states tend to look much alike: not because a million bizarre alternatives were tried but were weeded out by natural selection, but because only one model could ever be constructed in the first place.

In conditions which are undemanding, and where a number of options are equally viable, we can therefore expect to find the survival of the mediocre as a matter of course, especially where, as in so many primitive societies, all their neighbours are doing the same thing, so that there are no competing alternatives. So many customs and beliefs and practices are mediocre because people do what is easiest or most attractive for them in the circumstances, and what is easiest to do is unlikely to be very efficient or even very sensible. It is easiest for most people to follow the crowd, to go on doing things in the same old way, to be lazy, gluttonous, and revengeful, to go to extremes rather than be moderate, to follow instructions blindly rather than to think for oneself, and to be suspicious of strangers. Once people have devised something that works better than nothing, the natural temptation is to rest on one's laurels and go no further, unless there is a compelling reason to do so. This is certainly true of the history of technology, which in pre-modern societies had a very strong tendency to settle down into a conservative rut once people had absorbed some new device. Why, then, did any significant change occur at all?

#### *4. The place of Fancy in social evolution.*

If early man had really thought like Mr Gradgrind, basically concerned with material calculations of profit and loss and what would be immediately useful, with sober matter-of-fact and ignoring the fanciful and imaginative, then I do not think that very much would have happened at all in the way of social and cultural evolution. One fundamental reason for this is that some of the most important innovations in history had no obvious practical pay-off in their initial stages, and another reason is that primitive man often had very different ideas from us about how to *be* practical. Of course he wanted health and prosperity just as we do, but from the earliest times of

which we have any reliable evidence, we know that man did not see the world only in terms of its immediately obvious physical properties, but also as permeated by supernatural forces and beings on which his survival and prosperity depended.

Here we must remember that the environment can be, to some extent, what people think it is, and this may have no basis in objective reality. Nature does not, however, behave like Mr Gradgrind, and always rap us over the knuckles whenever we get something wrong, like thinking the earth is flat; on the contrary, it can hide behind mask upon mask of ambiguity and deception. Since many different, and false, interpretations of nature will therefore all seem to work, the materialist belief that they will be eliminated by natural selection cannot be right, and mediocre ideas will survive just as well as mediocre institutions. Plants will grow perfectly well without the use of garden magic, the rain will fall without rituals to bring it, and the Aztecs did not need to slaughter thousands of human victims to ensure the survival of the sun. For primitive man, water, air, fire and earth, animals and trees, were not just physical objects but filled with mysterious powers that were akin to man himself, so that his sexual acts and his killing of animals and men resonated with cosmic significance. Play and myths and rituals were all part of this world of the imagination, which clothed the natural world in symbolic forms, and which found expression in art, ritual, and the decoration of the body.

Disconcertingly, however, for Mr Gradgrind, these fanciful preoccupations had great practical consequences, for precisely because they inspired people to do things which, from the perspective of Coketown made no practical sense, they led them to explore the properties of the world around them, and so to discover the easiest pathways into its evolutionary potential. Personal decoration, for example, has no practical use, but because early man liked ornaments he first used gold and copper to decorate himself, before he could have had any idea of what else these metals were good for in a practical sense. But while the earliest use of metals was for trivial purposes of personal adornment, like the shells of South Sea Islanders, unlike shells they had enormous evolutionary potential. Initially, this was in a vast range of tools and weapons, and then machines, and this potential has only been fully realized in the last few centuries by the technologies of steam and electricity. It was only because men were willing literally to play about with these materials for the non-practical purpose of decorating their bodies, that they eventually came to understand their practical possibilities. Honour and status have also been immensely important

motivations, especially in economics and warfare, which have stimulated people to efforts that mere physical survival would never have done.

As societies became more complex, the importance of the non-practical as the basis of the practical did not diminish. Religion was the main inspiration for all the monumental architecture of the ancient civilisations, (apart from defensive fortifications). The pyramids, for example, were of no practical use; they were huge because this appealed to the human imagination, and flattered the grandiose claims of the pharaohs, but because they were huge men learnt far more about how to build in stone and to organise great public works than if they had been content with small buildings of mud-brick. Simple farmers all over the world observe the sun, moon, and stars as part of their general calculations about sowing and harvesting. But the really systematic astronomical observations by the ancient civilisations went far beyond these limited practical needs, and were based on the belief that the well-ordered society had to be in tune with the heavens, so that astrology laid the foundations of astronomy and for many of the subsequent advances in mathematics. Magic was to be the basis of alchemy which, among the Chinese, Arabs, and Europeans led to intense investigations into the properties of a wide range of substances in the search for the Elixir of Life that would confer immortality, and be the means of turning base metals into gold. But without these vast and deluded researches modern chemistry would not have developed.

War, unlike religion, has always been regarded as an eminently practical activity (at least by evolutionists) in which people are supposed to defend their vital interests, and as the archetypal example of the struggle for survival in which man closely resembles the animals. But animals when they fight are, by comparison with man, very rational and cautious, and much of their fighting is ritualised and designed to avoid serious injury, while their aggression is directed to the practical ends of finding food or a mate, or defending their territory. Primitive human warfare, however, is not much about defence of territory, access to scarce resources, or the selection of the fittest, but is usually about insult, or vengeance or the need by men to impress their womenfolk and one another by killing people, and is a by-product of uncentralized political organization that cannot control the endless cycles of retaliation that are generated. It can also be a form of human sacrifice in which killing is a source of supernatural power. But while primitive warfare was, from the practical point of view, largely a waste of time it was an essential basis of the state, and it can safely be said

that if life in tribal society had been uniformly peaceful the state would never have developed. If there had been no warfare of this dysfunctional type in human society, no constructive warfare of the type that built the civilisations of Egypt, Mesopotamia, and China, Greece and Rome, could have emerged either.

Social evolution has been possible partly because, instead of weeding out everything that is not immediately useful, societies carry a good deal of 'dead wood' that may be of no particular adaptive value at the moment. They operate rather like those people who never throw anything away, because 'you never know when it may be useful'.

##### *5. Evolution as construction, not selection.*

Just because some social institution or invention or idea has ceased to exist, it does not therefore mean that it was a failure in the struggle for survival, because we must also look at what it made possible. Rather than asking 'How is this custom adaptive?', which is often unanswerable, it is more useful to ask what its effects are: 'What does it make easier to happen, and what does it inhibit'. The fact that gold is no longer the standard of value in the modern world does not mean that it was an economic failure by comparison with paper money, the equivalent of the dinosaurs in biological evolution, because this would overlook the enormous effects that gold had in facilitating world trade, and there are innumerable other examples. We no longer have the divine kings of earlier societies, but they were nevertheless in their day essential in the development of the state. The reciprocating steam engines that used to pump water from mines and drive railway locomotives have now passed into history, and been replaced by turbines, electric motors, and internal combustion engines. But it would be absurd to describe them as failures in the struggle for survival: they laid the foundations of the Industrial Revolution and helped create the conditions in which the electric motor and the internal combustion engine could appear.

Conversely, there are some institutions such as slavery that were more or less universal but which had no evolutionary potential and led nowhere, or the nomadic mounted warrior with a powerful bow who enjoyed military success for many centuries, but without a firm agricultural base remained essentially parasitic and destructive, and could therefore make no lasting impact on history.

When we are looking at the evolution of societies the important question, therefore, is not 'How common is this?', or 'Why did that one die out?' but 'What

significant effects did it have on the rest of the society while it was around?' The significance of agriculture, clans, cities, metallurgy, writing, and electricity, for example, lay in what further developments they made possible, not just in how successful they were themselves.

This means that in social and cultural evolution there may be an *accumulation of necessary conditions* for further changes in important directions, such as larger settlements, greater political centralization, more favourable conditions for invention, the development of literacy, and so on. This brings us to the final weakness in the Darwinian model of social evolution, which is its complete lack of interest in how *systems* and *structures* actually work and evolve. It is only concerned with whether this or that individual custom or institution is useful, and therefore thinks of a society atomistically, as simply a bundle of adaptations to the here-and-now, a collection of bits and pieces, of inventions, customs, institutions, ideas and so on, that have each been separately selected in the competitive process. But when I refer to the accumulation of necessary conditions, I have in mind the gradual *construction* of increasingly complex systems, (whether these be societies or knowledge structures or technologies), and this implies that key innovations must occur in a certain order. So, then, the adoption of agriculture and the domestication of animals laid the foundations for much larger and more permanently settled groups than could be supported by hunting and gathering. New property relations with the land under agriculture made possible the development of corporate groups such as clans and lineages, which were the basis of hereditary authority, and these and other conditions, such as the development of an economic surplus through tribute, conquest warfare, and trade, in turn laid the foundations for the emergence of the state. Because the state could control large populations, and extract a correspondingly large economic surplus from them, this in turn created a new set of conditions, including urbanization, that were the basis of literate civilisation and high culture, including the development of philosophy and the world religions, and later the emergence of modern science and industrialism. The changes in this process also clearly occurred in a certain order, in which growing size, centralization, hierarchical structures, urbanization, and increasing division of labour resulted in fairly similar developments independently in different parts of the world.<sup>8</sup>

It is often objected, however, that every society is unique, and that since agriculture, or the state, or cities, or literacy developed in very different ways in different times and places, there cannot have been a single evolutionary pathway to

the literate civilisations of the ancient world, for example. I am certainly not arguing that there was, and this objection misses the essential point that it is precisely *because* there are many different ways of reaching agriculture, or the state, or cities, or literacy that we can expect them to occur repeatedly in history. If, in a landscape, there are many paths leading to a particular location, it is all the more probable that many people will end up there. But, however they got there, people with states, cities and literacy are now subject to similar constraints, and are more likely to have the potential of developing empires, advanced technology, philosophy, universal religious systems, and so on.

It is obvious, however, that the accumulation of necessary conditions will not always go on indefinitely until every society develops the state and, eventually, industrial civilisation. Most societies did *not* spontaneously develop the state, let alone modern science and industry, and this is because in most cases the necessary conditions for these developments were not present. So stagnation and equilibrium are just as likely as evolutionary advance, and here it is important to stress that the special features of particular societies may be of great importance in how they develop. The evolutionary pathway followed by each society is to some extent determined by how it starts out, by the historical peculiarities of its early stages which may stamp themselves on its subsequent development. Some specific features of a particular society's organization or belief system can therefore make it easy or difficult for it to develop hereditary political leadership, or the state, or science, or capitalism. Social evolution is certainly not some unitary, general process that is going to be the same everywhere, regardless of local circumstances.

##### *5. The evolution of thought.*

The human mind has obviously been central to this evolutionary process, but modern scientific thought, in particular, has only developed in the last few hundred years. There is also a vast body of evidence from anthropology and psychology that the members of non-literate, small-scale societies with simple technologies, 'primitive societies' as I am calling them for convenience, do not in many ways think like the educated members of modern industrial societies. Many Victorians believed that the brains of people whose societies had developed relatively little science and technology, such as those in Australia, Melanesia, or Africa, were therefore different from those of other peoples, such as the Chinese, Indians, and Europeans, where these

had become highly developed. But we now know that this was mistaken because African or Melanesian children from non-literate, tribal societies can, if sent to Western types of schools and universities, learn modern science.

So it is reasonable to assume that the brains of people 10,000 years ago were essentially the same as ours, and that what has actually changed are not our genes and our basic intelligence, but *how we use our brains, and the new intellectual skills that we have learned*. This approach throws an entirely fresh light on the old problem of primitive thought, because to understand how learning occurs we can study living people, rather than speculating about our unknowable ancestors. We can actually learn a great deal about how culture has evolved from the studies of how the thinking of children develops that have been made by developmental psychologists, such as Piaget, in very extensive studies of children from all round the world. The reason is simple: the child finds some ideas and ways of thinking much easier than others, whether we are talking of the natural or the social worlds, but the child will only master the more difficult forms of thought if he has to face problems that involve them in daily life, and also if his culture can provide the intellectual tools for solving them, such as books and schooling. If these conditions are lacking, then in some respects the thinking of adults will not develop significantly beyond that of children, but these forms of thought will still be quite adequate for people to get by in ordinary life.

The Tauade of Papua New Guinea, for example, had no words for numbers beyond two, so it is quite understandable that they could have no idea of multiplication and division, and in their culture of counting on fingers and toes even Tauade adults did not need to develop any further the simple mathematical skills they had acquired as children. They also thought about time and space in equally elementary ways that also have close similarities to those of children. Again, children find it difficult to separate the names of things from the things themselves, which is why they easily accept the possibility of magical spells; and when trying to understand how clouds, and wind, and moon behave it is easiest for children to think of them as having some kind of purpose, and as behaving as they do because it is their job to bring us rain, or come out at night. If technology is simple and if the intellectual environment generally is undemanding, then such elementary types of thought will be able to survive into adulthood, as in the case of magic, and the evolution of human thought is a classic example of the survival of the mediocre. But this does not mean,

of course, that members of primitive societies actually *are* children, because in all other respects, such as skills, imagination, knowledge and self-control, they are adults like us.

Mr Gradgrind demanded that the boys and girls be taught nothing but facts. Facts, however, are not presented to us on a plate, ready made. We have to apply our minds actively to the world of nature to construct our understanding of it, and how we do this will depend, among other things, on our assumptions about it and the intellectual skills we have developed. Once we go beyond the simplest of observations – that water is wet, or that fire burns – our minds constantly intervene with their own representations of reality: for primitive peoples magic and witchcraft are obvious facts, just as it seems to be a fact that the earth on which we stand is flat and stationary, and that the sun and moon are small bodies that move across the sky, and they will not encounter anything that seems to contradict these apparent facts.

Understanding our own society, and thinking about moral issues, is in some ways as difficult as understanding the natural world. The human mind finds it easiest to think in terms of the here-and-now, the concrete and the local, and as long as an institution seems to work, it is easiest to perpetuate it by custom. Since custom is not based on articulate purpose or planning, but grows up unawares, it will be hard to reflect about it or to explain it to strangers from other societies. The analytical, self-reflective, logical, and abstract forms of thought which we take for granted in thinking about how our society should be organized, are not normal for all human beings. They have only been reached by a prolonged historical and intellectual struggle, in which we have learnt to think about problems of society and ethics, and about human nature and psychology, about language, and about thinking itself.

These revolutionary developments in the power of human thought were not, then, the result of any changes in our genes and our basic intelligence, but of the co-evolution of culture and the intellectual skills of the individuals who transmitted it. They were the result of people having to reflect on new problems and situations that were themselves produced by changes in social organisation and technology: by agriculture, for example, or the state, or money, or the demands of bureaucratic organization, measurement, and so on.

### 6. *Social evolution and historicism.*

To sum up, then, the broad process of social evolution over the last 10,000 years was not just a series of historical accidents, nor a Darwinian process of variation and selection, nor driven simply by material needs and technology, but was the result of certain basic principles.

Rather than thinking in terms of people doing random things that are then selected for, it is far more realistic to think of them doing what is easiest in the circumstances of a particular social and intellectual ‘landscape’;<sup>9</sup> this will probably be mediocre, but will still survive because of the low level of competition that is normal. People may do some things for non-practical or non-rational reasons, but without these motivations would never have pursued some activities or investigations that were crucial in the development of the state, or science and technology. What really matters is not how immediately useful something may be, but its future possibilities, its evolutionary potential. Evolutionary potential exists because many pieces of technology, social institutions, and ideas have other properties in addition to those for which they were originally adopted, and in the right circumstances they may prove immensely fruitful. There are often many different pathways to some crucial development such as cities, writing, or the state, and in the course of history there is an accumulation of those necessary conditions that provide the right circumstances for evolutionary development. Whether or not those conditions appear very much depends on the particular organization and cultural traditions of each society, and in some cases these will prevent evolutionary development, and in others make it much easier. In general terms, the course of social evolution is much better summed up as a process of construction and constraint than as one of variation and selection, or of technological determinism. But, while I deny that material factors were ultimately responsible for social evolution, I am not claiming that ideas were, either. *All* theories of social evolution that are based on single causes, whether biology, or geography, or technology, or social organization, or the mind, are hopeless theories. The process by which the modern world was constructed was fundamentally an interactive one between all these factors.

In a famous passage, the great historian H.A.L Fisher said ‘Men. . .have discerned in history a plot, a rhythm, a predetermined pattern...I can see only one emergency following upon another as wave follows upon wave...there can be no generalizations, only one safe rule for the historian: that he should recognize...the play of the

contingent and the unforeseen.’ (Fisher 1936:v) Karl Marx had claimed that history follows an inevitable path, and Fisher, who wrote this in 1936, might seem to have been vindicated by the complete failure of Marx’s predictions about socialism and capitalism in the rest of the century. ‘Historicism’, as the theory of historical inevitability is often known, has been justifiably ridiculed, so what is the theory of social evolution advanced in this book if it is not historicism?

In any debate about historicism, one of the first objections to be raised will be that there is a conflict between historical inevitability and free will. But ‘free will’, in the ordinary sense of being able to make the decisions we think appropriate in any situation, does not imply the freedom either to do what we like, or to think what we like. We cannot make choices that are unimaginable within our own culture, or that are intellectually too difficult, and we can only act within the limits of what is socially and physically possible. Instead of thinking of people being compelled to do things by mysterious ‘social forces’, we have imagined them instead as making choices within changing landscapes of *constraints and opportunities*, some environmental, some social, some biological, and some intellectual, in which it is easier to do or to think some things than others. (Popper refers to these ‘landscapes’ as the ‘logic of situations’, 1957:149.) There are, for example, the landscapes of tribal society, of the state, of industrial society, of intuitive thought, and of experimental science.

Unlike Fisher, then, we are not primarily concerned with specific events at all, but with the contexts in which events occur, with how particular social and cultural systems work, and how easy it is for them to change, and in what directions. Given that domesticable plants and animals existed, then agriculture was bound to develop somewhere and so, too were the state, international trade, cities, literate civilisation, and even world religions of some kind, ‘bound to’ meaning that the probabilities were overwhelmingly large. The whole emphasis has therefore been on *different kinds of social and cultural systems*, and their potential for change in some directions rather than others, and not on particular people or events. The exact where, when, how, and by whom of all this was, of course, a matter of historical accident, but in spite of all the accidents and unique events and personalities of history, there are also fundamental constraints that produce basically similar results. When, for example, the Spaniards invaded Central America in the sixteenth century, they found literate urban societies ruled by sacred hereditary kings with nobles, bureaucrats, and priests, and with temples and monumental architecture, that in these and other basic respects were

similar in structure to the kingdom of Spain. The Jesuits found essentially the same in China, as did the first English ambassador to the court of the Mughal Emperor in India at the beginning of the seventeenth century.

There is here a genuine problem that historians like Fisher have simply ignored. We can compare it with the game of Monopoly, as a good illustration that unique events, even randomness, are quite compatible with broadly predictable outcomes. But whereas every game of Monopoly ends with one player owning everything, and while on the world stage it was (probabilistically) inevitable that the state would emerge, of course not all societies must inevitably develop the state. Far from it: the majority of tribal societies had features that made it difficult or impossible for them to become states. In the same way, it was not possible for modern experimental science to have developed in any of the ancient literate civilisations. In so far as its appearance depended on a combination of unusual conditions in Western Europe, that might well not have occurred, the probabilities of modern science, unlike those of the state, were actually very low. The ‘historical inevitability’ of social evolution is simply the result, then, of the probabilities that *different social and cultural conditions* will come into being, and their potential for making certain further types of change more or less likely. It does not in any way contradict the obvious facts of our free will, or that great men and major events, the accidental and the unforeseen, have played essential parts in the actual history of mankind.

Historicism was born in the nineteenth century, out of the adulation of the natural sciences and material progress. It was at this time that experimental natural science finally achieved a really effective combination with industrial capitalism, but this new civilisation that was developing was now superbly disqualified from understanding its own origins. The Age of Steam assumed that European history was the model for the history of the whole human race, and that Victorian man, economic man, was the epitome of human nature so that material progress was inevitable, like the victory of individual liberty over the tyranny of priests and kings, and of reason and science over superstition.

Newtonian physics had set the standard of what experimental natural science could achieve and so, especially when it became clear that man himself had evolved from the animals, it was determined to have a natural science of man, which would explain everything about him as a part of the physical world. ‘The empire of science was to be extended to every facet of man’s nature; to the workings of men’s minds as

well as their bodies and to their social as well as their individual behaviour; law, custom, morality, religious faith and practice, political institutions, economic progress, language, art, indeed every form of human activity and mode of social organization, were to be explained in scientific terms. . . .’ (Ayer 1964:3). In particular, a science of man was to be a predictive science, because that was what all proper science did, and the first fruits of this ambition were various theories of social evolution, arguing that progress was inevitable. This ambition of a science of man was given enormous encouragement in the second half of the twentieth century by the great advances in genetics, and the emergence of sociobiology.

Natural science had succeeded by going beneath the ordinary appearances of things, removing the inessential details and reducing them to their simplest forms. The secondary qualities of things, for example, like colour, taste, and sound were stripped away from their primary properties of size and shape, the ancient elements of fire, air, earth, and water lost all their familiar everyday associations, and dissolved into their underlying atomic structures, and the flight of birds, arrows, and comets was reduced to the basic laws governing matter in motion. The Darwinian theory of social evolution, reducing everything to the simple model of random variation, and selection based on our material needs, is a classic example of this programme of natural science in action. It is one thing, however, to simplify the data by stripping out the inessentials, but the Darwinian/materialist view of man is not a simplification, but a distortion that gets everything wrong.

This is not at all surprising, since there is absolutely no reason why a theory dealing with the reproduction of plants and animals should have any relevance to social evolution. Genetic mutation is random, and has no effect on the physical environment, which selects, but has no influence on mutations. Human innovation, however, is not random at all, but is profoundly affected by the social environment, and such innovations also profoundly affect their environment, so that in social evolution innovation and environment are coupled together in a way quite unlike that of biological evolution. The rise of experimental science in the seventeenth century is an obvious example. The emphasis on competition and selection merely distracts our attention from what is really important about innovations: how they are produced, and how they change that social environment, and the further developments they make possible or inhibit. Societies and knowledge structures are therefore systems that had to be *constructed* in a certain order, by the accumulation of necessary conditions, not

atomistic bundles of individual adaptations to the here-and-now, and the process of social evolution has therefore been profoundly un-Darwinian in every respect.

Meaning and purpose are also at the very heart of human culture, but they are precisely what experimental science had to abandon in order to explain nature. We are certainly physical beings, constantly subject in all sorts of ways to the laws of cause and effect, and I fully recognise the importance of the material factors of subsistence and technology. But societies are also systems of ideas and of meaning, ranging from mathematics and logic, through political and religious belief systems, to symbolism and art, but ideas are not matter in motion, nor are they subject to the material laws of nature. The meaning and social significance of natural phenomena also depend to a significant degree on how we interpret them. The history of science and technology has shown us that they were not simply a set of responses to ‘the facts’ of nature, so beloved of Mr Gradgrind, that forced themselves willy-nilly into human awareness, but the result of a cultural and creative process that was only possible for human beings. We can still, then, give a rational explanation of how human society has evolved, based on evidence, but it must also include all those uniquely human characteristics – language, reason, imagination, play, honour and glory, religion, the love of beauty, laughter, and so on – many of which are non-rational, or at least of no material value. These are not inessential details, however, like the colours or smells of falling objects for the laws of motion, but fundamental in explaining social evolution. In those respects, which are very significant, human society must fall outside the scope of the *natural* sciences, and, indeed, natural science cannot even explain its own origins, because these, too, lie in society and not in nature. The account of social evolution I have given is, then, a rational explanation in the sense that it attempts to account for a wide range of phenomena in terms of a few general principles, supported by evidence. To that extent it is scientific, but is certainly not even a probationary candidate for the natural sciences.

This account of social evolution cannot be used, either, to predict anything significant about the future of man. Marxism claimed to be a natural science of society, and therefore not only said that every society had to pass through certain stages, but that it could predict the future development of society as well – the Communist utopia when the state would wither away, and all would enjoy a world of equality and plenty. But evolutionary biology is a natural science, and yet is unable to predict the future of any species, because mutations, and the selective circumstances

in which they will appear, are inherently unpredictable. In the same way, it is impossible to predict inventions before they have been made, but, especially in a highly developed technology, there are all sorts of inventions that would radically change society. More generally, we can only explain something like the emergence of experimental science by establishing the necessary conditions for it. But we can only do this because we already know what experimental science looks like, and we could only know that after it had already emerged. It may be, for example, that the necessary conditions for world government already exist, but we will only know which ones they are *after* world government has actually appeared, perhaps in a form that we had not imagined.

Extreme claims for a natural science of man, like all extremism, have bred an equally extreme reaction – that the study of man should not involve the search for truth at all:

Social anthropologists should not see themselves as seekers after objective truth; their purpose is to gain insight into other people's behaviour, or, for that matter, into their own. "Insight" may seem a very vague concept but it is one that we admire in other contexts; it has the quality of deep understanding which, as critics, we attribute to those whom we regard as *great* artists, dramatists, novelists, composers...' (Leach 1982:52)

This is a rallying call for the woolly minded, with the additional attractions of being intellectually undemanding, while allowing the initiated to speak an esoteric language that elevates them above the vulgar herd. Cultural meaning only exists in the context of social relations and institutions, and of interactions with the physical environment: in a universe of objective constraints, in other words. So between the extremes of bogus natural science and literary criticism, lies the moderate path of rational explanation.

## Notes

1. In theory, an important distinction can be made between culture and society: culture includes systems of ideas and values like religion, language, and mathematics, whereas society comprises groups of actual people, institutions, and networks of relationships. But in practice, since one cannot have either culture or society without the other, it is not a distinction that we need to go into here.
2. See Brown 1991 for some very useful material on human universals.
3. Attempts by sociobiologists to explain a range of social institutions by appealing to other supposed instincts such as territoriality or male bonding, or the alleged tendency to favour our kin at the expense of non-kin, fail in the same way to explain social differences and patterns of historical change. See Kitcher 1985 for an excellent analysis of the fallacies of sociobiology, and also Hallpike 1984c.
4. Genetic variation includes not only mutations, but the random shuffling of the chromosomes whenever sexual reproduction occurs.
5. The Darwinian notion of variation can therefore be applied quite simply to human society and culture in the way that I have described. But there are those who claim, following the lead of Richard Dawkins among others, that there are social equivalents of the gene, fundamental particles of culture usually referred to as ‘memes’, that reproduce with greater or lesser success. Social and cultural evolution can therefore be understood as changes in the relative frequencies of competing memes in the ‘meme-pool’, like genes in the gene-pool. Far from advancing the cause of Darwinism, however, this merely introduces an entirely unnecessary confusion between biological and social inheritance, which are quite different types of process. Living organisms need genes because they have to reproduce, but obviously societies, institutions, and customs, and ideas in general, do not have babies. The internal combustion engine may have developed from the steam engine, but it was not its offspring in any real sense. There is therefore no reason at all to think that memes could or should exist, unlike genes, atoms, and phonemes, which really do exist, and are essential scientific ideas. They are essential because, once we have identified the particular phonemes in a language, for example, linguists can discover the rules by which they combine to form words. In the same way, identifying the different types of atom allows chemists to discover the rules by which they combine to form different substances. But memes are not fundamental particles of culture, since *anything* in human society and culture can count as a meme, from ‘science’ and ‘religion’ to a trivial tune or catch-phrase. So no rules about their combination, comparable to those of linguistics or chemistry, can exist, and as a result they have no explanatory value. I have discussed the question of memes, and other fallacies in the use of Darwinian theory to explain social evolution, in Hallpike 1986a:29-80.
6. As the famous archaeologist Gordon Childe put it, ‘Evidently societies of men “cannot live by bread alone”. But if “every word that proceedeth out of the mouth of God” does not directly or indirectly promote the growth and the biological and economic prosperity of the society that sanctifies them, that society and its god will vanish ultimately. It is this natural selection that guarantees that *in the long run* the ideals of a society are “just translations and inversions in men’s minds of the material”.’ (Childe 1954:16)
7. See Harris 1980, and also Sanderson 2001 which is an extended defence of a Darwinian and materialist theory of social evolution.
8. The claim that important social, cultural, and technological innovations occur in a regular sequence has been repeatedly demonstrated by anthropologists. See for example Naroll 1956; Freeman & Winch 1957; Murdock & Provost 1973; Hallpike 1986:1–3; Peregrine, Ember & Ember 2004.
9. The advantage of the landscape metaphor is that it allows us to think in terms of real individuals making choices in the familiar way, but instead of thinking of people being forced to do things by mysterious ‘social forces’, we imagine them travelling within landscapes of *constraints and opportunities*, some environmental, some social, some biological, some intellectual, in which it is easier to do or to think some things than others. Adopting agriculture, for example, allows us to do things that could not be done within the limits of a hunter-gatherer economy, such as creating larger and more permanent settlements; states create new possibilities from those of tribal societies; steam power creates a different technological landscape from that of animal and water power; and so on.

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