Cultural anthropology as a science

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As an Anglo-Canadian anthropologist I am of course familiar with the special traditions of British 'social anthropology' and of North American 'cultural anthropology', but for the purposes of this paper I shall treat them as basically the same, so when speaking of culture I shall often be including social institutions as well.

1. The distinctive scientific features of cultural anthropology.

Unfortunately the modern age has become increasingly sceptical about the possibility of discovering the truth about anything very much, certainly about humanity. This collective failure of nerve by Western academics is well summed up by these despairing remarks about anthropology by Sir Edmund Leach, Professor of Anthropology at Cambridge University:

> ...if the findings of anthropology do not have the truth status of either history or science do they have any validity at all? Validity seems to me the wrong word. 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).

I hope to show in this paper that we can do a little better than this.

The conventional distinction between the natural and social sciences recognises that the study of the material world by subjects like physics and chemistry, the 'natural sciences', at one extreme, will face entirely different problems, and use very different research methods from those like economics and sociology which study human beings in a social context – the 'social sciences' which include cultural anthropology. But cultural anthropology, like the other social sciences, can't produce simple, fundamental laws like the laws of motion and thermodynamics in physics, because the properties of matter are both universal and far simpler than those of human culture. And unlike physics and chemistry, the study of ourselves is also apt to invoke political and philosophical beliefs, especially in human dignity, freedom, equality and the brotherhood of man.

Cultural anthropology has traditionally involved the accurate ethnographic study of small-scale, pre-literate, tribal societies without money or political centralisation, and primarily organized on the principles of kinship, gender, and age. These are the earliest forms of social organization, and such societies are systemically different from the agrarian and industrial states that developed from them, especially those of the modern world, and

therefore repay specialist study. The focus on these tribal societies, therefore, is not just some colonialist relic, as it is fashionable to portray it, but gives anthropology four fundamental characteristics that are crucial to its social scientific status. The first of these is that it is based on the accurate study of *actual* social life and culture, rather than relying on documentary evidence.

Secondly it is *holistic*. Ethnographers can study the technology and economy, the social and political organization, the values, religion and modes of thought of whole societies and how they are all inter-related. Do they support the claims of cultural materialism, for example? On the other hand, the historian Keith Thomas points out that whereas 'Anthropologists frequently take one small society and study it as a whole', 'historians still specialize by subject matter – economic history, legal history, military history – as the titles of their professional journals indicate. For a historian to write about both eighteenth-century religion and eighteenth-century agriculture would be highly eccentric. The consequences for history of this specialization by subject-matter is that many of a topic's socially most important aspects go unnoticed' (Thomas 1963:6-7).

Thirdly, cultural anthropology has also produced studies of many hundreds of such societies and is therefore inherently able to *compare* like with like, and so provides insights not only about cultural universals and the ways in which social complexity can evolve, but also about human nature. And finally, and most importantly, while sociologists and economists primarily study modern Western societies, it so happens that modern primitive societies are of non-Western culture and this requires anthropologists to be much more aware than sociologists and especially economists *of their own ethnocentric assumptions* about what is normal for human beings – and not, in other words, to rely on the responses of American college students to questionnaires!

In this paper I shall therefore examine a selection of those central theoretical issues I have mentioned by going into some ethnographic detail, as test cases to demonstrate how I think a scientific anthropology can be conducted without denying the unique features of human culture.

2. Anthropology as a natural science

The scientific study of human society and culture might seem to most people an obviously different enterprise from that of physics and chemistry, but rather surprisingly it has nevertheless been claimed that cultural anthropology should do its best to be a *natural* science. The philosopher John Stuart Mill, for example, maintained that the social sciences

are in their infancy, and will only achieve maturity when they become like the natural sciences, which are held up as the true model of science. Science as so conceived is based on the empirical observation of behaviour, and generalizations about the causal sequences involved, so that social institutions are simply general patterns of behaviour. "Mill's view is that understanding a social institution consists in observing regularities in the behaviour of its participants and expressing these regularities in the form of generalizations."(Winch 1958: 86). A classic exponent of this view was the very important Behaviourist psychologist, B.F.Skinner, who believed that a genuine science of human behaviour had to be experimental, and follow exactly the same rigorously materialistic methods as physics and biology. He considered that belief in the mind is a primitive fantasy, like believing in spirits that live in rocks and trees. Instead we must dismiss the whole idea of the mind, consciousness, thought, and the belief in free will, and instead 'follow the path taken by physics and biology by turning directly to the relation between behaviour and the environment and neglecting supposed mediating states of mind' (1971:15).

An important exponent of something significantly similar to this view was the British anthropologist A.R.Radcliffe-Brown, who said: 'I conceive of social anthropology as the theoretical natural science of human society, that is, the investigation of social phenomena by methods essentially similar to those used in the physical and biological sciences (1957: 189). These methods required, first of all, the observation of 'a multitude of acts of behaviour, including "acts of speech", of individual human beings acting singly or together', which allow the anthropologist to establish the rules of social life:

> ...if in an Australian tribe I observe in a number of instances the behaviour towards one another of persons who stand in the relation of mother's brother – sister's son, it is in order that I may be able to record as precisely as possible the *general* or *normal* form [my emphasis] of this relationship, abstracted from the varieties of particular instances, though taking account of those variations (Radcliffe-Brown 1952:192).

A society is therefore said to be a 'persistent system' comprising all these observable relationships, and the task of the anthropologist is to classify the different types of social system, and then formulate generalizations about them which constitute natural laws. An important part of his social theory was his philosophical distinction between 'spatio-temporal' and 'logico-mathematical' systems. He held that there are two basic kinds of inter-relatedness between phenomena – the logico-mathematical and the spatio-temporal. Logico-mathematical relations are the foundations of classes – similarity and difference – while spatio-temporal systems are characterised by 'real', physical inter-connectedness, as in the case of societies. While he admitted that mental states existed, and that indeed the recognition

of rules as rules by individuals 'constitutes the reality of a social usage', as opposed simply to a common form of behaviour, he was only prepared to concede that the rules are displayed in what people actually do, and in what they say should be done.

He dismissed, on the basis of the total separation between logico-mathematical and spatio-temporal relations, any possibility of societies being regulated by conceptual forms, which he regarded 'as absurd as to hold a quadratic equation capable of committing a murder' (1957:30). (Rather obviously, Western society, for example, is indeed regulated by concepts like 'democracy'.) 'Culture', therefore, was nothing more than an abstraction, anthropologists' descriptive generalizations about social life that could have no influence on behaviour so that there could be no science of culture. He regarded the *structure* of social systems as analogous to that of organisms, in that both involved a series of individual adaptations to one another within the society, and also to the demands of the external environment, hence their *functional* importance in maintaining the persistence of the society, so-called 'structural functionalism'.

It may seem extraordinary that an anthropologist with fieldwork experience could ever have convinced himself that we can study human society by 'methods essentially similar to those used in the physical and biological sciences'. The anthropologist certainly *observes* a great deal of the life of the people he or she is studying, but would not get very far without also being able to *talk* to the people as well, a mode of interaction with one's data which is rather obviously impossible in any of the research conducted by physicists, chemists, and other natural scientists. In emphasising that the anthropologist is essentially a natural scientist who observes *behaviour,* Radcliffe-Brown attempts to evade the immense problem of language and thought for this approach by assimilating language to behaviour in the form of 'speech acts'. But this is a wholly deceptive manoeuvre because speech is not only a form of behaviour that in a strict sense can be observed, but also conveys *ideas*, and social roles like mother's brother, and social institutions like lineages, are ideas as well as involving behaviour

My own experience of investigating the role of the mother's brother among the Konso, very different from that of Radcliffe-Brown among the Aborigines, is an excellent illustration of the inadequacy of his notion of 'speech acts'. The Konso mother's brother, the *apuya*,

> . . . is not just any brother of the mother, but always her *eldest* brother, and his significance derives from the fact that he is the mother's closest male relative. I was discussing the *apuya* problem with the Konso on one occasion, and said that I had no *apuya* , since my mother was an only child, and asked who would act as my *apuya* if I were a Konso. There was a good deal of thought about this, since it is

> an unusual dilemma, though not, of course, unknown. The solution offered was that my mother's father's brother's [eldest] son should act as my *apuya*. The idea of my mother's father acting as my *apuya* was definitely rejected. It was generally agreed by all my informants that the mother's brother always took precedence over the mother's father at rituals of blessing in the family, even if the mother's father could bless as well. (Hallpike 2008:193).

So the role of the mother's brother not only involves his blessing of his sister's son, but also clearly requires him to be of the *same generation* as the woman. Blessing and generation are key categories in Konso culture, but their relation to the *apuya* can only be established by talking with people, not by observing what they do. This also illustrates the central importance of categories in a culture, and that rules cannot be understood without them.

How, in any case, could Radcliffe-Brown have even known that his two Aboriginal men were actually related as mother's brother and sister's son unless someone had first of all told him that they were? And then how often would he have had the chance to observe sufficient interactions between such relatives to be able to make any sound generalizations about the norms governing the relationship? The anthropologist will only be able to witness personally a very small fraction of social life, and the typical field-work situation will therefore involve asking the people themselves as much as possible about their own society. They have spent many years living together and have vastly more experience than the anthropologist can ever have about people's beliefs, behaviour, and relationships. Why would one think that they are too incompetent to give a reasonably accurate account about all this to the anthropologist? The Tauade of Papua New Guinea, with whom I spent two years, were traditionally one of the most violent societies on record, yet while I lived with them I never saw a blow struck in anger. All my information about disputes and warfare had to come from the people themselves, or from the reports of government officers and the same would of course be true of genealogies, the relationships between different types of relatives, residence patterns, and all the other aspects of their society and their daily lives. Residence patterns, for example, might seem a simple matter of observation, but the Konso told me that they did not like to live close to members of their own lineage because of the tensions within it, something I could never have discovered by observation alone, but was able to verify by subsequent investigation.

In short, then, Radcliffe-Brown's account of anthropological fieldwork is a travesty of the real thing because he ignores the whole world of thought and meaning as conveyed by language, which is the central difference between the social and the natural sciences. It is in fact a thoroughly unscientific approach because his research methodology is basically inappropriate to what is being investigated.

3. The assumption that every institution and custom has a necessary function.

The assumption of Radcliffe-Brown and other 'structural-functionalists' that societies were analogous to living organisms naturally also supported the assumption that every institution and custom must therefore make some important contribution to social stability or else it would have been eliminated over time, and it was the job of the anthropologist to find out what this contribution was. While the functional assumption is justifiable in the case of living organisms, because their requirements of survival are so rigorous, it is quite misleading in the case of primitive societies in particular. So, for example, many anthropologists claimed that tribal warfare had the positive function of adjusting the balance between populations and land resources, or that it preserved the independence of the group, or increased the solidarity of its members, or functioned as a form of social control among a number of local groups. None of these 'explanations', however, would have made any sense to the native peoples actually engaged in warfare, and who gave quite different reasons for fighting one another. How, then, are we to explain how small human societies, by some mysterious mechanism, managed to generate institutions whose functional benefits were entirely invisible to the people themselves, and could only be detected by the foreign anthropologist?

This question never seems to have occurred to the functionalists at all, but whereas biologists can often explain the adaptive advantage of some feature of plant or animal design, they can only do this by invoking natural selection, which operates on millions of organisms over millions of years. This, obviously, is not the case with tribal societies. The fact is that the functionalists got everything back to front. In these small-scale societies with simple technologies it is possible to organize them in many different ways, *all of which will work*, in the sense of permitting the society to survive successfully. In this undemanding milieu all sorts of customs and institutions can flourish without performing any necessary functions, and indeed may be actively harmful, which I refer to as 'the survival of the mediocre' (Hallpike 1986:81-145). Once this is understood, the need to find ingenious functional explanations for a custom or institution is removed, and we can look instead for their *causes*.

Primitive warfare in general was widespread simply because there were a number of common factors that led to it: the ease with which people come to hate other groups, and with which young males learn physical violence, the lack of any central authority to make peace in tribal societies, the need of warriors and their leaders to prove themselves, the self-maintaining properties of revenge-cycles, and the cosmological associations between vitality and the killing of enemies.

The level of violence in tribal societies varied greatly, and traditional Tauade society, for example, experienced extraordinary levels of violence which had no positive function at all, and the causes of this lay in certain special aspects of their cultural values and social organization which maximized violence (Hallpike 1977: 275-77). In the first place, Tauade culture placed an extreme emphasis on 'pay-back', both in the forms of gift-exchange and vengeance, and men who had killed were also greatly admired and entitled to wear a special emblem. The use of violence in disputes was regarded as normal, and there were no formal means of mediation such as councils of elders or hereditary chiefs with the authority to hold people to account. Leadership was by Big Men, who were essentially faction leaders, and often fight leaders, who could kill unimportant men, the 'rubbish-men' with impunity, whereas Big Men were very seldom killed because so many people would take vengeance for their deaths. The rules of vengeance were also extremely loose: in the case of homicide, members of the victim's family, or clan, or residential group, or simply a friend might choose to act, and the person killed in vengeance might not be the original killer either, but a more vulnerable elderly relative, or not even a relative but someone merely from the same group as the killer. Compensation was also accepted by relatives for someone's death, and this had the effect of allowing killers to 'buy their way out of trouble' by paying compensation, especially for unimportant victims. People were also able to go and live with other groups, especially that of their wife or mother, because there was plenty of land and it was easy to establish a garden in a new location. This mobility allowed people whose violent acts had made them enemies in one place to move away and therefore more easily escape censure or retaliation. Tauade society nevertheless survived quite well because the level of violence could be absorbed by the very loose social organization.

4. Cross-cultural comparison and statistical significance.

At least Radcliffe-Brown was right in insisting that anthropology is inherently comparative, but how is comparison to be carried out? The leading anthropologist G.P.Murdock was very much in the tradition that the natural sciences should be the model for anthropology, and was one of many who maintained that the business of any proper science was the establishment of laws based on statistical correlations. In his *Social Structure* he stated:

'. . . the Cross-Cultural Survey has a special theoretical objective. It is organized so as to make possible the formulation and verification, on a large scale, and by quantitative methods, of scientific generalizations of a universally human or cross-cultural character. Sociologists and most other social scientists regard the establishment of generalizations or "laws", i.e. verified statements of correlations between phenomena, as their primary aim' (Murdock 1949:364). Indeed, he maintained that '. . . the

data of cultural and social life are as susceptible to exact scientific treatment as are the facts of the physical and biological sciences. It seems clear that the elements of social organization, in their permutations and combinations, conform to natural laws of their own with an exactitude scarcely less striking than that which characterizes the permutations of atoms in chemistry or genes in biology' (ibid., 183).

Up to a point one can use cross-cultural statistics where there are some very strong causal relations, such as between the mode of subsistence – hunting, fishing, pastoralism, shifting cultivation, etc. – on the one hand, and aspects of social life such as permanence of settlement, population density, community size, and household form on the other (Hallpike 1986:147-54). The causal explanations for these correlations are clear enough, but statistical correlations by themselves have only a limited use because they can't provide causal explanations. For instance, let us take a typical example of Murdock's correlations, his alleged validation of what he calls 'Theorem 11', 'Bilocal residence tends to be associated with kinship terminology of the generation type,' accompanied by a table (Murdock 1949:152). But while there is a high level of statistical significance in these findings, the plain fact remains that, in instances of bilocal residence there are 52 cases which support the hypothesis, and 55 which do not, while of cases without bilocal residence there are 163 exceptions to the theorem. If we are to accept that 'to a valid scientific principle there are no exceptions' then this supposed principle, like all the others that Murdock proposes, is a long way from being valid (Hallpike 1971: 123-40).

A major problem with these sorts of correlations is that they only involve relationships between two variables, whereas many more factors are often involved and are unsuited to being broken down into simple correlations. A more holistic approach is necessary:

Rather than recognizing and identifying the complex whole through identification of its particles and establishment of their relationships, it is the complex whole about which we have the more certain knowledge, and that enables us to know something about the elements or particles of which it is composed (Raser 1969: 34-5).

So an alternative style of cross-cultural comparison is to take a small number of cases and examine them in detail, such as the status of craftspeople in primitive society which needs the following kind of structural analysis.

Craftspeople in East Africa have a low status (Pankhurst 1961) and are treated as a group apart, the Konso of Ethiopia providing a good example. Their most important crafts are those of the blacksmith and the weaver, always men, and of the potter, and the preparer of skins, always women. These craftspeople form an hereditary caste, the *xauta*, who traditionally owned no land and lived by selling their products in the markets. It is

believed that their ancestors were immigrants who brought the knowledge of their crafts with them to the Konso, who had hitherto been ignorant of them. It was said that in the past they lived in separate settlements outside the walls of the towns, and while this is no longer so they still live on the edges of the towns. I was told that *xauta* means 'the alone or separate ones', from *xauwe*, alone or separate, and *–ta*, the plural suffix. Although knives, spear-heads, pots and cloth blankets, and leather skirts for women are essentials of daily life the *xauta* were traditionally forbidden to intermarry with the farmers, *etanta*, or even to eat with them, or to own land, and were excluded from the age-grading system. They are still seen as mean, grasping, and quarrelsome, and disloyal to their towns, and are particularly despised because in the past some of them sold their children to a neighbouring tribe in times of famine.

The reasons for their status seem clearly, first of all, to be that their relations with the farmers are based on commercial bargaining and haggling in the markets, instead of conforming to the *etanta* code of unselfish good neighbourliness and group loyalty. The markets, always outside the towns, are regarded as somewhat unruly affairs, necessary but dominated by greed and arguments. The lack of demand for craft products in any one location also forced a higher degree of mobility upon them than upon the *etanta*, who live in the same place for generations. Very importantly their crafts are believed to be alien imports rather than indigenous skills, and the *xauta* themselves agree with this. Iron-working, weaving, and pottery are complex skills, and it is very unlikely that they could normally be invented independently in each society that possesses them, and far more probable that they are spread by migrant craftsmen like those of the Konso. Here it is very significant that the Konso woodcarvers who produced the memorial wooden statues, the *waaka*, commemorating important men who had killed enemies in battle and had several wives, were not *xauta*. Woodcarving was an *indigenous* skill among the Konso practised by the *etanta* who suffered no loss of status from doing so, but were respected, even though the families for whom the *waaka* were carved had to pay the carver just as the *xauta* were paid for their products. This however was a personal relationship between patron and woodcarver, rather like that between a portrait-painter and his sitter in our society, but *waaka* would never have been sold in the market like *xauta* products.

In Polynesia generally, however, crafts-people are *tohunga*, experts, and highly respected and given honourable status for their specialist skills, such as those of navigation, boat-building, adze-making, weaving, house-building, and tattooing. These seem to have

been traditional skills inherited as part of the general Polynesian cultural heritage and not seen as of alien origin, and consequently the *tohunga* were not seen as outsiders. They also included the work of priests and ritual specialists, so the emphasis of the *tohunga* concept was very much that of expert knowledge rather than just manual skill. Status ranking is also a fundamental feature of Polynesian society, to a far greater extent than among the Konso, and it was respect for skill and expertise, not economic importance that gave the crafts high status and honour in Polynesian society, like chiefly and priestly functions (Goldman 1970: 491-95). Craft products were also not distributed, as among the Konso, by means of markets, which did not exist in Polynesia, but *by traditional forms of exchange*: '...work undertaken by specialists was honorific and had to be ceremonialized by feasts and gifts' (ibid., 492). This detailed analysis of the status of crafts-people in two very different societies could of course form the basis of a much wider set of comparisons of craft status, but illustrates the number of different factors that need to be taken into account in cross-cultural comparison.

5. Are cultural traits subject to natural selection?

Some Darwinian enthusiasts claim that cultures are made up of traits or variants often called memes, and that, like genes, these are subject to natural selection, which explains why some become widespread and others die out. If all that one means by 'selection' is success or failure, survival or disappearance, then there are obviously plenty of cultural examples, as there are in the case of plants and animals, but in neo-Darwinian theory the idea of natural selection is a good deal more specific than this. In explaining what he meant by natural selection in the *Origin*, Darwin first discussed human selection by plant and animal breeders:

> We cannot suppose that all the breeds were suddenly produced as perfect and useful as we now see them; indeed, in many cases we know that this has not been their history. The key is man's power of accumulative selection; nature gives successive variations; man adds them up in a certain direction useful to him. In this sense he may be said to have made himself useful breeds. (*Origin*, 21.)...[For example] No doubt the strawberry had always varied since it was cultivated, but the slight varieties had always been neglected. As soon, however, as gardeners picked out individual plants with slightly larger, earlier, or better fruit, and raised seedlings from them, and again picked out the best seedlings and bred from them, then...those many admirable varieties of the strawberry were raised which have appeared during the last half-century (*Origin*, 28).

In the wild state, however, where there are no gardeners or animal breeders, plants and animals are instead engaged in a struggle for survival:

> A struggle for existence inevitably follows from the high rate at which all beings tend to increase. Every being, which during its natural lifetime produces several eggs or seeds, must suffer destruction during some period of its life, and during some season or occasional year, otherwise, on the principle of geometrical increase, its number would quickly become so inordinately great that no country

could support the product. Hence, as more individuals are produced than can possibly survive, there must in every case be a struggle for existence, either one individual with another of the same species, or with the individuals of distinct species, or with the physical conditions of life. It is the doctrine of Malthus applied with manifold force to the whole vegetable and animal kingdoms; for in this case there can be no artificial increase of food, and no prudential restraint from marriage (ibid., 46-7).

Darwin was very clear that this Malthusian principle was the foundation of his whole theory:

Nothing is easier than to admit in words the truth of the universal struggle for life, or more difficult – at least I have found it so – than constantly to bear this conclusion in mind. But unless it be thoroughly engrained in the mind, the whole economy of nature, with every fact on distribution, rarity, abundance, extinction, and variation, will be dimly seen or quite misunderstood (ibid., 46).

Now it was essential for Darwin to introduce the idea of a struggle for existence because without it there could be nothing to drive the weeding-out of inferior variants similar to that practised by plant and animal breeders, a process which he called "Natural Selection":

Owing to this struggle, variations, however slight, and from whatever cause proceeding, if they be in any degree profitable to the individuals of a species...will tend to the preservation of such individuals, and will generally be inherited by the offspring...I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection, in order to mark its relation to man's power of selection. But the expression often used by Mr Herbert Spencer of the Survival of the Fittest is more accurate, and is sometimes equally convenient (ibid., 45).

It is more accurate, of course, first of all because "survival" envisages the possibility of "failure", where an organism simply collapses from internal defects, regardless of any competition, and there are plenty of social analogues for this. Perhaps more importantly it avoids the metaphor of "selection", with its implication that Nature can have conscious purposes. On this Darwin comments: "In the literal sense of the word, no doubt, natural selection is a false term...but who objects to an author speaking of the attraction of gravity as ruling the movements of the planets? Everyone knows what is meant and implied by such metaphorical expressions; and they are almost necessary for brevity" (ibid., 58).

Nevertheless, metaphors can take on a life of their own, and this particular metaphor is confusing because "selection" inevitably suggests purpose and agency, and therefore seems to have encouraged people to treat natural selection as if it could include human selection. As we shall see in a moment, this certainly confused Darwin himself. So it is not surprising that according to Richerson and Boyd, 'The logic of natural selection applies to culturally transmitted variation every bit as much as it applies to genetic variation' (2006:76).In their view, the logic of natural selection means (a) people vary in their beliefs (like variant genes); (b) some beliefs increase the probability that individuals will transmit them to others (like having more offspring); (c) and there is a limit to the number of beliefs or cultural variants in a population so *that cultural variants must compete*, thereby increasing or decreasing their frequency. This is an essential point, but just how are memes or cultural variants supposed to

compete in the struggle for life? According to Dawkins:

> Any user of a digital computer knows how precious computer time and memory storage space are [written back in 1976]...The computers in which memes live are human brains. Time is possibly a more important limiting factor than storage space, and it is the subject of heavy competition. The human brain, and the body which it controls, cannot do more than one or a few things at once. If a meme is to dominate the attention of a human brain, it must do so at the expense of 'rival' memes. Other commodities for which memes compete are radio and television time, billboard space, newspaper column inches, and library shelf-space (Dawkins 1978:211-12).

This is exceptionally feeble. The human memory is extraordinary, and the fact that we can only concentrate on one meme at a time obviously doesn't stop us thinking about all sorts of other memes a few moments later, while memes have never been more widely spread around than through the limitless facilities of our modern forms of mass communication. Mesoudi *et al*. (2004) do a rather better job of answering this question, which was raised because Darwin in *The Descent of Man* (1871) had become fascinated by languages as analogous to species, and they quote Darwin himself on linguistic competition, (although *he* was actually quoting Max Müller): "A struggle for life is constantly going on amongst the words and grammatical forms in each language. The better, the shorter, the easier forms are constantly gaining the upper hand, and they owe their success to their own inherent virtue" (from *The Descent of Man*, p.91). They continue

> Clearly, the 'struggle' Darwin was alluding to here cannot be directly compared to the competition over finite physical resources alluded to by the reference to Malthus. Rather, we have to think in more general terms, of a competition for limited 'slots' or functionally equivalent 'solutions' to specific 'problems'…We suggest that an appropriate way to conceptualise what any set of cultural variations are in general competing over is in terms of functional categories. Thus, synonyms will be in competition for describing the same semantic category; different hammers will be in competition for effective hammering; and different gestures may be in competition to fulfil the same social function (2004:4).

By 1871 when The *Descent of Man* was published Darwin seems to have forgotten what he had written in the *Origin* about human selection, because he adds with approval, "The survival or preservation of certain favoured words in the struggle for existence is natural selection". But how exactly, one might ask Darwin, do "better, shorter, easier words" differ from "slightly larger, earlier, or better" strawberry plants, whose selection by growers was supposed in the *Origin* to be an example of human selection, and the exact *opposite* of natural selection? Darwin here is hopelessly confused, as are all the Selectionists who have followed him. The whole passage quoted above is in fact a nonsensical piece of self-mystification: words and grammatical forms and all the other "memes" or cultural variants can't struggle with each other, least of all for life, or "gain the upper hand", for two simple reasons: first,

they aren't alive, and secondly the so-called "struggle" *is actually going on in our own minds, not in the physical world outside*. I will explain.

Two boxers in the ring are certainly competing and struggling with each other for a limited slot, and trying to gain the upper hand. But if in writing a sentence I am trying to decide whether to use the synonyms "victory" or "success" in what sense are these words competing like boxers with each other for "a limited slot"? Quite obviously they are not competitors at all because, unlike the boxers, they can't *do* anything themselves, and have only been brought together in my imagination. The reality is that I am having to make a choice, a selection, and it is *my* internal mental conflict that is being metaphorically transformed into a competition between the two words. These alleged competitors are in fact the passive objects of our choice, of our own human selection, not of natural selection at all. The delusion that cultural variants or memes are active agents like plants and animals that can compete with one another in a struggle for existence, and that the result of this competition is decided by natural selection, is at the very heart of the Selectionist model but is really nothing more than metaphorical nonsense.

We can, however, say that certain areas of life such as business, scientific research, or the law are highly competitive, meaning that the *people* in them deal with many cultural variants, but subject them to a stringent process of selection in argumentative competition with one another. The opposite conditions of low competition would be where there is only one way of doing something, or, where there are several variants but they will all work after a fashion, and it doesn't really matter which gets chosen. It is just another example of the survival of the mediocre.

6. The autonomy of culture and cultural relativism

If one central feature of culture is that it is dependent on language, another is that it transcends the individual. By this I mean that the organization of a society into lineages and clans, the division of labour, the rules of residence and land tenure, rituals, and beliefs, its 'collective representations', are not invented anew by each generation but are inherited by those who are born into each society and will outlast them and be passed on to their descendants. Moreover, institutions and belief systems have properties that owe nothing to individual motivations. To take a simple example from our own society, electoral systems based on proportional representation produce different results from those based on the 'first past the post' principle. This undoubted feature of collective representations has produced two equally exaggerated reactions. The first, which has been called the Standard Social

Science Model, deriving principally from Durkheim and Boas, and has been typical of anthropology, maintains that the individual's patterns of thought end emotion are overwhelmingly determined by his or her culture:

> Perceptions, emotions, evaluations of right and wrong, ideas of the causes of events – in short, whole systems of thought and feeling – thus exist transcendentally, in dependently of the individuals in whom they appear. They are what the French sociologists call *collective representations*, which pass from generation to generation, learnt in behaviour, contained in proverb and precept, in technology and convention and ritual, and, with the development of writing, in books. A man's psyche is social, not organic (Gluckman 1949: 75).

This dogma of the autonomy of culture was therefore also the basis of cultural relativism. The possibility of objective knowledge has been challenged for many years by some philosophers, sociologists of knowledge, and anthropologists, who regard knowledge itself as inextricably bound up with the conventions and language of the particular society in which every individual is obliged to think. As society changes, so do its forms of thought. Ideas accepted without question in one historical period are dismissed as absurd in other periods, and the way in which one culture represents reality may be very different from the representations of other cultures. So in a *weak* form, such as, 'we are always liable to be unconsciously influenced by the assumptions and categories of our own culture, and must be on our guard against this', it is certainly true, and is an example of how Western culture has developed greater self-awareness, just as we have also attained this in psychology and linguistics. We have made ourselves the object of our own scrutiny, and have learned accordingly.

However, many advocates of the 'culture is everything' school of thought went a great deal further: 'Judgements are based on experience, and experience is interpreted by each individual in terms of his own enculturation', so that 'Even the facts of the physical world are discerned through the enculturative screen, so that the perception of time, distance, weight, size, and other "realities" is mediated by the conventions of any given group' (Herskovits 1972:15). In this view, then, the biases and presuppositions of our culture permeate all our observations and the theories we construct, so that there can be no such thing as knowledge of the truth.

But in the first place it should be obvious that if 'culture is everything' from which we cannot escape, then the theory of relativism itself is also the product of culture – the specific culture of Western liberal academia – and therefore can have no claim to objective truth either. Secondly, since huge amounts of culture actually work in the real world so that, for example, aeroplanes really fly, this surely proves that Western aerodynamic theory must be essentially true. But if this is so, then where did this knowledge come from? Did Western culture generate it without any input from

individual human beings? The absurdity of the question immediately shows us that culture not only influences individuals but is in turn influenced by them and their ideas, and that this is the only possible way for cultures and their collective representations to adjust to the real world. Obviously, then, culture is the product of *both* social and psychological factors, but we shall return to this theme in more detail later on in §10.

7. Sociobiology and the autonomy of culture

The diametrically opposed view of culture to the Standard Social Science Model is that of sociobiology. In the words of E.O.Wilson,

> Despite the imposing holistic tradition of Durkheim in sociology and Radcliffe-Brown in anthropology, cultures are not superorganisms that evolve by their own dynamics. Rather, cultural change is the statistical product of the separate responses of large numbers of human beings who cope as best they can with social existence (Wilson 2004: 78).

Evolutionary biologists therefore claim that social institutions have to be explained as the outcome of individual motives and behaviour, and that individuals in particular are motivated to maximise the spread of their own genes in the gene-pool, their so-called 'inclusive fitness'. For example, in some societies benefits which would normally be given by the father to his children are given instead by the mother's brother to his sister's children, a practice known as the avunculate. Favouring one's sister's children rather than one's own, however, is the opposite strategy to that which inclusive fitness theory would predict, because one's own children share more of one's genes than do one's sister's children. R.D.Alexander therefore says that this is one of 'the most provocative and outstanding apparent contradictions of an evolutionary view of human behavior' (I979: 168). His explanation is that when a man's *confidence of paternity* reaches a sufficiently low level, his investment in his sister's children will be a significantly better bet than investment in his own for maximizing his inclusive fitness, since for obvious reasons it is much easier to be certain of a child's mother than of its father. So, he concludes: '... a general society-wide lowering of confidence of paternity *will lead to* [my emphasis] a society-wide prominence, or institutionalization, of mother's brother as an appropriate male dispenser of paternal benefits (ibid., 172).

Gaulin and Schlegel (1980) therefore proposed the hypothesis that: 'High paternal confidence leads to high investment by a man in his wife's children; low paternal confidence leads a man to channel his investment elsewhere' (ibid., 304). Where, exactly? They propose that rules for the inheritance of real and movable property, succession to the office of local headman, residence rules, and modes of reckoning descent may all be expressions of mother's brother's investment, and they have summarized their conclusions in Table 1 below (ibid., 305):

Table 1 Investment patterns and paternal confidence

Investment patterns	Low paternal confidence	High paternal confidence	χ^2	p
Residence	matrilocal, avunculocal, uxorilocal	patrilocal, virilocal, neolocal	7.783	0.005
Inheritance of real property	no fixed rules, sister's son, other matrilineal	sons, children, other patrilineal	6.599	0.010
Inheritance of movable property	no fixed rules, sister's son, other matrilineal	sons, children, other patrilineal	5.146	0.023
Descent system	matrilineal	patrilineal, bilateral	2.784	0.095
Succession to office of local headman	sister's son, other matrilineal non-hereditary	sons, other patrilineal	2.618	0.106

The aggregate of p [probability] = 0.00000001, and the authors conclude: 'It seems unlikely that we are looking at a chance association' (ibid., 306). It does indeed, but is this association what the authors think it is? It will be seen from Table 1 that there is a clear tendency for low paternal confidence to be associated with matrilocal residence and matrilineal inheritance of property, office, and the reckoning of descent and, conversely, for high paternal confidence to accompany patrilocality and patrilineal inheritance and descent reckoning. So what the authors have really been doing is simply to explicate the social structure of matrilineal versus patrilineal descent groups in general, and of matrilocality versus patrilocality (and its variants) in particular.

We are concerned, then, with the social consequences of matrilocal residence, and of matrilineal descent *groups* in general as indicators of what are likely to be the relations between the sexes and especially between husbands and wives. Since in all societies men exercise authority over women and not *vice versa,* matrilineal descent groups will face a dilemma that does not occur for patrilineal descent groups. As Schneider has said, whereas patrilineal descent groups can allow their women to pass outside their control at marriage and into the exclusive control of their husbands, matrilineal descent groups must continue to retain control over their women after marriage if the corporate existence of the descent group is to be maintained, since membership in the group passes through these women. Thus 'The institutionalization of very strong, lasting, or intensive solidarity between husband and wife is not compatible with maintenance of matrilineal descent groups' (Schneider 1961:16), and 'There is always potential conflict between the bonds of marriage and descent; given exogamy, they are bonds which cannot coincide but pull each party to a marriage in different directions' (ibid., 17). Because in this system of relations a man has only limited control over his wife, women have greater social freedom, and it is likely that this will also involve greater sexual freedom in many such societies, and hence lowered confidence of paternity.

What can we conclude from all this about the relevance of inclusive fitness theory to the avunculate? The probability of female promiscuity is directly linked to the strength of the marriage bond and the husband's control over his wife's behaviour. This is why there may well be a lower level of paternal confidence in the matrilineal situation than in the patrilineal one, but the greater "investment" by males in their sisters' children will be the consequence of the matrilineal kinship system itself, not of low paternal confidence. In other words, it is the matrilineal kinship system which is the source *both* of the avunculate and of the lowered confidence of paternity (Hallpike 1984).

Social institutions and processes do therefore have their own properties which it is naive to try to explain as the result of some psychological disposition of individuals. But it is illegitimate to leap from this well-established fact to the sweeping conclusion of Durkheim, Gluckman, and the whole SSSM model that we can therefore dismiss human nature in general as non-existent or irrelevant to anthropology.

8. Human nature, cultural relativism, and universals

There has long been a basic hostility among anthropologists to the idea that human thought and behaviour are under biological influence because this has been thought to deny human free will and dignity, or to legitimise racism and other kinds of discrimination. The extremely influential American anthropologist Franz Boas wrote, for example, 'I claim that, unless the contrary can be proved, we must assume that all complex activities are socially determined, not hereditary' (cited in Pinker 2019:22).There is obviously a good deal of truth in this: no one would claim, for example, that the details of music, or law, or the British Constitution are hereditary. But

> Boas had created a monster. His students came to dominate American social science, and each generation outdid the previous one in its sweeping pronouncements. Boas's students insisted not just that *differences* among ethnic groups must be explained in terms of culture but that *every aspect* of human existence must be explained in terms of culture. For example, Boas had favoured social explanations unless they were disproven, but his student Alfred Kroeber favored them regardless of the evidence. 'Heredity' he wrote, 'cannot be allowed to have acted any part in history' (ibid., 23).

The Standard Social Science Model that stemmed from this was therefore inherently inclined to stress the limitless variation between cultures, the oddities and the exceptions, and to resist the search for underlying uniformities or universals. According to Margaret Mead the only thing to be said about human nature is that it is unbelievably malleable, and arch relativists

like Clifford Geertz, for example, encouraged anthropologists to be 'merchants of astonishment' and to 'hawk the anomalous, peddle the strange'.

But this uncritical and dogmatic relativism long ago became untenable:

> ...once one has absorbed the lesson of cultural relativity what was initially astonishing becomes mundane or fully expectable. It poses no great problem for explanation.. . . But when the kaleidoscope of world cultures becomes normal, then the fixed points, the universals stand out as curiosities. And the explanation that it is because of their culture becomes meaningless. A new question emerges: given the inherent tendency for disparate peoples to develop disparate cultures, how on earth can some things be the same everywhere? (Brown 1991: 88).

The question before us, then, is simply this: there is a hypothesis that every aspect of human societies is determined by culture, from which it follows that since we can find the same customs, beliefs, and institutions in completely unrelated societies, in other words, universals, then the hypothesis is disproved. There has, however, been considerable debate about the essential criteria of a cross-cultural universal. Is it required, in particular, literally to occur in every known society? There seems to be an unhelpful influence here from physics, and the belief that to a natural law there can be no exceptions at all, but cultural universals do not have the status of natural laws. They are simply generalisations based on a very wide range of cross-cultural data; so greetings are considered by some to be an absolute universal, but the Tauade, much to my surprise, had none. Does this mean that greetings are therefore not a universal? But surely what is really significant here is that greetings are found in a vast variety of *different, unrelated* societies, so that their actual frequency – 25%, 50%, 99% - is really irrelevant, since this, as Brown says, shows that they cannot *only* be the product of culture. Of course, some other causal factors as well as human nature may also be involved as well, but what these causal factors are, however, is a matter of investigation in each case. Verbal number systems around the world, for example, are overwhelmingly based on ten, and to explain this we do not need to invoke human nature but simply the fact that we all have ten fingers. Again, the use of fire is an absolute universal but again is more readily explained as the result of observation and the diffusion of this knowledge among early humans. A good example of a universal derived from observation is

> . . . the use of words with meanings closely related to "little person" to label the pupil of the eye – as indeed is the case in English. This occurs in approximately one third of all world languages (Brown & Witkowski 1981) far beyond what is expected given that the alternatives are limitless. . . The obvious reason for "pupil" and its semantic analogues is that close scrutiny of the pupil reveals a "little person" looking back at you, your own reflection (Brown 1991: 44-5).

The following are a sample of cultural universals (taken from Brown 1991, Pinker 2019), many of which appear to be strongly influenced by human nature:

The use of fire

Tool-making
Men dominate the public sphere
Warriors are always men
No society is a matriarchy
Incest forbidden
Shame
Revenge
Greetings
Division of labour by gender
Sexual and excretory modesty
Generosity is always admired
A cosmological distinction between the Wild and the Tame
Rites of passage, especially birth, marriage and death
Belief in magic
Belief in the soul
Belief in spiritual beings
Bodily adornment
Desire for prestigious articles
Feasting as an expression of solidarity
Property rights
Personal names
Colour schemes always includes black/white
Ethnocentrism
Trade

Geertz declared that 'There is no such thing as a human nature independent of culture' (1973:49). In the sense that human beings can only express their nature *through* their culture, then Geertz has a valid point, but it does not disprove the existence of human nature, or that it exercises a very powerful influence on how cultures develop. Practices related to the incest taboo, sexual modesty, the male monopoly of organised violence, bodily decoration and the desire for prestigious goods, belief in spiritual beings, property rights, shame and revenge are all testimony to the various facets of human nature. In particular, we would expect some of the signs of a biological basis for a cultural trait to be

...unusual ease (or difficulty) in acquiring specific skills or knowledge, a "critical period" for their acquisition, emotionally motivated actions that run counter to consciously held ideals, unusually intense preoccupation with certain topics, similar behaviour among animals, and universality itself (Brown 1991: 104-5).

At this point in the argument someone might well raise the objection that I have ignored the human mind from my account of human nature. This is quite true, and while the use of fire and tool-making may not spring from the same aspects of human nature as incest avoidance or love of bodily decoration, they certainly required a human type of mind.

9. Human nature and evolutionary psychology

A number of evolutionary biologists claim that it is possible to discover a great deal about human mind by considering it as a set of adaptations to the conditions of the Pliocene in East Africa – the Environment of Evolutionary Adaptation (the EEA). In the first place, if one is claiming that the traits of a species are very specific adaptations to a particular environment, it is obviously essential to know in detail what that environment is like. While, however, we are quite well informed about physical conditions in East Africa one or two million years ago, by the standards of ethology and of social anthropology we know virtually nothing about the social relations and organization of our ancestors in those remote epochs, and even less about their mental capacities. We cannot, in particular, be sure that they even possessed grammatical language, and this general level of ignorance is quite incompatible with any informed discussion of possible adaptations (Hallpike 2011: 214-55).

Even in the case of the earliest *Homo sapiens sapiens* from around 200,000 years ago we do not know if they had the ability to speak, and if so, what sort of things they might have said to each other, what made them laugh, what they quarreled about or how they maintained peaceful relations within the group. In particular, we have no idea when they first had personal names, or when they could form the concepts of 'mother', 'father', or 'mother's brother', or when they developed the idea of some sort of official union between adult men and women, or if they exchanged women between bands, or how hunting co-operation was organized, or what sort of leadership existed. Nor do we know when Man first had ideas of magic and symbolism, gods, ghosts, and spirits, or when or why he first performed religious rituals and disposed of the dead in a more than merely physical manner.

Evolutionary psychologists nevertheless maintain that in the Pleistocene in East Africa our ancestors must have developed specialised mental modules in the brain to deal with the various types of problem that they faced – tool use, child rearing, free-loaders and social exchange, morality, and so on, and that we have inherited these modules. These conclusions were mainly drawn from information theory, however, and the whole idea of mental modules is now distinctly *passé* in modern neurology (Hallpike 2020:140-50). For example '...there are many different system organizations that can produce the same kind of behaviour a strictly modular system does and...they may not be

distinguishable from it by any conceivable experimental strategy....Nonlinear, interconnected, dynamic systems [such as the brain] are fully capable of producing the kind of behaviour expected from modular systems' (Uttal 2001:182-3).

Evolutionary psychologists therefore commit the basic error of trying to explain the known by the unknown, and instead of recognising this basic ignorance prefer to rely on theoretical assumptions about what human nature must be like. So, again, it is axiomatic in neo-Darwinian theory that humans must be innately selfish. This is because neo-Darwinians have claimed that group selection is impossible, since natural selection can only operate at the level of the genes, and therefore any individual with altruistic genes would have been weeded out. As Dawkins put it in *The Selfish Gene,*

> The argument of this book is that we, and all other animals,are machines created by our genes. Like successful Chicago gangsters, our genes have survived, in some cases for millions of years, in a highly competitive world. This entitles us toexpect certain qualities in our genes. I shall argue that a predominant quality to be expected in a successful gene isruthless selfishness. This gene selfishness will usually give rise to selfishness in individual behaviour… Let us try to teach generosity and altruism, because we are born selfish (Dawkins 1978: 2-3).

Darwin, however, had a broader and more realistic view of group selection that has subsequently been validated by modern research (e.g. Wilson 1997:52, Corning 2005:17-20)

> When two tribes of primeval man, living in the same country, came into competition, if (other circumstances being equal) the one tribes included a great number of courageous, sympathetic, and faithful members, who were always ready to warn each other of danger, to aid and defend each other, this tribe would succeed better and conquer the other (Darwin 1971: 134)

But as a result of their dogmatic assumption of human selfishness, (based on pure theory, not on any actual psychological research), evolutionary psychologists have tied themselves in knots trying to explain co-operation because cheating one's neighbours should theoretically confer a selective advantage on the cheater. In fact the anthropologist knows that generosity is perhaps the most prized virtue in primitive society, and that the surest method of ensuring social failure and, presumably, some corresponding decrease in inclusive fitness, is to follow simple strategies of 'selfishness' or 'cheating'. (In any case, in small groups of people who know each other well, cheating would be very easily detectable.)

Among the Tauade, who are typical of Papua New Guinea, the highest social class are the Big Men, who have a reputation of giving generously and have several wives, while the lowest social class, the least successful, are the 'rubbish-men' who are typically unmarried::

> ...the *malavi* [rubbish-men] are conventionally considered mean. They are *komutuma*, people who do not give; their bellies are bitter, *lat'logivai*, as opposed to the people who give generously, the *alituma*, especially those who give to children and old people. The *malavi*, or those who have their nature, are also greedy, and stuff themselves with food and lick the grease from their hands, and when they have something, such as tobacco which they should share, take it away to smoke in private... (Hallpike 1977:144)

So evolutionary psychologists get the whole issue of cheating and selfishness back to front. Social success in primitive society is achieved by those who are perceived to be generous and to *help* the group, not by those who cheat and sponge from it, and cheating as a successful strategy for self-advancement can only work in much more complex societies when a number of basic social changes have taken place. These are: much larger and more atomistic societies with a high percentage of one-off transactions between strangers; with the growth of trade and commerce, particularly through the medium of money; the accumulation of material wealth; and the growth of complex bureaucratic systems of redistribution. So it should be obvious that it is not the hunter- gatherer band but modern industrial society that provides by far the most favourable environment for free-loaders to flourish, such as bogus welfare claimants, tax evaders, and confidence-tricksters of every kind.

Instead of relying on Darwinian dogma and unproveable assumptions about our ancient ancestors, a scientific view of human nature has to be based on modern research into living human beings. This has repeatedly confirmed what we have always known: that while human beings can indeed be selfish, aggressive, and competitive they are also innately co-operative and pro-social, regardless of kinship andnepotism, (and are quite distinct from apes in this respect). It is of course true that 'All viable organisms must have a selfish streak; they must be concerned about their own survival and well-being or they will not be leaving many offspring. But human co-operation and helpfulness are, as it were, laid on top of this self-interested foundation' (Tomasello 2009:4-5). Professor Tomasello's comparative research at the Max Planck Institute of Evolutionary Anthropology in Leipzig, conducted on infants of12 to 24 months, and on chimpanzees, has confirmed that, unlike apes, 'To an unprecedented degree, *Homo sapiens* are adapted for acting and thinking co-operatively in cultural groups...' (xv). Inclusive fitness theorists concentrate almost entirely on gift-giving as the test of altruism, but Tomasello points out that this is far too narrow, not only because it should include assistance and information, but because altruism is only one part of a much more comprehensive pattern of *cognitively-based* collaborationand mutual assistance, and an atmosphere of tolerance and trust that is innate and uniquely human.

Human infants start co-operating at about a year, and when 14-18 month-old infants were put in situations where adult strangers needed help with a variety of problems, like picking up something they had dropped, or opening a cupboard door, the infants spontaneously helped them. 'To help others flexibly in these ways, infants need, first, to be able to perceive others' goals in a variety of situations, and second to have the altruistic motive to help them. This behaviour emerges very early, without training. Parental rewards do not increase infant helpfulness, but actually inhibit it, and it occurs cross-culturally. (ibid., 12-13). Very young children may offer to share, and the tendency to share increases with age, being accompanied by a rapid growth in the capacity for

empathy. From the age of eighteen months on, children 'understand how to hurt, comfort, or exacerbate another's pain'; (Damon 1988:169)

Infants also have an innate grasp of rules, in the sense of readily understanding that things should be done in a certain way, and try to enforce this. Children therefore legislate norms by themselves, regardless of parental instruction, even when not immediately involved in an activity, so that, observing a solitary game, they will condemn a puppet who is introduced and then disobeys the rules. The notion of the ideal way of how a game ought to be played follows directly from watching an adult, and children don't need to see the adult corrected. So rules are not just instrumental guides to the children's own effective action, but are supra-individual entities that carry social force independently of instrumental considerations. (ibid., 38) Children's earliest norms (at around 3 years) are therefore true social norms, and they result from something more than either the fear of authority or the promise of reciprocity. These cannot, in particular, account for the child's active enforcement of social norms, since they are not taught to do this (ibid., 39).

For this degree of co-ordination and communication to be possible, the participants must therefore have (1) a joint goal in the sense that they, in mutual knowledge, do X together, and (2) the participants must co-ordinate their roles which are interdependent, and this requires communication. Tomasello calls this form of interaction 'We-mode'. (ibid., 60-62).

Children of even one year old, however, can work in We-mode. In a series of tests with 14-24 month-old infants, the children collaborated easily in social games, but the chimps had no interest at all in the games and refused to take part in them. Researchers also engaged in collaborative activity with some very young children of about 18 months, and then exchanged roles the next time. The children easily adapted to their new roles, suggesting that they understood the adult's perspective and role. Chimps did not reverse roles in same way, only having a first-person perspective. So human collaborative activity is achieved through generalized roles potentially filled by anybody, including the self.

We are, then, innately social beings to whom co-operation comes quite naturally and this ease of collaboration and enforcement of norms is also closely connected with conformity: The human passion for conformity, and readiness to punish those who violate it, should be obvious to everyone, (especially academics), as is our extreme sensitivity to our social reputations (consider here the blushing reflex), and our susceptibility to insult. This fundamental importance of the We-group to human beings of course explains the violent hatred that can be generated by those who are perceived to threaten the We-group,

10. Developmental psychology and the evolution of modes of thought

The belief that collective representations are purely social, not psychological, in origin sits well with the belief that all human minds think in the same way, regardless of grammar or other collective representations: '[People] think the same thoughts, no matter what kind of grammatical system they use; and they express the same kinds of thoughts, regardless of the grammatical tools they have: past, present and future events, cause and effect relationships, social relationships, hypothetical questions, and so forth' (Jackendoff & Wittenberg 2014: 66).

This dogma of the uniformity of the human mind therefore means that how people learn is irrelevant and the very suggestion that there could be such a thing as 'primitive thought' is rejected as colonialist. The following is a typical example of orthodox anthropological reasoning:

> I for one consider it unthinkable to claim that a Piaroa of the Venezuelan rain forest is irrational when he says that rain is the urine of the deity Ofo Da'a. The Westerner asserting that rain is H_2O and the Piaroa saying that it is the urine of a deity are doing so on similar grounds; both are relying on the knowledge of the supreme authority of their society, respectively the scientist and the shaman, on the nature of water. (Overing 1985:4-5)

But Overing evades two essential issues. First, it is certainly not 'irrational' (in the sense of 'incomprehensible') to think that rain is the urine of the deity Ofo Da'a, but it is cognitively much *easier* to understand the Piaroa notion of rain than the Western version. It is no doubt true that in meteorological matters many of us are in the same state of dependency on our scientists as the Piaroa are on their shamans. To think of clouds dropping rain as like spraying one's garden witha hose, as some of us may do, is indeed no more cognitively demanding than thinking of it as theurine of a deity. But those of us whose grasp of the nature of rainfall is restricted to this level are not really participating in Western scientific culture at all in so far as it deals with meteorology.

To think of rainfall scientifically, as an example of condensation, we have to understand a *complex system of relations* involving a given *volume* of air and of the total *mass* of the water evaporated in that volume of air. This in turn gives us the *density* of the water vapour and we then have to understand that for a given volume of air there is a maximum density of water vapour that can be absorbed, at which point the air is *saturated*, that is, its *relative humidity* is 100%, otherwise known as the dewpoint. (But saturation also depends upon the pressure of the air and its temperature.) When cooled the airborne water vapour will condense to form liquid water, that is, rain. The condensation of water vapour into rain is therefore associated with changes in the linked parameters of air volume, temperature, pressure, and humidity.

This very brief sketch of only a small part of the scientific theory of rainfall shows quite clearly that understanding science is not simply a matter of accepting authority but also of grasping a set of conceptual *relations* between variables, of percentages and ratios (both direct and inverse), of distinguishing between volume and mass, and of understanding the reciprocal relations between a number of related variables in a total system. In other words it involves thinking in a different way that has not always been available historically. The ideas of mass, volume, density, inverse proportion and so on are indeed cultural conventions, but they are nevertheless conventions that are inherently more difficult to understand than the convention that rainfall is the urine of a deity. The Piaroa belief that this is the origin of rain is complete in itself. It rests on no further theory of how exactly Ofo Da'a urinates, and it is as a belief extremely simple and can be understood by small children. The Piaroa belief about the origin of rain, in particular, in fact closely resembles the thinking of children, as illustrated by the following example of an interview by Jean Piaget, the famous developmental psychologist:

Griar (5½)

Q. What is rain?

A. It is water.

Q Where does it come from?

A. The sky.

Q. Is there water in the sky?

A. God sends it down.

Q. How?

A. He throws out buckets of water.

Q. Who told you that?

A. No one.

Q. Where does God get the water from?

A. In his tap

Q. Where does the water come from for the tap?

A. (He laughs)

(Piaget 1929:312).

The boy's laughter is significant. Piaget states (ibid, 327) that little boys make a conscious association between rain and urine.

Secondly, Overing evades the problem that some cultures' beliefs are more adequate accounts of the world than others' – the fact that rainfall is not, in reality, the urine of a deity at all but the condensation of water vapour. How, then, did our scientists reach a more adequate

understanding of this phenomenon than the Piaroa and other primitive peoples? To say that those concepts on which the scientific theory of rainfall depends such as mass, volume, density, saturation, and so on are cultural conventions accepted on authority, and so might easily have been different, is clearly inadequate. They were developed out of the experience and thinking of individuals in the solution of real problems, without whose intellectual efforts our more adequate forms of knowledge could not have developed. To be sure, these individuals could not have thought as they did without an existing body of collective representations which they could use as a basis for thinking about nature or society, but they in turn enriched and developed the collective representations of their culture so that they provided the foundations for new developments. Unless we recognize that collective representations are also the expression of individual thought and experience we have no means of explaining how organized systems of knowledge about the real world can have developed at all. Once, however, it is accepted that the thinking of individuals must be an integral part of the generation and transmission of collective representations, we then have to ask how those individuals learn, and major answers to that are provided by developmental psychology, especially the work of Jean Piaget.

Piaget regarded learning not as a passive but an active process, as the child not only has to accommodate to the natural and social environment, but also assimilates this knowledge into his existing cognitive structures which have to be reorganized as cognitive development proceeds. Until roughly 6-7 the child thinks in terms of 'pre-operational' thought. The pre-operational child's thought is irreversible and attends to limited amounts of information, which are particularly the static states of reality. It is also very much one-dimensional thinking, in which the child does not realise that water poured from a short fat glass into a tall thin remains the same quantity because the increase in height of the glass is *compensated* by the decrease in its diameter. It also leads to explanations in terms of essences, the reification of properties like speed, and the treatment of processes like illnesses as substances, a world of forces which are *awakened* in things rather than being *transmitted*. 'Conceptual realism' is another feature of pre-operational thought, which does not distinguish clearly between subjective and objective, where our sensations are not clearly differentiated from the objective physical properties of things, or the child's own thoughts from the properties of the real world, so that he thinks that the names of things belong to them by nature, and psychic states, such as purpose, vitality, and responsiveness to the wishes or behaviour of people, may be attributed to material objects and events.

The transition from the pre-operational level to that of 'concrete operations' at around 6-7 is marked by the ability to construct stable systems based on mobile relations of reversibility and compensation, the notion of relative properties as opposed to absolute

properties which inhere in things, the avoidance of centration or one-dimensional thought, and the avoidance of the contradictions inherent in image-based modes of representation. We find the progressive objectification of causality, involving the analysis of process and the use of explanations based solely on physical relations between things. Processes are no longer represented as sequences of static states, but as integrated systems of transformations. ' ... The concrete operational child focuses on several aspects of a situation *simultaneously* [my emphasis], is sensitive to transformations, and can reverse the direction of his thinking' (Ginsburg and Opper 1969:168).

We can see at once that the Piaroa explanation of rainfall is a classic example of pre-operational thinking, in which a physical process is interpreted as a response to the wishes of a personal being. Another example of pre-operational form of thought that treats a relational process as a substance is the primitive conception of shadows.

There are numerous ethnographic examples where the shadow is treated as emanating from a person or animal, and possesses certain powers as though it were alive. Stith-Thompson's *Motif Index of Folk Literature* (1966) contain copious references to the shadow as an emanation from a person, or the soul as a shadow: a bird is overpowered by stepping on its shadow so that he drops his stolen meat; someone obtains a magical cure by lying on a saint's shadow; a girl is impregnated by the shadow of a man which falls on her; a person whose shadow is pierced by a spear dies; and a spell chanted over a person's shadow brings death to its owner. Among the Konso the soul is *kelelayta*, "inside person" or *katilayta*, "shadow person" (*kata*, shade, -*layta*, person). There are no particular beliefs about the human shadow, but it is believed that if the shadow of the eagle, *kawarayta*, falls on a person it causes a form of encephalitis.

Piaget's accounts of his interviews with children and their development in understanding shadows is a simple example of the development from pre-operational to concrete operational thinking. Essentially what occurs here is the development from the child's initial centration upon the *image* of the shadow to the progressive construction of a *system of relations* between a light source, a screening object, and the form of the shadow that the object casts. In the first stage (around the age of five), shadows are conceived as due to the collaboration or participation of two sources, the one internal (the shadow emanates from the object), the other external (shadows come from trees, from night, from the corner of the room, etc.). During the second stage (average age six to seven) the element of participation disappears, and shadows are believed to be produced by the object alone. They are a substance emanating from the object, but in no particular direction, so at this stage the

child is not yet able to say on which side the shadow will fall when the screen is placed in front of the source of light. But the child still believes that the shadow is also produced at night, only it is impossible for us to see it. For example,

Leo, (7 years of age):

Q. When it is night, does [a person] make [a shadow] too?

A. He makes one then (but) you don't see it because it's night.

Q. How do we make one?

A. You make it when you walk, because every step you make, it follows us behind.

Q. Why does it follow us?

A. Because it is the person who makes it on the ground.

Q. But how can the person do that?

A. He walks.

Q. Where does the shadow come from?

A. It comes out of the person, we have a shadow inside us. (Piaget 1930: 187)

At the third stage the child is able to predict the direction of shadows in relation to the object, but still believes that the shadow is an emanation from the object that drives away the light, and that it will therefore always be on the side of an object opposite to the source of light. At the fourth stage the child finally grasps the correct explanation when he can place himself in imagination behind the object which acts as a screen and realises that from that position the light is hidden; and when he does this he begins thinking of shadows as the absence of light, and not as substances, so objects cannot cast shadows at night.

During the early stages, then, a shadow is a substance which travels about, and which is often thought to be alive and conscious. During the subsequent stages a shadow is still regarded as a fluid which emanates from the objects themselves, but when the child can foresee in which direction the shadow will fall he understands that it is not self-directed. "Thus a shadow practically ceases to be regarded as a living fluid which goes where it wants to; there is a beginning of relativity by means of which shadows are thought of for the first time as conditioned by daylight." It is only once the necessity for a luminous source has been noticed that the substantialist explanation, having become useless, is replaced by the correct explanation in which the child views the shadow from the perspective of the light source (Piaget 1930: 191-2).

The belief that shadows come from the night or from the trees, or from inside the people and animals who cast them is not therefore some equally valid alternative view of reality, some revolutionary new science, as some anthropologists would like to claim, that

can be justified by psychiatry or transcendental phenomenology. It is simply *wrong*, and produced by a failure to understand the geometrical relations between a light source, a screening object, and the shadow that the object casts. The shadow of an eagle can't cause sickness, and one does not cure sickness by lying on a saint's shadow; stabbing someone's shadow with a spear won't harm them, and a girl can't become pregnant from a man's shadow falling on her.

Essentially, then, some ways of representing the world are more elementary than others and consequently will occur before more advanced representations in the development of every individual. In primitive societies pre-operational thinking is perfectly adequate for coping with the demands of everyday life and does not have to be reconstructed at the level of concrete operations. Their collective representations for the most part will therefore not demand a level of thinking beyond the pre-operational. In societies like our own, however, these elementary forms of representation are inadequate for accommodation to the socio-physical environment, and so the individual is forced to reconstruct them at higher levels of mental functioning. These are the attainments of more advanced levels of thought, that of concrete and then of formal operations, and need a special set of social circumstances to make them possible.

In pre-literate societies, children learn by taking part in the activities of daily life, whereas in literate societies where schooling is the norm learning takes place in a situation removed from daily life and it has at least the possibility of debate and the development of the ability to explain the reasons for one's choices and decisions. Unschooled subjects, for example, tend to make use of what is called 'functional entailment', which focuses on how things are related in ordinary life. So the question 'What do dogs and rabbits have in common?' is answered in terms of functional entailment by saying that dogs chase rabbits, whereas the taxonomic answer is that they are both mammals. The use of taxonomic classes, all whose members are defined as having certain distinct attributes, is logically more powerful and necessary for making conceptual distinctions such as those needed in law and science, but the answer that dogs chase rabbits is not stupid or pre-logical, and perfectly sensible in the context of ordinary life.

In societies where people grow up surrounded only by the organic processes of nature, and never handle mechanical appliances or machines, there will be far less opportunity for developing the later concrete operations especially those involving causality. Operational causality, however, is a universe of relations in which attributes are relative, as opposed to a primitive world of absolute substances and essences such as heat and coldness, heaviness and

lightness, whose associations are static and irreversible. In primitive societies measurement and quantification are scarcely developed and technology is extremely simple, but also the organic processes of nature are irreversible, not easily broken down into component elements, and do not generally lend themselves to the kind of experimental logic that machines do. For when reality is interpreted on the basis of how it affects human bodies there results a subjectification of experience that makes concrete-operational analysis of the world very difficult. This propensity is augmented by the primitive apprehension of speech as having power in itself, through the adherence of names to the thing named, to control the real world.

Again, primitive societies are non-reflexive. By this I mean that their members do not think about language as such, in the sense of its grammatical structure, or the relation between words and meaning, and so on, but are simply aware of it as speech. They will have cosmologies, but do not reflect on how they have established them, or can know if they are true. They do not reflect on culture and how it is acquired, or on the psychology of the self, or the relations between 'individual' and 'society'. The verbal analysis of experience, of social behaviour and custom, will be given a low priority in societies where experience is roughly the same for everyone, where behaviour is largely dominated by custom, and where institutions are part of a social structure that is not the subject of debate.

According to Professor Gustav Jahoda 'It can be stated quite categorically that no society could function at the pre-operational stage, and to suggest that a majority of any people are at that level is nonsense almost by definition (1980:116). On the contrary, the examples we have considered clearly show that pre-operational thought is a very practical and simple basis for the life of a primitive society, and even for some aspects of our own lives as well. In any case, it is possible for societies to carry on for centuries being wrong about all sorts of things without realising it, a further example of 'the survival of the mediocre'.

11. Cultural evolution

In this paper I have referred to various ways in which Darwinism and sociobiology have tried to solve problems in cultural anthropology. Many anthropologists, however, have no interest in neo-Darwinian theories of cultural evolution because they do not believe in cultural evolution in the first place. This hostility to the application of evolutionary concepts to human society has a long history: in the early twentieth century Victorian schemes of social evolution had been discredited as fanciful speculation, and the idea had also become associated with racial theories linked to Social Darwinism, while 'laws of progress' were

associated with Marxism. Belief in cultural evolution was also increasingly seen as an ethnocentric justification of Western supremacy as some pinnacle or end-point of the evolutionary process, 'so that if they were left alone, African bushmen or Australian aborigines would eventually grow up into fully-fledged Europeans or something like them' (Beattie 1964:4). And with the end of colonial empires there has also developed the belief that the notion of 'primitive society' is a colonialist illusion (Leach 1982, Kuper 1988): 'In reality, there are no simple or primitive cultures: all cultures are equally complex and equally modern' (Hamill 1990:106).

Despite these academic evasions, it remains extremely obvious to any unbiased observer with even a moderate grasp of history that the original human condition was that of hunter-gatherers living in small bands, and that agriculture and the domestication of animals occurred relatively recently in the last ten to twelve thousand years ago. On a global scale, 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 the development of an economic surplus through tribute, conquest warfare, a much greater division of labour, 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 and in some cases writing, that could form the basis of literate civilisation and high culture, including the development of philosophy and the world religions. This process resulted in fairly similar developments independently in different parts of the world.

By the beginning of the Common Era, in a number of independent and unrelated parts of the world, literate civilisations with very large populations had evolved with a fairly standard set of institutions: sacred hereditary kings; a nobility; professional armies; a class hierarchy; urban civilisation and a market economy with highly developed crafts; writing; bureaucracy; priests or their equivalents; monumental architecture; and a particular interest in calendrical science and astronomy, so that the Chinese, Indians, Persians, Egyptians, Europeans, and Central Americans and the Inca would have found many fundamental similarities in each other's societies. That so many quite distinct processes all led to a similar outcome all over the world is a very strong indication that certain basic

developmental processes have been at work in human society.

To understand these we do not need 'laws' as much as general explanatory principles, like the concepts of variation and natural selection, or inclusive fitness in Darwinian theory. But to explain cultural evolution, instead of variation and natural selection we need the concepts of self-organization and human selection. Self-organization needs first of all *the accumulation of necessary conditions*, necessary not for survival but for further developments. The early state, for example, was made possible by agriculture, large settled communities, corporate kin groups, hereditary authority validated by descent and religious status, trade, and conquest warfare. Some innovations also had *evolutionary potential*, of which there are many examples like the use of metals, writing, money, and centralised political authority, all of which had many applications which were not envisaged when they first developed.

Another principle of self-organisation is *equifinality*, whereby some development such as the city can be attained by a variety of different pathways – by trade, religion, military requirements, or political centralisation, for example. But having been attained by whatever means the cities will all have a number of similar properties. *Exaptation* is where something has multiple properties, and having been chosen for one is discovered to have other unexpected properties or uses that may be even more valuable. And cultures have certain *core principles*, such as an emphasis on generational seniority as distinct from descent, or elective councils as distinct from hereditary authority, that may hinder or augment their evolutionary development. These principles add up to a general theory of cultural evolution that is essentially *constructive*, and differs radically from the Darwinian model of variation and selection.

This suffers from two radical defects when it tries to explain cultural evolution. First, it has no theory of origins but only the very weak notion of random variation. Social change and important innovations, however, are far from random in many cases, and we can often identify the factors and circumstances that are responsible for them. But lacking any theory of origins, the Darwinian model, secondly, is then forced to put its whole explanatory weight on *selection*, and the notion of *adaptation*. But we saw that it is nonsensical to think of cultural traits competing with one another in a process of natural selection. Only human beings can select, but what they can't do is select cultural traits as adaptive in ways that they cannot understand, as we saw in our discussion of adaptive explanations of primitive warfare. When cultural traits are adaptive it is because people have designed them to be so, or if they

are exaptations. So when we are trying to explain why some cultural trait exists we must always look for a causal explanation, rather than relying on adaptive speculations.

In conclusion, it is perhaps necessary to refute the belief of some anthropologists that the idea of cultural evolution envisages some sort of goal or end-point of history, such as Western society, to which the evolutionary process is inevitably tending. The evolutionary process does not have an end-point but a *starting* point, *away* from which human societies have evolved to a greater or lesser degree. Nor, as Karl Popper has pointed out, can any evolutionary theory predict the future course of human society because, among other things, it is logically impossible to predict inventions before they have been made. But as we know, some inventions can have profound social consequences.

12. Conclusions

So the answer to the question of whether cultural anthropology is a science is often that it isn't because its practitioners, as we have seen, in many cases are dominated by group-think and ideology and impose on the evidence what their beliefs, and those of their colleagues, tell them must be the case. Or, as with some sociobiologists, have very little grasp of the evidence in the first place. Concise refutation of poor theories is also harder than in the natural sciences because of the complexity of the data, but I hope I have shown that the problems of anthropology can often be resolved to a considerable extent by reason and evidence. Rather than being devoted to producing laws, as some have advocated, cultural anthropology is much more about producing *explanations* about how social institutions and belief systems *work*, as it might be comparing the differences between the operation of tribal societies and early states, or pre-monetary and monetary economies, or establishing the basic characteristics of primitive warfare or primitive religion, or the processes of cultural evolution.

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