

'them', 'moderns' and 'traditionals', '*Gemeinschaft*' and '*Gesellschaft*'; in Appadurai's words, 'to restore the cultural dimension to societies that are too often represented simply as economies writ large, and to restore the calculative dimension to societies that are too often simply portrayed as solidarity writ small' (1986, p. 12).

alms-giving	expropriation	reciprocity
altruism	extortion	renting
arbitrage	futures trading	retailing
banking	giving	robbery
barter	huckstering	scrounging
bribery	insider dealing	shoplifting
burglary	insurance	shopping
buying/selling	marketing	simony
charity	money-lending	social wage
commodity-dealing	mortgaging	swapping
corruption	mugging	theft
donation	pawning	tipping
employment	profiteering	trading
exploitation	prostitution	wholesaling

Figure 12.1 Part of the British repertoire of exchange types  
(Source: Davis 1992b, p. 29)

This does not mean that all systems of exchange are 'the same'. The breakdown of the 'economic spheres' among the Tiv and other peoples was an irreversible change with profound social implications. The generalisation of monetary exchange certainly does alter social relations and social scale, but its local importance needs to be studied empirically. In the next chapter, we consider social and cultural implications of changes in a different aspect of what we call economy, namely production.

#### SUGGESTIONS FOR FURTHER READING

- Arjun Appadurai, ed.: *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press 1986.  
 John Davis: *Exchange*. Buckingham: Open University Press 1992.  
 Bronislaw Malinowski: *Argonauts of the Western Pacific*, Chapter III. Prospect Heights, IL: Waveland Press 1984 [1922].  
 Daniel Miller: *A Theory of Shopping*. Oxford: Berg 1998.  
 Marshall D. Sahlins: *Stone Age Economics*. Chicago: Aldine 1972.

## 13 PRODUCTION AND TECHNOLOGY

We live in a consumer society. I am quite sure that we will dispose of the 'natural peoples' when it becomes clear that they do not fulfil the intellectuals' demands for purity, that they do not incarnate Nature, but rather in many respects are more 'artificial' and 'civilised' than ourselves.

— Hans Peter Duerr

### HUMANITY'S EXCHANGE WITH NATURE

The idea that there is an interrelationship between ecological conditions and ways of life is old; it appears in the Enlightenment philosophy of the mid- to late eighteenth century (for instance in Montesquieu and in the Marquis de Sade's non-pornographic writings). Montesquieu, like many others, held that the main cause of Europe's technological and scientific advances was the harsh climate, which required the inhabitants to be inventive and sharp-witted to survive. Somewhat more recently, the human geographer Ellsworth Huntington (1945) argued for climatic determinism in an original study where he shows, among other things, the statistical correlation between rainy days and booklending at libraries in Boston. On sunny days, the inhabitants of Boston tend not to borrow books. (In other words: too much sun seems to make people uninterested in intellectual pursuits.) Even today, many lay people assume that Africans never invented the combustion engine and the microchip because their material survival was so easy that they never 'had to use their brains'.

From a comparativist perspective, it is easy to argue against this kind of mechanical determinism, the idea that one single causal factor (in this case climate) can account for the principal cultural variations in the world. For one thing, there are other regions in the world with climatic conditions comparable to those prevalent in Europe, in pre-conquest North America and southern Australia, for example, which have not developed along the same lines. In Indonesia, under roughly the same ecological conditions, there are rice cultivators, horticulturalists and hunters and gatherers.

There is no simple causal link between ecological conditions and social organisation. However, there is no doubt that nature – in both senses of the word (see Chapter 4) – sets limits to the options available to humanity. If it is true that our inner nature is identical everywhere (this is the dogma of the mental unity of humanity), that is certainly not the case with respect to

### System Theory and Ecology

Ecological analyses were originally developed as a part of biological science, as a method for the description and analysis of processes and interrelationships in nature. However, ecological ways of thinking are also applied in fields other than biological nature. The Chicago sociologist Robert Park thus developed an 'urban ecology' in the 1920s, using ecological models to describe ethnic dynamics in Chicago. A couple of decades later, cybernetics and systems theory were developed as general, abstract theories about how systems work in general. A central idea in Gregory Bateson's work (1972, 1979) is the notion that very different kinds of systems function according to the same general principles. Writing on communication among dolphins, schizophrenia, biological evolution and initiation in New Guinea, Bateson consistently argues that very different phenomena are connected by an underlying pattern – which could be a metaphor, a kind of process, formal commonalities or something similar. He and other system theorists have struggled to depict culture and society as a continuous process.

Many anthropologists see systems theory as an alternative to models focusing on form and classification, seeing it as a method for the conceptualisation of social life as something dynamic and continuously changing. Others criticise systems theory for dealing inadequately with power and intentionality.

It is necessary to distinguish sharply between ecological analyses dealing with biological processes, and those applying ecological thinking to other domains. In the latter case, ecological models are used *metaphorically* as models, in roughly the same way that some structural-functionalists used biological models of the integration of organisms as metaphors for the integration of societies.

external nature. If the climate is too cold, one cannot grow bananas; if it is even colder, one cannot even grow wheat. But there is no one-to-one relationship between ecological conditions and society: any ecosystem offers several different possibilities, although it also inevitably excludes some.

### CULTURAL ECOLOGY

Cultural ecology is largely an American speciality in anthropology; it is associated with Julian Steward and Leslie White, who were particularly influential in the 1950s and 1960s. British anthropology has tended to stress the primacy of social organisation, while continental European anthropology, notably in France, has generally been more concerned with questions

of cognition and symbolisation than with ecological determinants. As Kuper (1994) has pointed out, cultural ecology can be traced back to Darwin and (to a lesser extent) to Marx, and is an entirely different research programme from both Boasian relativism (where culture is more or less self-explanatory) and British social anthropology, which harks back to the sociological schools of Durkheim and Weber. White, who reacted against the culturalist and sometimes psychological bent of the Boasians, proposed ambitious theories of cultural evolution, where the level of development was seen as a function of the amount of energy harnessed by a society from its surroundings (White 1949). Although this view must be seen as a deterministic one, White at the same time regarded culture as an autonomous realm (an often neglected aspect of White's thought explored by one of his most famous students, namely Marshall Sahlins, in *Culture and Practical Reason*, 1976). In Steward's writings (see e.g. Steward 1955), cultural ecology is a doctrine about cultural evolution seen as a result of the interaction between different kinds of material factors: demography, ecology and technology. Unlike Marxists, Steward did not regard relations of production as decisive. In his general model of cultural evolution, he distinguishes between different levels of socio-cultural integration, by which he means roughly the same thing as in the discussion earlier in this book on small and large scale, namely the varying size and complexity of societies. In Steward's scheme, however, material factors determine a society's level of sociocultural integration. The lowest level of integration, exemplified by the Shoshonean Indians in his own work, was that of the family. The highest level was that of the state. Steward distinguished between a culture's *core* and 'the rest of culture'. The core elements pertained to the material processes of subsistence.

### CULTURAL ECOLOGY AND MARXISM

In one of his most deterministic – and most famous – statements, Marx wrote that whereas the hand mill creates a society led by feudal landlords, the steam mill creates a society led by industrial capitalists. A cultural ecologist might, perhaps, retort that whereas a tropical savannah creates societies of pastoralists and millet-growers, a tropical rainforest creates societies of hunter-gatherers and horticulturalists.

There are several interesting parallels between cultural ecology and Marxism. Both schools of thought emphasise the importance of material factors in social and cultural change, and both turn against sociobiology and would argue that 'human nature' can be moulded in an almost infinite number of different ways. Both emphasise the importance of factors located outside human consciousness ('objective' factors).

The key difference between the two schools of thought concerns the role of human agency and social contradiction. In Marxism, the main contradictions in society are seen to lie in the social organisation of the relationship

between technology and property, between labour and capital (in capitalist societies); and the chief driving force in history is class struggle. Cultural ecologists would rather focus on the interaction between demographic factors, ecological adaptation and technology in their accounts of historical change.

The Marxian criticism of Malthus may illustrate this important difference. In an early demographic study, Thomas Malthus (1982 [1798]) wished to show that population growth necessarily led to impoverishment. His fundamental idea was that whereas food production grew arithmetically (1, 2, 3, 4, etc.), the population grew geometrically or exponentially (1, 2, 4, 8, etc.). Marx and Engels accused Malthus of treating human beings as mere 'objects' and societies as static. Instead of the Malthusian concept of overpopulation, Marx proposed the notion of relative overpopulation, which occurs when the productive forces (technology plus raw materials) are unable to satisfy human needs. The densely populated Japanese archipelago is poor in natural resources, but is nevertheless able to give its 130 million inhabitants one of the highest material standards of living in the world, thanks to the advanced forces of production there. Malthus's formula is misleading because, unlike Marxist and sociocultural analyses, it does not take technological innovations into account. The 'green revolution' of the 1970s, for example, where new cereal breeds were introduced, led to a spectacular growth in Indian food production, although it has been criticised for increasing the gulf between well-off and poor farmers.

In this sense, the Marxists, who stress the primacy of the social over the environmental, have won over the cultural ecologists. On the other hand, the ecological crisis of our time suggests that there is an absolute upper limit to the population the world is capable of supporting – that an ecological concept of absolute overpopulation might be helpful in addition to the sociological concept of relative overpopulation. Marx did not predict such a development; to him, natural resources were free, and there is a conspicuous lack of environmental perspectives in his writings.

Both Marxism and cultural ecology raise ambitious and fascinating questions about the relationship between the factors that shape people's lives: they provide very powerful explanatory schemes. It should therefore be stated why this book has not been written in the spirit of either Marxism or cultural ecology. First, both give marginal attention to factors associated with human consciousness. Partly for this reason, they become highly functionalistic as modes of explanation and tend to leave out much of what is the very stuff of anthropology, namely cultural projects. Second, there is a tendency to the effect that grand theories of this kind reduce a multitude of cultural and social processes to dependent variables – to products of 'objective' factors. In this way, we run the risk of losing the highly complex interplay between a variety of factors, which takes on specific and sometimes unique forms in different societies. It is obvious that if we see them as general theories of society and culture, neither of the two is capable of accounting

for all aspects of culture, society and cultural variation – including phenomena that anthropologists wish to explore. By embracing such powerful, all-encompassing theories wholesale, one does run the risk of using a bulldozer where a teaspoon might have been the appropriate tool.

A commonly invoked criticism of cultural ecology, moreover, is its tendency to apply a vocabulary borrowed from natural science to human societies. Peoples thereby become 'populations', human agency becomes 'behaviour' and the technical terms, while they look scientific, do not give a clear understanding of phenomena to do with consciousness, interaction and intentionality (Ardener 1989; Ingold 1994a). Of course, humans are, like other organisms, subject to natural laws. But they also place themselves outside these laws; they reflect, classify and theorise on them, and this complicates matters seriously for someone who enters the study of human relations armed with a vocabulary developed for the study of insects and other non-verbal creatures. Perhaps, indeed, cultural ecology teaches us little about ecology but rather more about culture? Consider this example.

#### THE WET AND THE DRY

'Whatever Morocco and Indonesia might have in common', writes Geertz (1971), '– Islam, poverty, nationalism, authoritarian rule, overpopulation, clean air, spectacular scenery, and a colonial past – the one thing they do not have in common is climate.'

Indonesia is wet, and Morocco is dry. With this contrast as a starting-point, Geertz discusses differences of social organisation in a Moroccan and an Indonesian (Balinese) locality. First, it is obvious that farmers in the two societies must grow different crops. The Moroccans studied by Geertz cultivate wheat and olives; the Balinese grow rice in irrigated paddies. Water is a scarce and costly resource in Morocco, while it is free and abundant in Bali. Southern Bali is criss-crossed with systems of irrigation canals, while such systems are scattered and clearly delineated in Morocco. What are the consequences of these simple differences for social organisation?

The Balinese irrigation systems are organised through *subaks*, irrigation cooperatives led by elected foremen. All owners of land automatically become members of the local subak, and are joint owners of the canal network. Although farmers each grow their rice independently, irrigation and maintenance of the canals has to be organised centrally. This is the role of the subak, which calls for coordination and cooperation. Geertz also argues that religion and ritual life are intimately linked with rice cultivation and the growth cycle of the plant. In an earlier study (Geertz 1963), he further showed how similar patterns appeared at a variety of levels in Javanese society (organised along similar lines as the Balinese), namely what he called 'involution' or the tendency to intensify and elaborate inwards instead of expanding outwards. This was necessary in the economy due to the lack of

available land combined with population growth; however, Geertz found the same kind of process in Javanese religion, poetry and music.

The Moroccans relate to water in a very different way from the Balinese. Not unexpectedly, the situation is one of stark competition over water rights between families. The wells are few and scattered, and the population is also much more scattered than in Bali.

In principle, water is individually owned, but since several families have to share the same well, ownership of water in practice means time-shares in the well; farmers each have a fixed time when they are allowed to use the well. The competition over water thus becomes an individual zero-sum game: what one family gains, the others lose. Unlike the Balinese system, where everyone has to cooperate, this system is based on competition.

Continuing his comparison of Morocco and Bali, Geertz finds a similar opposition between individualism and collectivism in many other contexts too. However, although he acknowledges his debt to Steward, he is careful to stress that he does not intimate that there are simple ecological or climatic causes for cultural phenomena:

This is not geographic determinism. It is an argument that the kind of sociocultural analysis that applies to kinship, village politics, child raising, or ritual drama applies equally, and not just in these two societies, to human transactions with the environment. (Geertz 1971, p. 29)

**Clifford Geertz** (b. 1926) is a leading proponent of hermeneutic (interpretive) method in anthropological research. He has been strongly influential – both as an inspiration and as a target for criticism – for the ‘postmodernist’ trends of anthropology of the 1980s and 1990s, which has subjected dominant concepts and forms of explanation to severe criticism. His early books on Indonesia range from cultural ecology (*Agricultural Involution*, 1963) to religion (*The Religion of Java*, 1960) and nation-building (*Old Nations, New States*, ed., 1965). Since the mid-1960s, Geertz has concentrated on the study of symbolic systems. He has compared the study of culture with the study of texts, and argues that a cultural system can be ‘read’ in a manner analogous with the reading of a novel. Geertz’s view, powerfully expressed in *The Interpretation of Cultures* (1973) and *Local Knowledge* (1983), has been criticised for exaggerating the importance of culture and symbols at the expense of interaction and social structure, and for exaggerating the degree to which cultures are integrated and coherent. Nevertheless, Geertz continues to exert considerable influence, and his position has been seen as an alternative to ‘objectivist’ modes of explanation such as structural-functionalism, structuralism and Marxism.

## HUMAN MODIFICATIONS OF ECOSYSTEMS

Geertz, like many others writing on the nature–society relationship, does not propose a strong hypothesis regarding causal links. This kind of equation includes sociocultural factors as well as environmental ones – in other words, culture and society are not mere effects, but also part of the cause. Humans do not act mechanically on environmental factors, even if such factors affect their actions directly and indirectly.

Some anthropologists writing on pastoralists have worked out accurate formulas which describe the exact interrelationship between the number of animals in a given area, viability limits for households and ecological sustainability. Among the Fulani (see Chapter 5), the lower limit for viability was set at 21 cows and a bull for a young household. There was also an upper limit to the size of herds; both due to social limitations (a household can only herd so many animals) and because too large a herd would lead to the degradation of the grazing land and ultimately lead to desertification.

This way of reasoning makes it tempting to assume that societies are self-regulating in that they do not undermine the ecological conditions for their survival. The global environmental crisis of our time indicates that this is certainly not always the case. Moreover, environmental crises on a smaller scale have occurred earlier too; many pre-industrial societies altered their environment in irreversible ways. Large parts of the Middle East have been desertified during past millennia, chiefly due to overgrazing and deforestation, and similar processes seem to be taking place in parts of sub-Saharan Africa and elsewhere today.

The very fact that it is possible for human societies to undermine the ecological conditions for their own survival ought to prove that we are far from determined by, and perfectly adapted to, our ecosystem. However, this fact also serves as a reminder that there is a continuous, and necessary, mutual exchange between society and environment. Some societies have proven remarkably stable in that they have reproduced a technology which did not alter their environment irreversibly in ways requiring technical innovation or dramatic social change. The Mbuti pygmies have been discussed in an earlier chapter; another example might be the horticultural societies of highland New Guinea. Recent archaeological findings seem to indicate that roughly the same kind of technology which is dominant today was present there thousands of years ago.

Provided the climate remains constant, it seems as though two interrelated factors may dramatically speed up processes of change in the ecological environment: population growth and technological change. Technological changes tend to imply an intensified exploitation of natural resources and an increased use of energy. Population growth is often, but not always, a result of technological change. An area which is capable of sustaining perhaps 1,000 hunters and gatherers, or 2,000 horticulturalists, may perhaps be able to support 20,000 farmers with tractors and chemical

fertiliser, but they will not be able to revert to horticulture and have in this sense lost flexibility (Bateson 1972).

### TECHNOLOGY

Technology, in a very general meaning of the word, consists of the systematised acquired skills and manmade material implements humans reproduce and apply in their dealings with nature. However, it is a notoriously difficult term to define; in a review of studies on technology, Bryan Pfaffenberger (1988) notes that few of the anthropologists dealing with the topic have bothered to do so. One anthropologist who has done this is Tim Ingold; he describes technology as 'a corpus of culturally transmitted knowledge, expressed in manufacture and use' (1979). He stresses, it should be noted, its sociocultural character, and links it to the superstructure in a Marxist sense – along with other kinds of culturally transmitted knowledge. It should also be remarked that technology literally means 'knowledge about technics', and therefore 'technology is to technics what ... linguistics is to language, for instance, or ethology to behaviour' (Sigaut 1994, p. 422). Technology is thus a theory about technics, or as we might say, techniques.

Referring to the political scientist Langdon Winner, Pfaffenberger discerns two main pitfalls common among anthropologists in their dealings with technology. The first is technological somnambulism, which sees techniques as either trivial or irrelevant to social organisation and culture. Technical implements are, according to this view, simply made and put to use, and exert little influence on the way people think and act.

The second pitfall is technological determinism, which claims, often without substantial argument, that technology is of paramount importance for culture and social organisation, as 'a powerful and autonomous agent that dictates the patterns of human social and cultural life' (Pfaffenberger 1988, p. 239). Karl Wittfogel's famous thesis of 'Oriental despotism' (1959) falls into this category. Wittfogel held that the structure of irrigation systems in rice-growing areas in Asia, which he called 'hydraulic societies', inevitably led to political centralisation and despotism.

In his critical article, Pfaffenberger outlines a view of technology which does not, unlike the positions mentioned, 'gravely understate or disguise the social relations of technology' (1988, p. 241). Like artefacts, discussed in Chapter 12, technologies and techniques are cultural products which form part of ongoing processes in society and cannot therefore be studied separately from those relationships. Techniques shape our relationships, but our relationships also shape techniques. The tractor makes sense as a means of production in very different kinds of society, even if it alters the concrete productive process in similar ways everywhere. It is nonetheless obvious that technology frequently does affect society and culture in profound ways. The introduction of the microcomputer in the rich countries from the late 1970s

onwards has not, as anticipated, led to a decrease in the use of paper; but it has transformed parts of the labour market by creating new kinds of jobs and skills. Through the introduction of broadband connections, CD-ROM discs and Internet facilities such as electronic mail and electronic bulletin boards, the microcomputer has enabled and encouraged millions of people to change the structure of their stream of social interaction in significant ways. What is interesting to anthropology is not the techniques in themselves, but which skills people employ and for what purposes, how they are transmitted and objectified, and how the distribution of skills is related to the production of cultural meanings and social organisation. Furthermore, as Pfaffenberger (1988) suggests, technology, seen as often implicit doctrines about relevant techniques, can be studied as a form of ideology – he calls it 'a mystifying force of the first order' (p. 250). This is not least because technology tends to be regarded as 'natural'.

Techniques are embedded in the habitus and in knowledge systems, and technologies may be studied as ideology. However, the techniques result in the creation of material objects, which, unlike words and actions, 'have an enduring physical presence as components of the environment within which communicative events are framed' (Ingold 1994b; cf. D. Miller 1994). It was in this regard that Sartre (1960) introduced the concept of '*le champ pratique-inert*' – the practical-inert field (of action), the material field of building and artefacts which directs human action. Sartre argues that the sheer materiality of architecture and other 'inert material structures' inevitably shapes and freezes social relationships, restricting freedom and confirming hierarchies. At this point, he comes close to material determinism, and to argue against his view it would be sufficient to demonstrate how identical material structures can be used in significantly different ways. On the other hand, this also means that the relationship of humans to technologies embedded in durable artefacts – whether or not they are means of production – needs to be studied empirically.

### SYSTEMS OF PRODUCTION

The world's systems of production may be classified according to various criteria. During the Cold War, a major distinction in everyday language was between capitalist and socialist systems; those characterised by private ownership of means of production and those where the state owned the means of production, respectively. In Marxist scholarship, an important distinction is drawn between the capitalist mode of production and the various 'pre-capitalist' modes. Within this body of thought, the relations of production (property and the ability to control other people's labour power) and forces of production (raw materials, technology) make up a mode of production, and this is considered decisive for the organisation of society.

A different way of conceptualising the differences between economic systems classifies societies according to the dominant mode of subsistence. This, we should note, is not the same as a mode of production, but is related to dominant production techniques. A society of hunters and gatherers may well be capitalistic, provided its members sell their surplus individually in the market-place and buy the bulk of their subsistence goods. Hunters and gatherers may thus, technically, have the same mode of production as industrial societies. Similarly, agricultural societies may well be based on collective as well as individual ownership. The same form of subsistence may, in other words, be dominant under different modes of production.

The following typology aims at suggesting some interrelationships between modes of subsistence and other aspects of culture and society, including technology and the human relationship with the wider ecosystem.

*Hunters and gatherers*, or foraging peoples, generally have a division of labour based on gender and age, and a simple technology. Usually they are organised in small, family-based groups (or 'bands'); they are small-scale societies with (generally) an egalitarian political organisation. They tend to produce small surpluses and generally have limited opportunities for storage. Most such groups therefore have an economy based on immediate return, which does not encourage long-term planning. Some 20,000 years ago all humans were hunters and gatherers; today they exist in scattered pockets in Australia, Southern Africa, the forests of Central Africa, South-East Asia, the Amazon basin and the circumpolar areas. Everywhere they are gradually being integrated into states, and, because of loss of territory, their traditional mode of subsistence is becoming increasingly difficult to maintain.

*Horticulturalists* generally have a more complex social organisation than hunters and gatherers, but they too tend to have a division of labour based on gender and age. Their productive technology includes simple cultivating tools (the most common one is the digging stick), while a widespread technique for manuring consists of burning off fields before planting them (swidden or slash-and-burn agriculture). The main source of nourishment is usually a tuber (yams, manioc, taro, sweet potato), but it may be dry rice or maize. Usually land rights are linked with lineages. Their economy, obviously, implies delayed return. Most horticultural peoples have limited possibilities for storage and produce a limited surplus. Today most horticulturalists are found in the Amazon, in Melanesia, scattered throughout Africa, in South-East Asia and in Madagascar. They are confronted with some of the same problems and challenges as hunters and gatherers, and many are becoming proletarianised.

*Agriculturalists* are, by conventional definition, distinguished from horticulturalists through the use of ploughs and draught animals. They are often organised on a larger scale than horticultural people, and produce enough surplus to have a differentiated division of labour which may include professional specialists such as priests, soldiers, scribes, blacksmiths and chiefs.

Many cultural historians hold that the most important watershed in human history lay in the transition to agriculture, which made a hitherto unknown social complexity possible. Agriculturists' social organisation is frequently hierarchical, and land rights in such societies are usually based on kinship.

*Pastoralists* emerged after the agricultural revolution and not before it, as is often assumed. They always, or nearly always, live in some kind of symbiotic relationship with settled agriculturalists with whom they exchange products. The division of labour is usually based on gender and age, and the social organisation may be as simple as that of hunters and gatherers, a fact connected with the need for mobility and flexibility required by their economic system. The technology of production is flexible and mobile, and the main economic resource comprises animals (in contrast to agriculturalists, who see their chief resource as land, and to hunters and gatherers, as well as many horticulturalists, who see labour as their most important economic resource). Ownership of animals is frequently individual.

*Peasants* are a special case of agriculturalists. Perhaps the majority of the world's population today are peasants. The most commonly acknowledged definition (Wolf 1966) describes them as agriculturalists partly integrated into the world economy. Many of them have to pay rent for the land they cultivate: in peasant societies, land has become a commodity (it can be purchased), unlike the case in traditional agricultural societies. They produce food for subsistence, but also depend on selling and buying in a general purpose money market.

*Industrial societies* are characterised by a very complex division of labour, specialisation of knowledge, separate political and economic institutions, a complex mechanical technology and social integration at a very large scale. Production is organised on the basis of individual labour contracts. Nobody produces food first and foremost for subsistence (even farmers tend to be specialised and buy food in shops), and the anonymous commodity market is a central institution in the economic life of any actor. Industrial societies have centralised states, anonymous labour markets, written legislations and systems of social control integrating an enormous number of people on the basis of principles other than kinship.

Do typologies of this kind make sense? They are certainly simplistic, and today there are scarcely any 'pure' forms left. However, such a breakdown may nonetheless be useful in providing a list of ideal types which reveals the interrelationship between production technology, mode of subsistence and other aspects of culture and society. Later chapters discuss the relationship between oral and written religions, between mechanical and 'concrete' time and between different modes of thought. If it can be agreed that it was not a complete coincidence that anthropology emerged in industrial society and not in a pastoralist society, for example, we need to make clear distinctions between kinds of societies to understand how the diversity of humanity expresses itself in different, but not unconnected ways. When we do so, it is

### Does Protein Deficiency Lead to War?

A long-lasting controversy has concerned the causes of war among Amazonian peoples. According to Marvin Harris, the main cause was the scarcity of protein; he argued that the groups were forced to expand their territory in order to get more food. Napoleon Chagnon, by contrast, held that the quest for women was more important. On the eve of Chagnon's departure for fieldwork among the Yanomamö, Harris and he discussed the topic at a public meeting at Harvard. Harris argued that the Yanomamö probably ate less protein than a Big Mac equivalent per day (i.e. 30 grammes), and dared Chagnon to find out. If he was wrong, he said, he would eat his hat.

In this case, it turned out that there was no correlation between protein deficiency and war. The Yanomamö were well nourished, and, as a matter of fact, the frequency of war was highest in areas particularly rich in protein. Confronted with Harris's view, the Yanomamö themselves admitted that they were fond of meat, but added that they were even more fond of women (Chagnon 1983, pp. 85–6). Chagnon does not tell whether or not Harris actually ate his hat, and the debate nevertheless continues on a different tack, as other scholars working on the Yanomamö have raised serious criticisms against Chagnon's view of them as being particularly warlike.

equally important to remember that these distinctions only exist at the level of the model to facilitate comparison, and that the world outside is always more complex than our models of it.

### CAPITALISM AS A SYSTEM OF PRODUCTION

Throughout the twentieth century, and at an expanding rate since the Second World War, peoples all over the world have become participants in a global world economy. Although global systems certainly did exist earlier (Friedman 1994), the contemporary world system has a formal uniformity, reproduced chiefly by capitalism, the modern state and real-time communication technology, which lacks precedents. The shirt I am wearing as I write this was made in India and my trousers were produced in Portugal; the computer I work on was assembled in Taiwan; the coffee I am drinking is Kenyan, and the rolling tobacco I relish is French. The system of production, consumption and exchange is truly global, and few of the world's peoples are totally unaffected by it.

According to an influential theory about the capitalist world system (Wallerstein 1974–79), capitalism is not merely the dominant mode of production today, but it also sets the limits for – and constrains – other modes of production, whether they are 'pre-capitalist' or 'socialist'. The capitalist

mode of production is ever expanding, according to Immanuel Wallerstein, who sees it as completely hegemonic in our time.

Wallerstein subdivides the capitalist world system into three distinct fields: the core, the semi-periphery and the periphery. In the periphery, economic development depends on the investments and needs of the core areas, and the economy in these areas is subjected to unpredictable fluctuations in market prices, low wages and low rates of investment. It has also been pointed out that the peripheral areas – notably Africa, Latin America and most of Asia – largely produce raw materials for the world market, at prices determined by the demand in the rich countries.

This kind of theory, much of it influenced by Marxist thought, is called dependency theory, since it stresses the fundamental dependence of the peripheral, poor countries on the rich ones and the exploitation of the former by the latter. Although it can be very revealing, it is general and abstract and does not always fit the territory (Worsley 1984, 1990). Frequently, poverty and class differences in the countries sometimes spoken of collectively and simplistically as 'the Third World' can be explained by looking at local power disparities, as in the case of Congo (Chapter 11), and there are also today several examples of former producers of raw materials which have become industrial countries. On the other hand, there are doubtless very important power disparities between 'North' and 'South'. If waged work was uniformly remunerated on a global basis, Colombian plantation workers would earn about as much as apple pickers in the United States, while in fact most of them will never be able to afford a TV set. The underground railway that was opened in Calcutta in the mid-1990s had been largely dug out by hand. This tells us something about the price of labour in peripheral countries, and such disparities are a fundamental feature of the contemporary world economy.

The kind of theory represented in Wallerstein's and others' grand models of the world is nevertheless too sweeping in its generalisations to be immediately applicable to anthropological research. To anthropologists, it is necessary to study processes of change as they are expressed locally, taking as our point of departure aspects of local life. This implies an emphasis on local peculiarities that are generally neglected in world-system theory, which deals with social facts at a different level. In the case of economic activities, this would include an interest in the 'informal economy', a term coined by Keith Hart (1973) to refer to those aspects of the economy that cannot easily be identified, measured and governed — ranging from mutual favours to barter and semi-legal activities. General theory may supplement and inform ethnographic research, but it cannot replace it. Let us therefore turn to a couple of empirical cases revealing local contexts of integration into the capitalist system of production.

### FROM PEASANTS TO PROLETARIANS

In many parts of the world, two modes of production coexist side by side. Marx and others have assumed that one mode would always be dominant

and that it ultimately would replace the 'earlier' (usually 'pre-capitalist') one. But in many societies this has not happened. The most important reason is perhaps that it is profitable for capitalists to keep non-capitalistic modes of production going. If a labour migrant moving from Luoland, western Kenya, to Nairobi is to earn enough money for his own survival, his salary may have to be at least, say, 500 shillings a week. However, if he has a 'shamba' (farm) and a wife and children to work it in his tribal area, it may be sufficient to pay him 400 shillings, as he will then be able to go home at the weekends, bringing food back to town with him. This is actually what a great number of wageworkers in the South do.

It may be said that capitalism, in this kind of context, is parasitic on other modes of production. In large parts of the world, capitalism and subsistence agriculture are combined in the way suggested above. Although many people have become involved in wagework, they may still depend on producing food for subsistence. In other cases, the change may be more fundamental, more or less eradicating the subsistence sector. The following example indicates some of the changes induced by the transition from a peasant mode of production to capitalist wagework.

Ganadabamba was traditionally a typical local community in Peru (S. Miller 1965). Most of the 1,000 inhabitants were Indian peasants and contract workers; the few inhabitants of European and mixed descent worked as administrators at the local *hacienda* (estate). The peasants generally controlled the land they rented from the hacienda; that is, the male head of household controlled it. His control of land was the basis for his local prestige, and although they had to pay rent for the land, land rights were inherited from father to son.

In the lower areas (under 2,500 metres above sea level) maize was grown; in the higher areas, the potato was the main crop. There was wide-reaching exchange between the regions, and this functioned as a form of reciprocity in creating friendship and mutual obligations between the groups.

In connection with rites of passage, religious festivals and harvesting, large public feasts (*fiestas*) were organised. The entire village took part, and the feasts functioned as public rituals in the sense that they gave a visual, dramatised expression of both solidarity and local hierarchies.

From the beginning of the twentieth century, population pressure and scarcity of land forced a number of villagers to travel to the coast as plantation workers. In the early years, they regularly returned to Ganadabamba in the harvest season. They regarded the wagework at the coast as a temporary solution. Unlike the situation in the highlands, where the amount of work was regulated by the seasons, plantation work was constantly hard. Social life on the plantation was, moreover, unstable and unsatisfactory. There were no clubs or gathering places for the contract workers and there was no strong moral community. Individuals were left isolated; it was impossible to bring one's family along to the coast.

Eventually the Indian settlements on the coast became more permanent and the family structure was re-stabilised, largely through female co-migration. The social situation for the proletarianised Indians was nevertheless quite different from how it had been when they were peasants. They now had greater opportunities for social mobility; they could change their jobs, go on strike for wage increases and organise themselves in trade unions. Their children were offered schooling. Simultaneously, they became much more vulnerable than they had been earlier. When people were dismissed by the management, they now had no economic safety net. Other consequences were perhaps even more profound, and are related to the fundamental differences between the respective logics of peasant production and capitalist production.

#### CAPITALISM AND PEASANTRY COMPARED

Capitalist production is split up: the individual worker carries out only a small part of the process of production. It is based on formal hierarchies and individual labour contracts, where the incumbents of the various statuses are replaceable. The production is mediated by money, and the value of the work is calculated as a function of money and measured labour time. The purpose of production is the accumulation of profits, and because of competition technical innovations are necessary.

Peasant production is holistic: the individual takes part in all phases of the process. The organisation of work is based on kinship, local conventions and local hierarchies. The purpose of the production is first and foremost to satisfy the needs of the household. Peasants compete with others only to the extent that they sell products in the market, which is not a main activity. Labour time is not a scarce resource in a peasant economy and it is not measured.

Wageworkers take part in a global system of production, distribution and consumption; peasants are largely integrated locally. Wageworkers further become citizens in ways which peasants do not; as the Peruvian example shows, they may be organised in country-wide unions with an elected leadership and thousands of members who are unrelated and do not know each other except in an abstract way. The unions make demands of the state and the employers, usually in a written form. Peasants (and other 'traditional peoples') have no similar means of making demands towards others apart from their relatives and local power-holders; they usually master no information technology other than the spoken word. Wagework, further, has an individualising effect: the economic unit is the individual instead of the household. Wageworkers can be replaced, and can change their jobs, while peasants are tied to their plot of land.

Wageworkers are integrated into several anonymous structures which contribute to shaping their lives. They can spend their salaries anywhere, buying anything from anybody. The literacy they (usually) acquire enables



them to communicate on a very large scale, at least in principle. They pay taxes to the government, are committed to following the written laws of the country and may make certain demands of the state. Abstract time, which measures the value of their labour power, is another anonymous structure; it is not only valid for you and me but for everybody who follows it, and it serves to synchronise a very large number of persons in an anonymous way. A brief comparison with the mechanisms of social integration prevalent among, say, the Dogon, the Yanomamö or the Trobriand islanders would indicate that capitalism and waged work entail not merely 'economic' changes, but also profound social and cultural changes. There is no simple determinism or a one-to-one relationship, but the capitalist system of production and exchange, once it has become an integral part of local society, inevitably creates new kinds of social relations as it contributes to defining premisses for social relations far beyond the domain of production.

#### SUGGESTIONS FOR FURTHER READING

- Philippe Descola and Gísli Pálsson, eds: *Nature and Society: Anthropological Perspectives*. London: Routledge 1996.  
 Kay Milton, ed.: *Environmentalism*. London: Routledge 1993.  
 Eric Wolf: *Peasants*. Englewood Cliffs, NJ: Prentice-Hall 1966.

## 14 RELIGION AND RITUAL

Rituals always have a desperate and manic aspect.

— Claude Lévi-Strauss

In a study of the Basseri pastoralists of southern Iran, Fredrik Barth (1961) expresses some surprise regarding their lack of religious interest. His surprise is caused by the fact that religion seems to loom large in the lives of most of the peoples described in classic anthropological studies. This may be a major reason why religion has always been a central field of inquiry in anthropology, even if, as Evans-Pritchard (1962) has pointed out, social scientists have themselves often been indifferent or hostile to religion.

In attempting to give non-ethnocentric, comparatively useful definitions of politics, economy, nature, gender and other core concepts, it has repeatedly been shown that we run into problems usually related to the fact that these notions are in use, and have a specific meaning, in our own society and in the anthropological vocabulary, but not necessarily in other societies. This makes them problematic as 'etic' concepts.

This problem is certainly valid where religion is concerned, and few concepts of social science have been defined, revised and criticised more often than this one.

Only a little more than a century ago, it was commonplace in the professional literature to distinguish between religion and paganism on the one hand, and religion and superstition on the other. The concept of paganism was associated with non-Christian religions and, in particular, their practices of public rituals which expressed aspects of the content of the religion. The concept of superstition was largely reserved for descriptions of invisible inter-relationships in the world which neither science, authorised religion nor 'common sense' could account for. From this kind of perspective, Islam and African ancestral cults would be located in the domain of paganism, while, say, the Trobriand islanders' belief that they die because of witchcraft and the common notion, in the Mediterranean region and elsewhere, that some persons are possessed by the evil eye, would be expressions of superstition. In contemporary anthropology, this corresponds to a frequently invoked distinction between religion and knowledge. Religion may thereby be said to include forms of social belief in supernatural powers which are public and which are given public expression through rituals. Knowledge can be defined