dualism. 'It is only in a social context', he argued, 'that subjectivism and objectivism, . . . cease to be antinomies . . . The resolution . . . is possible *only* through practical means, only through the practical energy of man' (cited in Schmidt 1971: 114). It is, perhaps, ironic that while we tend to accept such a thesis in relation to the emergence of the linguistic faculty among early humans – assuming that the genetic capacity for speech is a result of the activities of our ancestors and not of accidental mutations, a thesis going back to Engels (see Faris 1975) – we are also inclined to subscribe to a view that renders modern humans incapable of language-making. Language (*langue*) tends to be regarded as a 'Great Tradition' in Redfield's sense rather than as a Malinowskian 'long conversation'. As I have argued, many anthropologists, inspired by the theoretical distinction between the natural individual and the social or super-organic, operate with a 'natural' model of human action as something taking place in nature, outside society. Such a model is anthropologically inadequate in that it both reduces the producer to an instrument and conflates fundamental social differences amongst production systems.

2 Anthropological discussions of fishing economies

Mauss's work on the coastal Inuit, repeatedly referred to in the previous chapter, has become an anthropological classic. Some of the pioneers of fieldwork and modern ethnography, including Firth (see, for example, Firth 1946, 1965), have also described fishing adaptations in great detail. Furthermore, in recent years, with extended fisheries jurisdiction and tight resource management, anthropologising on fishermen has become quite an industry. Often, however, the anthropological attitute has been that as far as theory and model building is concerned fishing 'doesn't count'. There is a tendency to see fishing activities either as a last resort, a compensation for the deficiency of the terrestrial environment (Osborn 1977), or as mere fun (see Wright 1985: 87). For a long time anthropologists have operated with broad categories of adaptations in order to gain the cross-cultural knowledge deemed necessary for dealing with problems of social evolution. Classificatory labels derived from nineteenth-century evolutionism are still with us, given that people frequently speak of 'hunter-gatherers', 'agricultural societies', 'pastoralism' and so on. While fishing occupies a significant position in some early evolutionary schemes, particularly that of Morgan (1928 [1877]), generally the category of fishing is a curious taxonomic misfit. Given the somewhat obsessive demand for typologies of adaptations in anthropological discussion, the relative absence of 'fishing' from the scene is rather surprising.

In this chapter I discuss the place of fishing activities and coastal economies in anthropological discourse. Focusing on the boundary between land and water may be helpful for drawing contrasts between economic or social systems which are organised in *similar* ways – for instance, for comparing hunter-gatherers of terrestrial and aquatic resources. On the other hand, there is no point in establishing a unitary category of fishing, for in so doing we would have to ignore the social relations in which production is necessarily to be found. I argue that anthropology tends to operate with a 'natural' model of fishing which depicts the individual producer as an autonomous isolate, engaged in the technical act of catching fish.

I emphasise an alternative approach to fisheries which distinguishes between social differences in circulation of products and access to resources.

Hunters and gatherers of aquatic resources

One of the best known evolutionary schemes of the nineteenth century is Morgan's (1928). For him the advent of fishing was of great evolutionary importance. He suggested that the experience of humans had run in 'nearly uniform channels' and that there were three major successive stages or 'ethnical periods' – savagery, barbarism, and civilisation – each representing 'a distinct culture' and a 'particular mode of life' (pp. 8–9). According to Morgan, it was during the period of savagery, the earliest period in his scheme of human history, that fishing had a particular role to play. The acquisition of fishing and the knowledge of the use of fire marked the important transition to the Middle Stage of Savagery, during which humans left their original habitat and spread over different parts of the earth's surface. Fish, Morgan suggested, were the 'first kind of artificial food' (p. 21). Having acquired the knowledge of the use of fire for cooking, humans became 'independent of climate and locality', since fish were 'universal in distribution, unlimited in supply, and the only kind of food at all times available'. The interval of time from the introduction of fishing to the emergence of hunting represented a large part of the period of savagery. Fishing represented an important step in the history of humans, the beginning of a 'new career' (Morgan 1928: 20), *prior* to the hunting of terrestrial animals.

Morgan had little to say about the earliest stages in his scheme and he did not cite many ethnographic examples. Africa, he said (p. 16), was 'an ethnical chaos of savagery and barbarism', while Australia and Polynesia were in savagery 'pure and simple'. He claimed that there were no surviving examples in his day representing the Lower Stage of Savagery, the period of gathering representing the origins of the human race and of articulate speech, but nevertheless he felt confident in claiming (p. 20) that 'neither an art, nor an institution' was developed during this stage. Indeed, the whole reasoning on which Morgan based his ethnical periods does not show much respect for empirical detail. On the one hand, he claimed that the division into ethnical periods directed investigation to tribes which 'afford the best exemplification of each status, with the view of making each both standard and illustrative' (p. 16). This would render it possible to treat a particular society 'according to its condition of relative advancement' (p. 13). But on the other hand timing really did not matter. 'It does not affect the main result', Morgan wrote (1928: 13), 'that different tribes . . . on the same continent . . . are in different conditions at the same time, since for our purpose the *condition* of each is the material fact, the *time* being immaterial'. Just how the condition of relative advancement was determined was never made clear. Morgan's theory of evolution rested on a rank order of essential types rather than the reconstruction of chronological sequences.

Engels (1942 [1884]) greeted Morgan's theories with enthusiasm, since he asserted that during the first stage of evolution, social life was undifferentiated and the notion of private property non-existent. He began his book *The Origin of the Family, Private Property and the State* with a dedication to Morgan as 'the first man who with expert knowledge has attempted to introduce a definite order into the history of primitive man' (p. 19). Morgan's writings were particularly useful since some of them were based on comparatively detailed and original fieldwork. In *The Origin* Engels adopted a scheme very similar to Morgan's, restating his ideas about the stage of Savagery and the role of fishing during its Middle Stage. In *The German Ideology* he had, however, along with Marx, identified the stages in the history of humans and their progression somewhat differently. Hunting and fishing represented the first substage of the 'undeveloped' stage of production, identified by tribal ownership and the elementary or natural division of labour imposed by the family (see Marx 1964: 122).

According to some of the important evolutionary theories of the nineteenth century, then, primitive fishing represented a separate and early stage in the history of humans. Such an idea was underlined in many contemporary accounts of particular groups of people largely dependent on fishing. In his *Journal*, Darwin provides a lengthy description of the fishermen of Tierra del Fuego. Having met a group of Fuegians, Darwin noted that these 'poor wretches were stunted in their growth . . . [and] their skins filthy and greasy . . . Viewing such men, one can hardly make oneself believe they are fellow-creatures and inhabitants of the same world' (1871: 234). As Meehan points out (1982: 5), Darwin's observa-

tions on Tierra del Fuego were sometimes used to illuminate archaeological information on shell-middens discovered in Denmark, the so-called 'kitchen-middens'. Lubbock reproduced Darwin's description, adding that it gave 'a vivid and probably correct idea of what might have been seen on the Danish shores long ago' (1913 [1869]: 242). Tylor came to a similar conclusion, describing how 'shell-heaps . . . are found here and there all round the coasts of the world . . . for instance on the coast of Denmark, where archaeologists search them for relics of rude Europeans, who, in the Stoneage, had a life somewhat like that of Tierra del Fuego' (1916 [1875]: 207).

In a study of the Emeryville shell-mounds in California, Uhle expressed opinions similar to those Darwin had expressed for the Fuegians. The collecting of shells, he said, 'in itself indicates a low form of human existence' (1907: 31). Such opinions clearly had a life of their own. Whereas Lubbock used ethnographic bits to illuminate the records of the past, Uhle was quite prepared to leap in the other direction, from the archaeological record to the ethnographic present:

> In all parts of the world, even today, people may be seen on the shore at low water gathering for food the shells uncovered by the retreating tide; . . . these people always belong to the lower classes of society, and lead in this manner a primitive as well as a simple life (Uhle 1907: 31).

The evolutionary scheme proposed by Morgan has probably few adherents nowadays, even though some twentieth-century scholars, notably Childe (1944, 1951), continued to discuss the stages of social evolution in similar terms. Morgan's scheme, however, foreshadows in some respects some fairly recent ideas, including those of Sauer (1962) regarding the sea-shore as a 'primitive home of man'. Sauer rejects the popular 'man the hunter' hypothesis of human origins. He suggests, like Tanner (1981), that primate behaviour fails to indicate that aggressive males were the founders of human society. Humanity began, Sauer says (1962: 308), with the maternal family, 'not out of a roving promiscuous troop dominated by the strongest, most virile, and most aggressive male'. But while Tanner refers to a 'woman the gatherer' hypothesis to explain human origins, Sauer reinvents Morgan's idea of fishing being a new career:

> The hypothesis . . . is that the path of our evolution turned aside from the common primate course by going to the sea. No other setting is as attractive for the beginnings of humanity. The sea, in particular the tidal shore, presented the best opportunity to eat, settle, increase, and learn . . . It gave the congenial ecological niche in which animal ethology could become human culture (Sauer 1962: 309).

A similar hypothesis of 'aquatic man' (perhaps more fantastic) was proposed by Hardy (1960), in a speech delivered to the British Sub-Aqua Club. He suggested that human ancestors, some proto-humans in the tropics, were forced because of the competition of 'life in the trees', to feed on the sea-shores where they learned to swim and physically adapt to aquatic life:

> The graceful shape of Man – or Woman! – is most striking when compared with the clumsy form of the ape. All the curves of the human body have the beauty of a well-designed boat. Man indeed is streamlined (Hardy 1960: 643).

We tend to laugh at Hardy's theory of 'aquatic man', but some distinguished archaeologists took it quite seriously at the time, while disagreeing with some of its aspects.[1] Dart argued (1960) that human exploitation of aquatic resources was more recent than Hardy suggested, and much more significant. According to him, early humans were mighty hunters, 'confirmed killers' (see Binford 1983: 36). The adaptation to aquatic regimes, he suggested, did not alter the physiology of humans, rather it was significant because it sparked a 'mental' discovery which led to civilisation. Humans learned to swim by capturing their breath and blowing it into some kind of float. Such knowledge in turn was the source of articulate speech:

> Man's first intellectual *tour de force* was equating the power of the spirit within him with that in the float and with that of the air or wind about him, and expressing that concept by specific breaths or words . . . (This) intellectual achievement . . . transformed the isolated hordes of hunters into those communities of fishermen and boatsmen that launched mankind on the sea of civilization (Dart 1960: 1670).

Unfortunately, speech does not preserve well in the archaeological record, but if Dart is right about the late origin of civilisation, human physiology must have then developed totally independent of culture and the neurological capacity for language must have been

'vacant' for tens of thousands of years among silent, at least speechless, hordes of hunters, who finally got into deep waters and started to speak. That is a rather fishy theory of language and human evolution.

Indeed, such 'man the fisher' or sub-aqua club theories contradict the archaeological records. Rather than being particular or specialised stages, as Morgan and many others suggested, fishing, hunting and gathering often occur together. Also, fishing seems to be a much more recent occupation than Sauer and Hardy suggest. There is no indication that fishing preceded hunting and that human physiology was adapted to aquatic life. The oldest remains to indicate an economy in which fishing was of considerable importance, shells and fishbones from Haua Fteah in Libya and Klasies-river in South Africa, have been dated at 50 to 80 thousand years old (Yesner 1980). The evidence indicates that marine subsistence had progressively intensified by the end of the Pleistocene, from about 20,000 BP onwards, and that there was an 'explosion' in the use of shell fish during the Holocene in many parts of the world (Bailey 1983: 560).

The archaeological interpretation of the 'facts' concerning the recency of human exploitation of aquatic resources is, however, contradictory. Some scholars suggest that, from the point of view of early humans, aquatic environments must have been an inadequate source of food, and therefore the negative evidence must be taken for granted (Schalk 1979: 57). Washburn and Lancaster (1968: 294) conclude that, whatever the nutritional value of aquatic resources, water must have posed a danger to early humans: 'it is likely that the basic problem in utilisation of resources from sea or river was that man cannot swim naturally but to do so must learn a difficult skill . . . For early man, water was a barrier and a danger, not a resource'. Given such barriers, some scholars suggest that it is surprising that marine resources were exploited at all even at this 'early' date; see, for example, Osborn's article (1977: 158), significantly entitled 'Strandloopers, mermaids, and other fairy tales'. Others suggest that coastal zones must have been quite attractive, providing a worthwhile challenge, and that people may have exploited them long before the Holocene without leaving us modern groundlings any evidence. Shells are not particularly perishable and some shell-remains are in fact older than the earliest evidence for human exploitation (Cohen 1977: 94), but it is still quite possible

that earlier coastal adaptations were submerged by rising sea levels (see, for example, Perlman 1980).

Many archaeological debates have centred around the formation of sites and the meaning of existing deposits, for instance the debate about Dart's theory of early man as a bloodthirsty killer.[2] The modern debate about the recency or antiquity of coastal adaptations is somewhat peculiar in that the issue is not existing sites but rather the *absence* of any sites at all. Bailey concludes (1983: 561) that while there is some evidence for the latter view mentioned which emphasises the importance of rising sea levels, the evidence available at present suggests only that *some* marine exploitation took place during the earlier period and that it was not of comparable intensity to later Holocene exploitation levels. While the archaeological evidence indicates that, contrary to Morgan's claim, fishing was not a new career predating the hunting of terrestrial animals, none the less among hunter-gatherers fishing may have played quite an important role.

An influential model of hunter-gatherers emphasises their unity as nomadic food collectors (Lee and DeVore 1968). It has been customary, as Childe remarked years ago (1965: 71), to contrast settled life with the nomadic existence of the 'homeless hunter'. It has long been known to both archaeology and ethnography that some hunting and gathering societies, in particular the fishing societies of the north-west coast of North America, do not fit into the classic image of the simple society of mobile hunter-gatherers (see Murdock 1969), but deviations from the classic model of hunter-gatherers have usually been taken as exceptions. It has rarely been suggested that there is a *general* relationship, among hunter-gatherers, between reliance on aquatic resources and social organisation. Recently several authors have seriously considered such a possibility. Thus Renouf (1984) develops a model of coastal hunter-fishers in northern environmental zones, in order to explain characteristics resembling food-producing societies and differing from stereotypic hunter-gatherers. Compared with the latter societies, she argues, northern coastal hunter-fishers live in larger groups and in more permanent settlements. Yesner (1980) distinguishes maritime adaptations generally as a subset of hunting and gathering, capable of supporting complex social organisation and permanent settlements. What exactly is the evidence from the 'ethnographic present'?

Illustrative comparison is often employed by anthropologists. While such an approach is important for raising interesting issues and for clarifying key concepts, for instance concerning mobility and sedentism, it has serious limitations. Those who rely on illustrative comparison sometimes assume they are testing hypotheses or discovering correlations where none exist (Barnard 1983: 199). By definition, the illustrative sample is unsystematically selected. Larger and more carefully selected samples provide an opportunity to examine a number of questions derived from isolated cases and to test statistically hypotheses which would otherwise remain sheer speculation. The use of cross-cultural data-bases, however, is not devoid of problems. First, there are problems relating to ethnographic significance. Just as the archaeological record has to be considered in terms of both context and the processes which produced it, similar interpretations are ideally required if quantitative information is to be made meaningful. Also, there is a problem of sampling, the so-called 'Galton's problem'. We can never be sure that the cases in our sample are genuinely independent or distinct cases to allow for a meaningful cross-cultural comparison. As Wolf has put it, 'we are back in a world of sociocultural billiard balls, coursing on a global billiard table' (1982: 17).

A simple way to operationalise nomadism in hunter-gatherer societies, perhaps the most straightforward, is to define it in terms of continuous interval variables. This is Kelly's approach (1983). He employs Binford's influential distinction (1980) between foragers who 'map onto' resources and have a high residential mobility and collectors who are less nomadic and employ a logistical strategy, supplying themselves with specific resources through specially-organised task groups. It may be argued, however, that some population movements in hunter-gatherer societies resist the simple dichotomous distinction of Binford and Kelly between foraging and collecting (Eder 1984); Everybody is on the move all of the time, apparently simultaneously employing 'logistical' and 'residential' strategies. Kelly (1983) defines residential mobility as the number of residential moves per year, and logistical mobility as the distance covered on travels to and from a residential camp on foraging trips. His analysis, based on a sample of thirty-six hunter-gatherer societies selected from a variety of environmental biomes, demonstrates a series of relationships between mobility strategies and the structure of the environment, resource accessibility and monitoring

characteristics. Kelly, however, is not concerned with the exploitation of marine resources and much evidence indicates that mobility strategies *are* related to reliance on aquatic resources (Perlman 1980; Testart 1982). Indeed, Kelly notes himself (see p. 289) that some of the expected relationships between mobility strategies and environmental properties, given the approach of Binford (1980), only hold true as long as one controls for reliance on aquatic resources and that a division between terrestrial and marine resources 'may prove to be heuristically useful' (p. 279). Reanalysis of Kelly's data for residential mobility shows that there is no relationship between reliance on gathering and number of residential moves per year (Pálsson 1988a). In the case of hunting, on the other hand, the Pearson correlation is strong and positive (0.50) and in the case of fishing there is a fairly strong negative correlation (−0.40). The more reliant on fishing, the fewer residential moves there are per year. Just to mention the extremes in Kelly's sample, the Aleut make only one move per year and receive 60 per cent of their diet from fishing, while the Ona make 60 moves and receive 20 per cent of their diet from fishing.

Nomadism, it is often argued, involves different kinds of population movements. Some groups seem to be fully nomadic, moving without any reference to a fixed place. Thus, several groups of south-east Asian sea-nomads or 'sea gypsies' as they are sometimes called – including the Mawken (the Selungs), the Orang Tambus, and the Sekah – live in boats and migrate continually from one location to another, fishing and gathering in nomadic fashion (see Sopher 1965). Murdock remarks in relation to the Mawken that they 'have no land settlements but . . . wander at will' (1969: 144). Secondly, there is movement between one fixed point and several peripheral locations each of which is reused irregularly. An example is provided by the Tlingit who are tied down to a central place but follow annual runs of fish for weeks and even months at a time. As Krause observes, for the Tlingit the canoe is a 'second home, . . . in it they carry all their household possessions, as well as the gear for fishing and hunting' (1956: 120). A third case involves movement between a centre and several peripheral locations each of which is reused regularly. This applies to some seasonal changes of residence in the Salmon Area of the north-west coast of North America: 'nothing could be more stable than the repetition, year after year, of the same shifts of residence from winter village to a round of

summer fishing camps, invariably at the same sites, and in the same sequence' (Hewes 1948: 241). Murdock's (1967) operationalisation of 'settlement pattern' in the *Ethnographic Atlas* assumes these kinds of nomadic movement to be not only qualitatively different but also differing in degree of movement.[3]

Computations show that for the the 220 hunter-gatherer societies recorded in the *Atlas* there is a relationship between mode of subsistence and settlement pattern (see Pálsson 1988a). The more important is fishing, the more compact and permanent the settlement. The fishing societies with compact and relatively permanent settlements are Aleut, Alsea, Bellacoola, Chinook, Chugach, Coos, Eyak, Haida, Hupa, Karok, Kwakiutl, Paraujano, Quileute, Siuslaw, Sivokakmei, Tanaina, Tillamook, and Wiyot. The opposite picture emerges in the case of hunting and gathering of terrestrial resources; the relationship between it and permanence of settlement is significant and negative. Binford (1980) seems to assume that settlement pattern is a response to 'effective temperature' (ET) or the length of the growing season and the distribution of resources. And several scholars have made use of his argument that there is a latitudinal gradient in the occurrence of logistical strategies and permanence of settlement (see Schalk 1979; Cohen 1985). One might argue, however, that the relationship between terrestrial ecology and settlement pattern is a spurious one, and that settlement pattern is responsive rather to the nature of the resources exploited, i.e. the extent to which they are terrestrial or aquatic (see, for example, Perlman 1980: 293).

Using the information of the *Atlas* one can further examine the relationship between settlement pattern, fishing, and ecological conditions. If one controls for terrestrial ecology, holding it constant, the relationship between degree of fishing and permanence of settlement remains fairly strong. This indicates that settlement pattern is responsive to a reliance on aquatic resources and that one must qualify Binford's interpretation that permanence of settlement is a function of distance from the Equator. Reanalysis of Kelly's data (1983) shows similar results (Pálsson 1988a). Settlement pattern is not the only measure of social complexity which correlates with the importance of fishing. There is also a positive correlation with group size and degree of local hierarchy or social stratification. The more reliant on fishing a group of hunter-gatherers is, the larger and more stratified the group. The fishing societies with the

largest communities (100–399) are those of the Aleut, Haisla, Lummi, Makah, Shuswap, Tareumiut, Tenino, and Tlingit. In the case of hunters and gatherers of terrestrial resources, on the other hand, there is either no correlation with group size and degree of stratification or a negative one. One has to conclude that fishing societies differ significantly from other hunter-gatherer societies in that they exhibit a greater social complexity.

One may speculate – on the basis of such relationships amongst reliance on aquatic resources, permanence of settlement and social complexity – on the possible role of aquatic resources for prehistoric social development. Childe (1965: 71) has argued that the contrast between mobility and sedentism is 'quite fictitious' and that sedentism itself does not mark a neolithic transition. He emphasises the distinction between food-collection and food-production; the collector, he says (p. 66), 'remained content to take what he could get', while the neolithic revolution gave the producer 'control over his own food supply'. Given such a distinction, the kind of evolutionary change usually referred to as the neolithic revolution did not occur among settled fishing peoples. Such an assumption is made explicit by Steward: 'no one doubts that hunting and gathering preceded farming and herding and that the last two were preconditions of "civilization" . . .' (1955: 28). Others suggest that the abundance of resources in coastal zones may have provided an opportunity for the development of complex civilisations. Murdock argues, for instance, that 'it is by no means improbable that fishing may have played a very important cultural-historical role in mediating the transition to early agriculture' (1969: 144). Godelier makes a similar point (1986: 116). This is what Binford terms the 'Garden of Eden' principle. He rejects such a model of agricultural origins on the grounds that it leads to the view that some people must have been more intelligent than others: 'why else would they have grasped so early the Great Truth of the Least Effort Principle, while others ignored its self-evident advantages?' (Binford 1983: 202).

There is some evidence for a transformation of hunter-gatherer social relations in coastal regimes although many of the important issues involved are far from settled (see, for example, Marquardt 1986 and 1988 on the Calusa in Florida). In sixteenth-century Cuba, one may note, turtles were caught with the aid of sucker-fish and kept alive, presumably as property, in underwater reed corrals

(Weddle 1985: 28). But just as on its own an abundant supply of coal does not explain an industrial revolution, the abundance itself of aquatic resources does not account for a transformation in social relations. To account for the transformation of the hunter-gatherer way of life different models are needed (see Hitchcock 1982). Among the models proposed are those which emphasise changes in the social demands of production in response to intergroup competition or the need to establish and maintain alliances (Lourandos 1988; Bender 1978), and those which draw attention to the relationship between coastal and interior zones (Yesner 1987). Rather than seeing aquatic resources themselves as determinants of complexity one should regard coastal niches as just one possible avenue for intensification.

The issues involved in the debate on the development of complex society and the importance of aquatic resources are not simply empirical. There is a conceptual issue at stake as well. Complex and sedentary societies should not simply be seen to be quantitatively different from simple and mobile hunter-gatherers. Presenting evolutionary change in terms of a continuum from mobility to sedentism conflates the different meanings of 'settling down'; it may refer both to an irreversible transformation and a reversible process (see Eder 1984). But the question remains, how and why does the quantum leap take place as either land or animals become appropriated through property relations? Somehow, the study of variability among foragers and its social and ecological correlates in the ethnographic present must be relevant for the understanding of diachronic social processes, of evolutionary change. Interesting as these issues may be, they are beyond my main concern. I briefly return, however, to some of the issues involved later on, in my discussion of social differences among fishing systems.

The definition and the category of fishing

So far we have taken the category of fishing as given. But what does it contain? In medieval Europe it was customary to distinguish between three kinds of technique on the basis of the medium in which the prey moves – i.e. fishing, fowling and hunting. Walton, for instance, makes much of such a distinction in his book *The Compleat Angler* [1653]. It begins with a chapter entitled 'A Conference betwixt an Angler, a Falconer, and a Hunter, each

commending his Recreation'. In everyday language, the notion of fishing still has similar connotations, usually being broadly defined as the 'attempt to catch fish by any means or for any purpose' (*Webster's Dictionary*). An even broader notion of fishing is implied in Hornell's cross-cultural survey *Fishing in Many Waters* (1950). Not only does he describe the different ways of fishing among humans, but he also provides a whole chapter on 'Animals trained to fish and fishes that angle for their living'. Some animals (including otters, cormorants, and sucker-fish) can be forced into the fishing service of humans, while others (including sea birds, 'feathered fishers', and angler-fish) fish for themselves, independent of humans (Hornell 1950: 33). Apparently, for Hornell, fishing is anything catching anything that is under water.

An interesting early paper which deliberately addressed the problem of definition is that of Hewes (1948). He claims that the distinctiveness of fishing activities has two aspects. First, objects behave in a particular manner while in an aquatic substance, due to special conditions of buoyancy, turbulence, solubility and refraction of light. Second, hunters and their prey occupy different media. For land-dwelling animals like humans, aquatic environments are 'a realm which can be exploited as if the exploiters moved in a universe with an additional dimension. The horizontal surface of water bodies, through which or from the edges of which a fisherman inserts his catching devices, has no counterpart in the terrestrial environment' (Hewes 1948: 238). This 'reality' of the distinction between land hunting and gathering on the one hand and fishing on the other, according to Hewes (p. 239), suggests a definition of fishing based upon the habitat of its object. Accordingly, he proposes (pp. 239–40) an 'ecological' definition of fishing as 'that category of human activity which is connected with the capture or gathering, of animals (or plants) which regularly dwell in the water'.

Such concepts of fishing, as a particular kind of hunting which happens to yield fish, are one element of a widely-accepted anthropological scheme for classifying types of technique: gathering, collecting, hunting (including trapping), husbandry (including fish farming), and plant cultivation. Ellen suggests (1982: 128–9) these categories have some degree of cross-cultural objectivity, 'being recognised indigenously as distinct types'. The argument has been developed that fishing is 'best considered as a kind of hunting

activity' and that such a notion is implied in many languages (Leap 1977: 252). Leap examines fishing-related terminologies in thirty-three languages and concludes that, from the point of view of indigenous speakers, fishing and hunting are similar strategies, 'differing only with respect to the commodity which serves as the focus of the subsistence effort' (pp. 256–7). It is necessary, however, to qualify Leap's generalisations. The classification of aquatic organisms, including 'fish', varies from one society to another. Also, indigenous terminologies do not necessarily distinguish between hunting and other subsistence activities, including trapping, collecting and gathering. For instance, the coast Salish, who harpooned salmon and netted seals and ducks, used a broad term which translates as 'sea-food producer' (Suttles 1968: 63). Another example is the Icelandic term *veiðar* which can be applied to fishing, the gathering of shellfish, and the trapping and hunting of terrestrial animals. A further example is provided by the Gidjingali of Australia who use the same term to describe both male and female 'hunting prowess', the skills needed in the pursuit of shellfish as well as more mobile species (Meehan 1982: 119).

Much like medieval European hunters often distinguished between fishing, fowling and hunting, modern anthropology tends to operate with three concepts of foraging – fishing, gathering and hunting. Both schemes are exemplars of what Dumézil called (1958) the 'ideologie tri-partite' of Western culture, the tendency to postulate three categories on the basis of pairs of binary oppositions. Thus the distinction between three modes of foraging is usually based on two oppositions relating to the species exploited (mobile:stationary) and their habitat (terrestrial:aquatic). Such a classification was used by Murdock (1967: 154) in the construction of the *Ethnographic Atlas*. When coding societies according to their economic basis, the relative importance of different modes of subsistence in each case, Murdock used the following categories: (1) 'gathering of wild plants and small land fauna', (2) 'hunting, including trapping and fowling', and (3) 'fishing, including shellfishing and the pursuit of large aquatic animals'. Such a broad definition of fishing incorporates different kinds of activities, from the capturing of mobile prey to the gathering of passive objects, on the basis of their common link to water. Thus Hewes states that the distinction between 'capturing' and 'gathering' should not be emphasised since 'clams may elude the gatherer by burrowing,

while highly mobile small fishes are usually acquired by some scooping process with an effort as unlike "capture" as shaking fruit from a tree' (1948: 240). The participants of the Man the Hunter symposium argued (see Lee 1968: 41) to the contrary that the pursuit of large aquatic animals was more properly classified as hunting and that shellfishing should be classified as gathering.

Ingold argues (1987: 79) that such categories are fraught with ambiguity, even as categories signifying types of activity, and that there can be no reasoned comparison until anthropologists reach agreement on what they mean. The contrast between gathering and hunting, he points out, is usually based on the distinction between collection and pursuit as fundamentally different methods of procurement, whereas the contrast between fishing and hunting is based on biological classification, i.e. the kinds of species obtained. A strict adherence to behavioural or technical criteria would not, he suggests, eliminate the problems of orthodox classifications of food-getting activities. For one thing, in such a scheme the category of fishing would have no place at all, for fish-yielding activities would be included under different categories – gathering, hunting and entrapment (Ingold 1987: 81). Sopher remarks, one may note, in relation to the sea-nomads of south-east Asia who use the 'simple' methods of harpooning and diving in shallow water, that 'it would certainly be preferable . . . to refer to these people as "sea hunters and gatherers" rather than "fishermen" (Sopher 1965: 218). Ingold suggests a characterisation of hunting and gathering which is independent of both technical and biological criteria. For him, the essence of human hunting and gathering, as opposed to animal predation and foraging respectively, lies in the prior intention that motivates the producer and not in some overt behavioural characteristics associated with a particular type of technology or a particular organism, mobile or stationary.

From this perspective, both fishing (in the sense of capturing fish) and the procurement of shellfish may be 'hunting', because both activities involve expectation, excitement and a purposeful search for sites (Ingold 1987: 92–3; Meehan 1982: 119; Plath and Hill 1987), and not simply (as Hewes argues 1948: 240) on the grounds that shellfish may be no less evasive than fish. Thus, Plath and Hill suggest (1987: 153) that abalone diving in Japan, a women's occupation, 'deserves to be classed with hunting rather than lumped with other forms of marine collecting' on the grounds that even

though the quarry may be sedentary 'it can be taken only by aggressive search and seizure'. An expert diver, they argue (p. 155), 'has to be something of an adrenalin freak'.

Some recent models of fishing go far beyond the narrow context of techniques and food-getting activities in their attempts to embrace its social aspects. However, in some respects they do resemble the ecological and technical models of fishing activities previously discussed. A few examples from the literature will help to illustrate this. Acheson (1981) emphasises that fishing takes place in a relatively uncertain environment in a physical and social sense. He suggests that for this reason 'fishing poses some very unusual constraints and problems' (p. 277). People who adapt to earning a living by exploiting marine resources seem to manage their lives in similar ways and develop similar social institutions which reduce competition and uncertainty and spread the risks of production. Crew organisation is often flexible and based on voluntary ties but not on structural principles or kinship obligations, to ensure co-operation and the right combination of skills. In sum, Acheson suggests fishing societies have a range of characteristics in common due to the fact that their members have to adapt to corresponding environments and cope with identical problems. A similar approach is that of Norr and Norr (1978). Having surveyed the literature on fishing communities, both pre-industrial and modern, they conclude (pp. 163–4) that several 'technical and environmental constraints' distinguish fishing from other modes of subsistence. Even though differences in terms of such constraints are associated with differences in work organisation, the constraints common to *all* fishing encourage a particular organisation, including teamwork and equality among workers (p. 169). A further example is Breton's analysis (1973) of changes in fishing communities in Eastern Canada. Breton argues that different ways of organising work groups must be seen 'basically' as 'adaptive strategies' for the exploitation of a given resource (p. 412) and that despite their variability, fishing communities in general are characterised by relatively 'fluid' social units (p. 393). One aspect of this flexibility is the predominance of dyadic contractual ties between autonomous individuals.

These approaches are reminiscent of Steward's method of cultural ecology. Steward defines his concept of 'cultural core' as the 'constellation of features which are most closely related to subsistence activities and economic arrangements', including 'such social, political, and religious patterns as are empirically determined to be closely connected with these arrangements' (1955: 37). In his view, social life is mechanistically adapted to the material world. One of the best-known exemplars of Steward's approach is his analysis of the band in hunter-gatherer societies. For Steward, the ecological basis of bands arose from the nature of the animals people hunted. In the approaches of Acheson, Breton, and Norr and Norr, the constraints of uncertainty and resultant organisational responses are equivalent to material context in Steward's approach. And fishing crews are somehow equivalent to the band. The social organisation of coastal communities is seen to be primarily an adaptive response to the hunting of evasive aquatic prey, a response analogous to Steward's 'cultural core'. In his comparison of work groups (which, significantly, cites Steward's work) Breton argues, for instance (1973: 412), that 'it is at the level of the factors of production . . . that each type of group achieves greater specificity. Although their formation is influenced by socio-demographic factors, such as residence patterns and community size, they depend primarily upon particular ecological and technical requirements'.

Archaeological accounts of fishing also tend to emphasise technical requirements. Torrence (1983), for instance, contrasts hunting and fishing largely in terms of technology. She points out, following Oswalt (1973), that tools used for the capture of aquatic animals tend to be particularly complex because the medium in which the animals move demands complicated retrieval strategies. The fish must not only be speared but also they must be successfully brought ashore. The emphasis on technology is not surprising, given that archaeologists are concerned primarily with material evidence. Childe comments, in his evaluation of archaeological classification of stages of technological development (Thomesen's 'Ages'), that 'a classification based on the property relations within which tools were used might be more significant', adding that 'however sound this may be in theory, one trouble is that the archaeological record is, to put it mildly, vague as to the social organization of preliterate communities' (1944: 23).

Many models of fishing, then, emphasise material and technical constraints. Why such 'natural' models have gained the popularity evident from the literature on fishing remains open to question. One reason relates to the fascination of the leisured classes of

Europe during earlier centuries with the individualistic pursuit of mobile aquatic (and terrestrial) prey. For them, fishing was a non-subsistence activity, with a distinct recreational value or quality of its own. Walton's *Angler*, which for long time held a position in book sales similar to that of the Bible or of Shakespeare (see Jonquil 1988: 68), provides a good illustration. Walton comments on his own work that although 'it is known I can be *serious* at seasonable times . . . the whole Discourse is . . . a picture of my own disposition, especially in such days and times as I have *laid aside business*, and gone a-fishing' (n.d.: 6, emphasis added). For Walton, catching fish was an artistic experiment. He describes angling employing the metaphors of mathematics and poetry: it is 'so like Mathematicks, that it can never be fully learnt' (p. 7), and 'somewhat like poetry' for 'he that hopes to be a good angler, must not only bring an inquiring, searching, observing wit, but he must bring a large measure of hope and patience, and a love and propencity to the art itself' (p. 27).

The English Game Laws from 1671 defined hunting as the privilege of substantial landowners (see McCay 1987: 197). Inland fishing was also transformed into a privilege of the upper classes. For Walton and many of his contemporaries, hunting and fishing were, above all, manly activities for 'princes and noble persons'. Walton describes hunting as 'a game' which 'trains up the younger nobility to the use of manly exercises in their riper age . . . How doth it preserve health, and increase strength and activity?' (n.d.: 20). It is easy to see how the Western explorer who usually placed himself at the top of the evolutionary ladder could none the less identify with even the most 'savage' fisherman as a fellow *homo ludens*. Fishing was a game, a test of sportsmanship. Tylor remarked (1916: 214) that 'on the whole it is remarkable how little modern fishermen have moved from the methods of the rudest and oldest men'. These cultural values of Western society are reflected in early theories of human evolution. As Tanner points out (1981: 23–4), the concept of 'man the hunter' pervades most earlier speculations about the life of the first hominids. Nineteenth-century theorists and observers often showed explicit admiration of the individualistic pursuit of mobile aquatic prey. Lubbock states (1913: 539–40), for instance, that 'having few weapons, . . . savages acquire a skill which seems almost marvellous'. Some Patagonian tribes, we are told, live chiefly on fish 'which they catch *either* by *diving*, or striking them with their darts', South Sea Islanders dive after fish which 'takes refuge under the coral rock; thither the diver pursues him and brings him up with a finger in each eye'. They are 'even more than a match for the shark, which they attack fearlessly with a knife' – and so on.

The natural models of fishing are not without their faults and critics. Alexander points out (1982: 259) that while there are real empirical differences between fishing and other modes of subsistence (agriculture), the use of such differences establishes a framework which gives misplaced importance to marine ecology. 'Almost unwittingly', he says, 'ecological functionalism has become the major mode of explanation'. Indeed, the notion of adaptation – to the 'nature of the game', as Steward put it – used by many writers on fishing is similar to that employed by the founders of ecological functionalism. Several authors have pointed out that there has been a tendency, 'something of a *tour de force*' (McCay 1981: 2), to look for parallels between trawling, 'industrial hunting' (Andersen and Wadel 1972), and small-scale fishing. Faris remarks (1977: 235) that a taxonomy which regards such widely different organisational forms as worthy of comparison on the grounds of their common link to water makes as much sense as 'a biological classification which lumps together whales, fish, and submarines and separates them from bats, birds and airplanes'. From this perspective, the category of fishing is a clumsy taxonomic lumpfish.

Not only does the materialist emphasis conceal differences between fishing societies, it also ignores differences between the fishing activities of humans and those of other species. Ingold argues (1986: 252–3) that in Steward's discussion (1955) of the band, social organisation reduces to a behavioural pattern, an instrumental apparatus pertaining to ecological or material relations and not the social relations of production, and that such an approach makes no distinction between the sociality of animals and the purposive activity of socially-constituted human beings. The same may be said of many accounts of 'co-adventure' in fishing. Thus, the comparative work of Hornell (1950) deliberately correlates the fishing activities of humans and animals. Hornell describes the purposeful action of pelicans which follow a familiar plan when they drive schools of fish into shallow water. Such 'co-operative' fishing, he says, is 'carried out *in much the same way*' as the fish-drives of Indian villagers (p. 29, emphasis added).

Figure 2.1 *Fishing with cormorants* (from Hornell 1950)

In Japan, we are told, humans sometimes fish with the aid of cormorants (see Figure 2.1). A group of cormorants, which have a ring of metal around the lower part of their necks, spread out in their search for fish and when one is caught it is swallowed. If the fish is small it passes the ring and becomes the 'perquisite of the bird', but if too large to pass it remains in the gullet pouch. Every now and then the 'master' lifts the bird from the water and lets it disgorge the contents of the pouch.

While there is no mention of the social relations of humans in Hornell's account, the cormorants are said to be 'exceedingly jealous of their rank and of the privileges belonging to seniority' (1950: 32). But even though both birds and humans interact with each other in the process of extracting fish, and in both cases some may be more equal than others, it would be wrong to assume that both groups are doing 'the same', as Hornell implies. Just as the spider does not 'hunt' when it captures insects (see Ingold 1987: 95) – in the sense that, unlike humans, it captures its prey without any consciousness of self and time – the cormorant does not fish. Hornell's account of fishing as the application of a technique may be somewhat extreme, but many attempts at defining and classifying production systems similarly emphasise technical relations and types of activity.

One way to understand similarities and differences among fishing systems, to emphasise the *social* context of production, is to distinguish between societies in terms of mode of circulation – the motivation of the producers and the destination of the products. There are two modes of circulation in the sense that production may be primarily for exchange or primarily for use. In the former case where production is motivated by the accumulation of profit and capital, in market economies, production targets are indefinite. What matters, from the point of view of the producer, are abstract exchange values, not concrete goods or use values. In the other case, the 'domestic mode of production' (Sahlins 1972), production is motivated by the subsistence needs of the domestic unit. The household unit is not a self-sufficient one, but given the emphasis on use values and livelihood, production is set low and resources consequently under-used. Summing up the evidence in relation to hunter-gatherers, Barnard and Woodburn argue that the theory has stood up well to ethnographic research, emphasising that it is not *wants* that are set low but production targets (1988: 12). The theory of the domestic mode of production was developed earlier in relation to peasant economies. Chayanov's theory predicts that there is a 'natural' limit to peasant production in that the intensity of labour is proportional to the total needs of the household, including the ratio of consumers to workers, taxes, and debts.

Many economic anthropologists have made use of Chayanov's theory (see, for example, Durrenberger 1984a).

Restrictions of access to resources: closure and tenure

Another way to compare fishing systems is to distinguish between modes of access to resources. This distinction merits some discussion because of the important conceptual and practical issues involved. For some time it was generally assumed that, since fishermen are usually unable to control the resource-base they exploit, the seas have everywhere and always been open to all. Pastner suggested, for instance, that 'among fishermen cross-culturally there is . . . a characteristic policy of viewing the sea as a collective resource' (1980: 17). Norr and Norr even declared that 'there are no reports of fishermen asserting rights to specific fishing areas' (1978: 166). Recently a number of anthropological studies have shown beyond doubt the falsity of such statements, pointing out that in many fishing societies people have developed indigenous means of regulating access to fishing grounds (see, for instance, Durrenberger and Pálsson 1987b; McCay and Acheson 1987; Berkes 1989; Cordell 1989; Pinkerton 1989). In some cases, local groups of users successfully control the reproduction of renewable resources without external intervention, effectively 'co-managing' local resources (Jentoft 1989). In Asia and the Pacific, the ownership of fishing territories has a very long history and such coastal regimes have been well documented (see, for example, Ruddle and Akimichi 1984; Ruddle and Johannes 1985).

It would be wrong, however, to view ethnographic reports about restrictive access to aquatic resources and fishing space as entirely new phenomena. Early reports on Californian Indians, for instance, contain numerous references to the appropriation of fishing places. Waterman's work is particularly outspoken in this respect. Waterman argues that among the Yurok fishing places represent 'private holdings', 'a primitive form of real estate' (1920: 218). Ownership of fishing places was inherited (often through females) and contracted in marriage negotiations. As a result, the property holdings of an individual or a single family were often scattered over a large area. Private fishing places, typically pools where a dip-net could be used for catching salmon, 'were owned by individuals. They could be sold, bartered, and bequeathed like any other property, and

they changed hands quite frequently. Their value depended on the number of fish they supplied . . .' (Waterman 1920: 219). In practice, Waterman argues, the rules of ownership of fishing places were highly complex. Some places were jointly owned by several individuals, others were owned by one man 'for salmon' and by another 'for eel', and still others were appropriated by squatting on them if the 'original' owner had been forgotten. Kroeber makes similar remarks for the Patwin. Some fishing places, he argues, are 'privately owned', 'used only with consent, part of the catch being given the owner' (Kroeber 1932: 277).[4] While such ethnographic reports were neither unique at the time nor restricted to river fishing or North American Indians, they remained largely forgotten. In Murdock's *Ethnographic Atlas* (1967), one may note, there is some information on 'property rights' in relation to land and rules for inheritance, but no information at all is provided on restrictions of access to aquatic resources.

Anthropologists, then, have demonstrated beyond doubt that access to fishing territories is often restricted. There remains, however, a conceptual disagreement as to how to account for property rights, how to define the concept of property, and how to interpret restrictions of access. In *Moby Dick* (Chapter 88), Herman Melville discusses the problem of deciding when wild animals in a state of nature, 'loose fish' as he called them, become somebody's property or 'fast fish'. Did a whale become fast fish as soon as a whaler invested his labour in the chase or, later on, at the moment of capture? For Melville and his fellow whalers the problem of deciding what constitutes property was often a pressing one: 'after a weary and perilous chase and capture of a whale, the body may get loose from the ship by reason of a violent storm; and drifting far away to leeward, be retaken by a second whaler, who in a calm, snugly tows it alongside, without risk of life or line' (1962: 422). In drawing the contrast between the 'weary' chase of the first whaler and the 'snugly' capture of the second, Melville seems to opt for a labour-theory of property, much like the one of Locke, which suggests that one becomes an owner of a thing by mixing one's labour with it. Melville's problem has often been discussed in real life with reference to the famous court-case of *Pierson v. Post* which attracted the attention of New York judges in 1805, a case that continues to intrigue students of property institutions and human-environmental relations (see, for instance, Rose 1985; McEvoy

1988). This case involves a contest between two fox hunters. One hunter had chased and flushed his prey when another hunter entered the scene, shot the animal, and carried it away. The majority of the court agreed with the second hunter. The fox, they reasoned, remained in a 'state of nature' (*ferae naturae*) until someone took possession of it by performing a clear act, by capturing the fox or killing it. By extension, the court abandoned the theories of Melville and Locke. A fish stops being 'loose' and becomes 'fast' at the moment of capture, not before. Such a definition of property was not only clear-cut and time-saving for judges; it also encouraged hunters to compete against each other, thereby making hunting more efficient.[5] Rose points out (1985: 75) that while an examination of the ways in which title to wild animals is acquired may seem a silly, academic question, the analogy of the wild animal continues to show up when courts have to make decisions on a non-statutory basis about 'fugitive' resources that are being appropriated for the first time. Oyster planting in New Jersey is one example. In this case American courts had to decide whether planting oysters in natural spots where oysters grew naturally entailed private property or not. The court decided in 1808 that oysters in unnatural beds were 'tame' and therefore subject to property claims, while oysters planted in natural beds were 'wild', an 'abandonment' comparable to capturing a deer in a forest and setting it free again, making it fair game for anyone (see McCay 1984: 25).

The issue of ownership of aquatic resources, of course, continues to have important practical implications. It is also an issue which touches upon larger theoretical discussions of the relationship between the individual and the collective. A labour-theory of property may well hold cross-culturally in that, generally, people seem to assume that 'whatever I, as an individual, obtain from nature or make by myself using my own labour is residually recognized as in some sense my property' (Barnard and Woodburn 1988: 23). Possessions, however, take many forms and, moreover, they should not be seen to reside in the autonomous individual. Adopting a social or constitutive view of the individual, allows one to locate the issue of property – to search for the roots of title and possession – in the community of persons. As Ingold argues (1987: 227), 'the chain of property can neither begin with individuals nor end in the resources they procure; rather it must end where it began, in the

community of nurture from which spring the producers and in which the food is consumed'. Given a constitutive model of the producer, the act of possession derives its power – its 'illocutionary force', as speech-act theorists would have it – not from an 'external', superorganic script, nor from the natural powers of the self-contained individual, but from the momentum of social life itself.

One of the conceptual issues raised in the growing anthropological literature on appropriative regimes, often referred to by the label of 'territoriality', involves the distinction between the spatial and the social. Some anthropologists subscribe to what may be called a *proxemic* approach in that they tend to talk about appropriative regimes in terms of a spatial continuum. (The term 'proxemic' is borrowed from Hall who used it to refer to the ways in which humans structure and use space in face-to-face interaction (Watson 1970).) While followers of the proxemic model in the human sciences are unlikely to agree with biologists who claim that the general function of territorial behaviour in the animal kingdom is 'to gain property rights' (see Jolly 1972: 140), the proxemic approach in the comparative study of humans emphasises, much like that of biologists, that restrictions of access differ in degree rather than kind, and, furthermore, that their application and development in different societies and historical contexts are explicable in terms of a single analytical model of territoriality. Hall suggests that somewhere along the proxemic continuum there is private territory, a broad category including, beside landed property, a beggar's beat and a man's 'favourite chair' (Watson 1970: 35). For Sack, a geographer who uses the term 'territoriality' in a general sense for spatial strategies developed in order to influence people and resources, the task of the theory of territoriality is 'to disclose the possible effects of territoriality at levels that are both general enough to encompass its many forms, and yet specific enough to shed light on its particular instances' (Sack 1986: 216). Levine (1984) presents three different types of 'ownership' or controlled access in New Zealand – each of which is a response to a particular degree of 'social distance' or 'community connectedness' – as lying on a punctuated continuum. As long as the people defending territorial claims speak of 'ownership' they must be regarded as 'owners': 'To deny the significance of . . . ownership because it is not recognized by the state', he says, 'seems ethnocentric' (p. 97). Cashdan (1983) and some others have argued that

the characteristics and manner of territorial control in different societies are similar, differing mainly with respect to ecological factors that determine the cost-benefit ratio for various forms of defence – in particular, the density of distribution of a resource and its predictability. Smith (1988) develops a similar analysis. While he distinguishes between several ways of managing territorial access, he emphasises that different land-tenure systems in hunter-gatherer societies should be seen as a continuum and that 'the labelling of types and enumeration of their characteristics is heuristic rather than typological in intent' (p. 246). Acheson discusses restrictions of access to fishing space in similar terms, suggesting that different appropriative regimes are best regarded as responses to uncertainties, particularly ecological ones (1989: 375). No doubt, knowledge of the species fished (mobile versus stationary), technology (the gear used), and environmental features (bottom characteristics), to some extent allows one to account for differences in territorial control (see, for instance, Levieil and Orlove 1990 on Peruvian fishing).

While knowledge of ecology and fishing techniques is important for the understanding of different forms of managing access to fishing space, one should not ignore the social space in which they occur. Different ways of managing access – for instance, the informal exclusion of outsiders by means of secrecy, the division of total allowable catch into quotas, and the formal, communal ownership of local territories – should not be regarded as functionally equivalent proxemic devices. To subsume every form of restriction of access under the label of 'territoriality' is simplistic ethnography. Equally, to refer to them with the Western label of 'ownership' seems ethnocentric. Applying spatial or proxemic criteria alone, we may distinguish between systems with 'open access', with no limitations of access of any kind, and systems with restricted access. Adopting a *social* approach to the issue of territorial access, considering the social system of the producers, allows one to make a further important distinction – namely, between 'tenure' and 'closure' (see Figure 2.2). Relations of tenure, property relations, are means of disproportionately appropriating resources within given boundaries. While closure also involves erecting and maintaining spatial boundaries and excluding outsiders, and sometimes with success, it does not, in contrast to tenure, involve social appropriation of the resources themselves. The distinction between closure and tenure, then, underlines the

fact that while territorial access may be 'closed' or restricted, the resources need not at the same time be appropriated as property. On Ponam Island in Papua New Guinea, for instance, 'ownership' of fishing territories or uncaught fish 'in no way denotes rank of any sort, . . . what is reserved . . . is the right to catch the species, not the right to eat it or to enjoy first fruits' (Carrier and Carrier 1989: 104). Closure occurs in a variety of contexts: skippers may occupy the same fishing location for extended periods, as I argue later on in relation to Icelandic fishing, by misleading their competitors or by threatening them to destroy their gear. Local groups of fishermen using different kinds of fishing gear may agree upon privileges of access merely to prevent conflicts and the intermingling and loss of gear. And sacred grounds may be demarcated for religious purposes, for the purpose of identification, or for preventing overexploitation. What I am referring to as 'closure', is often referred to as 'territoriality' in the literature on hunter-gatherers.[6] I prefer to speak of 'closure' when speaking of humans, simply because of the general biological and ethological connotations of the concept of 'territoriality'.

Given the distinction between 'open access' and 'closure', the appropriation of fishing space is only a matter of *degree*. Some territorial claims may be strong while others are weak. The contrast with 'tenure', on the other hand, is a matter not of degree but of *kind*. What counts is the character of the social relations involved,

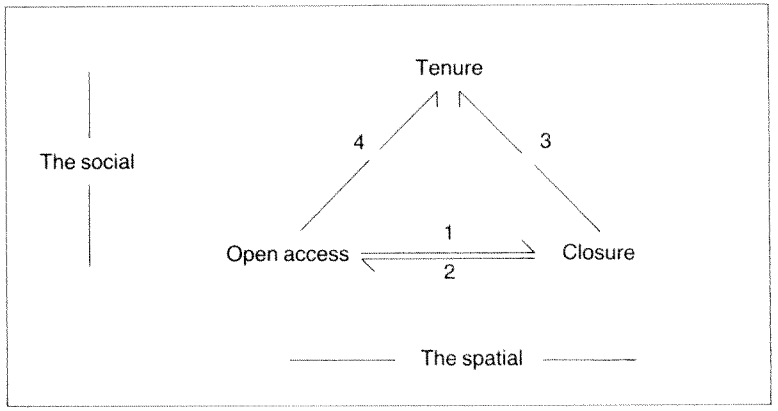

Figure 2.2 *Three ways of appropriating fishing space*

the presence or absence of relations of property. Resources are either ownable or non-ownable. I am not suggesting that this is the only distinction of relevance for the discussion of the ways in which people appropriate fishing space. Indeed, a refinement of concepts denoting property and spatial access would be a worthwhile task for a human ecology of fisheries. I should also emphasise – and this follows from the argument about the social nature of the individual presented above – that the act of closure is every bit as social as a property claim. I am merely emphasising the importance of paying attention to social differences among appropriative regimes, differences which have often been ignored in the literature. It is essential to recognise such differences if one wants to understand evolutionary change.

Indeed, an important anthropological problem is to understand the adaptive and evolutionary significance of systems of appropriation – of their construction, logic and historical transformation. It may be helpful to refer again to the triangle of Figure 2.2, this time paying particular attention to the arrows indicating a change from one mode of access to another. Open access is characteristic of hunter-gatherers. Among the Batek of the rain forest of Malaysia, where most food resources are relatively abundant, resources are regarded as non-ownable, and no attempts are made to restrict access to them. The Batek 'are not territorial in any of the usual senses of the term' (Endicott and Endicott 1986: 140). No doubt, as pointed out above, the change from open access to closure, represented by arrow number 1 in the figure, is related to ecological variables. Ecology, however, does not fully account for variability in closure. The Endicotts conclude that the models of systems ecology do not provide adequate explanations for the absence of territoriality among the Batek, emphasising that territoriality 'is not merely a relationship between people and their resources, but also one between people and other people' (p. 158).

Closure is not necessarily a permanent state of affairs for it can easily be reversed. Arrow number 2 represents groups that reverse back to open access. Some production may take place in open territories while some resources are subject to territorial constraints. As a group places less emphasis on the latter, for whatever reasons, it becomes less territorial. Arrow number 3 represents the transition from closure to tenure. It may be argued that such a change is more likely among sedentary groups than among more mobile ones. As

I argued above, hunters and gatherers of aquatic resources are typically of the former category. Generally, the change from closure to tenure is not a reversible one; once territories are defined as property they tend to remain so. The evolution of tenure is not a matter of a gradual change, but a quantum leap, a transformation in social relations.

In state societies, access to fishing territories is often restricted by informal 'territorial' means, by 'closure'. In the lobster fishery of Maine in the United States, described by Acheson (1988) and Bowles and Bowles (1989), to have access to fishing space means to belong to a harbour 'gang', to respect its rules and to identify with its members. Access to fishing areas is negotiated among informal groups of fishermen. Similarly among crabbers and shrimpers in the Gulf of Mexico, a communal, territorial system of 'self regulation' has developed (Overbey 1989). How such informal rights are translated into formal property institutions remains a puzzle to anthropologists, no less than resource managers and indigenous producers in different parts of the world. Sometimes such a transition takes place within a framework of ethnic conflict whereby indigenous claims are translated into formal rights recognised by the state; see, for example, Davis (1989) on the Yolngu of Australia and Levine on the Maori of New Zealand (1989). Levine shows how, in the midst of an ethnic revival, the Maori managed to gain formal recognition of their traditional fishing rights, after a fierce cultural and legal battle. Native demands for the acknowledgement of cultural rights to resources were 'successfully translated into . . . material claims' (Levine 1989: 31). Libecap (1989) has developed a micro-oriented approach for understanding the bargaining and lobby efforts involved in such cases – the 'contracting' for property rights. The transition from open access to tenure, indicated by arrow number 4, may be exemplified with recent developments in many Western fisheries. During the last years fishing grounds have been appropriated by national authorities which divide the total allowable catch for a season among producers, often the owners of boats. The Icelandic fishery is one example.

The differences among fishing economies emphasised above – in terms of modes of circulation of products and access to resources – insufficiently represent the variety of production systems there is. On the other hand, they help to illustrate the fundamental point that fisheries are embedded in social life. As we will see in later

chapters, such distinctions are helpful analytical tools if one wants to account for differences in cultural models and cognitive change – to account for indigenous theories of the 'art' of catching fish.

With European exploration and the discoveries of new worlds from the fifteenth century onwards, an ever-increasing body of information regarding the different forms of human society was accumulated. Bewildered by the perplexity of available data and the problems they posed for their ethnocentric world-views, Europeans established typologies for classifying different societies and making sense of their variability. Somehow the new worlds had to be assimilated. Nineteenth-century evolutionism deliberately addressed the problem, and so does, by definition, modern anthropology. The early anthropologists, however, did not only turn to the study of the 'tribal' stage to assimilate the exotic but also in order to demolish the familiar. In domesticating the primitive in their discourse, the founders of anthropology constructed a classic image of the original condition of humanity, a condition fundamentally different from that of their own society. The general image of the primitive among early evolutionists accommodated many ideologies and rhetorical purposes. The 'illusion' of the primitive, as Kuper remarks, was 'good to think' (1988: 9). Fishing was an important category, along with other 'arts of subsistence', in many of the evolutionary schemes of the nineteenth century. With the advent of fieldwork and modern anthropology, on the other hand, descriptive accounts tended to replace evolutionary speculations, crude environmentalism was replaced by possibilism, and 'fishing' became much less visible than before – often being subsumed under the label 'hunting and gathering'. As I have shown, however, the social organisation of hunter-gatherers of aquatic resources is significantly different from that of hunter-gatherers of terrestrial resources.

In Western, agrarian society, fisheries have for long been considered inexhaustible. If they were inexhaustible, there was no need to claim exclusive rights to aquatic resources or fishing territories and, as a result, fishing space was generally defined as an open, undivided territory. Colonial expansion during the sixteenth and seventeenth centuries further reinforced the legal definition of the seas as a free territory. Such a definition, formulated by Hugo de Grotius in 1608 in the well-known and highly influential treatise of the 'freedom of the seas', became accepted in international law

to further the expansion of European capitalism. Open-access, common property in European fishing, then, is a social institution with a history of its own. While the rationale may have differed from one area to another (American law originally favoured a common-property definition to avoid the kind of suffering that the common man in medieval Europe had experienced as a result of the enclosure of terrestrial commons, the 'tragedy of the commoners' (McCay 1987)), generally, open access was taken for granted in Western law. If open access was regarded as a natural state of affairs in Western fisheries, it is not surprising that many scholars have been 'blinded by a Western conception of the sea' when dealing with fisheries in other parts of the world (Kalland 1990: 188). Sometimes anthropologists and early travellers failed to notice customary restrictions of access to fishing territories simply because ordinarily they associated institutions of property with the land (Cordell 1989: 9).

As we have seen, many approaches to fisheries, both of the present and the past, suggest a 'natural' model of fishing, emphasising material context and ecological relations. Such an approach has important implications for the anthropological understanding of coastal economies and fishing activities. In focusing on extraction and removing 'fishing' from the context of social relations, anthropologists have often failed to recognise the importance of the relations of men and women and the significant economic role of women in fishing economies. The issue of gender, then, tends to be suppressed or distorted due to the application of the 'natural' model. The issue of territorial access, discussed above, is another example. If one follows the 'natural' model of fishing, assuming that fishermen are merely operating on nature, the 'wild', one is likely to assume, as Mauss seemed to do, that resource-use, by definition, cannot be subject to social constraints, the 'tame'. The different kinds of social restrictions that *are* employed with respect to fishing territories tend to be presented as equivalent proxemic devices. An alternative anthropological approach to fisheries is needed which appreciates the social differences between fishing systems.