Land, Culture and the Biology of Man (PART I)

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TWO arguments are traditionally used against the private ownership of land:

1. This form of tenurial system can be economically very inefficient—as when urban land is left idle, while people live in slums or ramshackle caravans;

2. It is morally wrong for a few people to monopolise the natural resources on which a community depends for its very biological existence.

These are, in fact, just subsidiary parts of a larger argument against private ownership of land. In essence, the private appropriation of land is anti-evolutionary— a statement which, when expanded, will be seen to include the economic argument and to imply the moral one.

As we trace the various forms of land tenure, in Part II, we shall note that they become progressively complex as they adapt to new innovations which change, and sometimes improve, man's capacity for coaxing greater yields from nature thereby permitting increases in the size of populations. Underlying all these systems which pre-dated the right to alienate and inherit land are three fundamental principles:

Regulation: society, not the individual, determined the structure of land tenure systems.

Distribution: benefits from land were shared out on a social, not an individual, basis.

Efficiency: individuals enjoying access to parcels of land did so for as long as they could show both need for, and use of, the land.

Thus, we shall see that individuals enjoyed rights of use, not outright ownership; that land was redistributed as changing demands for it—as with fluctuations in population—altered; and that the rules governing changes in use rights were vested not in individuals but in some wider social group.

Interest in land tenure systems goes beyond a narrow concern for any theory of property rights or economic modes of production. These systems, in fact, were integral parts of on-going processes in the human experience, processes intimately related to each other but which we shall separate, for analytical purposes, in the following way. They were vital for *social cohesion,* without which there would have been no stability to enable man's ancestors to develop a tool-using culture. They were vital for *conserving the ecological environment* within which man had his niche. And finally, they were of *biological importance,* in that they facilitated the evolutionary survival and development of man as the dominant member of the primate species. These can be properly understood only within the context of evolution, a few concepts of which need to be briefly stated.

1. *Evolution*

Man, and his cousins the monkeys and apes, have a biological history — according to archaeological evidence — going back about 50 million years. They must be understood as products of an evolutionary process, which takes the form of *adaptation.* Alland[1] defines it thus: "Evolution is a process through which systems develop and are modified in relation to specific environmental backgrounds. All the theory requires is that there be mechanisms of variation (producing new variables) and mechanisms of continuity (preserving maximization) present in these systems and that these systems be subject to environmental selection."

The process of evolution is in the direction of maximized efficiency within the context of ecological niches. "Species which are able to maximize their self-regulatory capacities in relationship to more generalized environments may widen their niches and override previously successful species. Warm-blooded animals, for example, spread into a wide range of environments differentiated by temperature competed successfully with less well-adapted cold-blooded forms." Alland[2] adds: "A higher degree of maximization means that more individuals can survive and exploit an environment."

Life has existed on earth for over two billion years, and the fossil record shows that there has been an increase in the total number of species—the result of continuous and successful specialisation of species into specific ecological niches. Some have failed to sustain the process of adaptation, and are now extinct; man is a relatively new species, with a distinct record going back about two million years. He has come to dominate earth in the way that no other creature has been able to, through exploiting the second of two major types of adaptive behaviour in the animal kingdom: learning. Through the medium of culture, man has reduced his dependence on the primary mechanism—innate responses, or instinct. Thus, as a culture-bearing animal, he stands at the opposite end of the developmental scale from simple organisms like the one-celled protozoa in which even innate behaviour is limited to a small range of responses.

We have to be careful not to assume that evolution has been a simple process, a linear one moving

from simple organisms to complex man. Nonetheless, evolution is directional, taking the form of adaptive sequences. And man, thanks to his culture, is the most complex of creatures (measured in terms of the different environments in which he can live, and the numbers of people he can support).

Culture is so crucial in the process of human evolution that we have to stress that it has been part of the total environment within which man has had to adapt himself (Dubos).[3] For example, man's bipedal gait freed the hands from locomotive activity; this enabled the human hand to develop the opposable thumb for gripping tools, the fashioning and use of which required the development of the brain.

In a sense, then, which is not true of other creatures in the animal kingdom, man has helped to make himself. Diet is an example worth citing, for it can be related to the aspect in which we are interested—territoriality. By hunting for, and eating meat, man's ancestors accomplished two things. First, they acquired animal protein high in energy-giving calories. Secondly, to be successful, hunting had to be arranged on a cooperative basis, which in turn influenced social organisation. We are specifically interested in the cultural systems of land tenure which sprang out of the instinctual behaviour called territoriality.

2. *Territoriality*

Lancaster[4] defines territoriality as "the maintaining of exclusive access to a home range from other members of the species who do not belong to the same social group, usually through active defence or aggressive display." This part of the story of natural evolution, of the connection between social groups and specific territories, goes back "several hundred million years to palaeozoic times, and has taken a major part in shaping the course of animal evolution," according to Wynn-Edwards[5] in his influential study of *Animal Dispersion in relation to social behaviour.*

The concept represents an extremely complex interaction between organisms and their physical environment (although it is popularly represented by a Stone Age man, axe in hand, standing at the entrance of his cave ready to take on all-comers). The biological foundations of territoriality and related phenomena are most thoroughly reviewed in Chapple's[6] *Culture and Biological Man.* The problem for primates, other mammals, and fish and birds, is to locate themselves in spots where they might eat, procreate and be safe from predators. Chapple emphasizes that "wherever they may locate themselves, this location is partly controlled by those others with whom they react and interact"; and furthermore, the site chosen "has its own special properties. These play an essential part in maintaining an active neurophysiological state."

Chapple lists two factors at work in the individual organism's identification with a territory:

(a) The familiar environmental setting is crucial to the arousal of the reticular formation of the brain—which is central in controlling the orientation process of one animal towards another. "Without such environmental settings within which adequate outlets for spontaneous activity can be obtained, the organism can undergo severe physiological trauma. Reliance on the familiar, safely providing the intermediate states necessary for dynamic equilibrium, in fact enables the organism to function at a level approaching its optimal state." Organisms identify with, because they are adapted to, their ecological niches.

(b) The self-regulating behavioural mechanisms used by an organism as a result of interaction with the environment produce emotions associated with the territory. Take, for example, the problem of producing a stable population. Population growth is controlled by the way in which crowding, resulting in territorial conflicts, influences the endocrine system and so the appropriate physiological functioning of the organism.

The interplay of organic, social and ecological factors produces a beautiful harmony in nature (called homeostasis), a balance which permits stability in specific groups and long-term conservation of their environments. This creates the conditions for survival and evolutionary development.

3. *Animals*

Heape,[7] as early as 1931, boldly asserted: " . . . although the matter is often an intricate one, and the rights of territory somewhat involved, there can, I think, be no question that territorial rights are established rights amongst the majority of species of animals. There can be no doubt that the desire for acquisition of a definite territorial area, the determination to hold it by fighting if necessary, and the recognition of individual as well as tribal territorial rights by others, are dominant characteristics in all animals. In fact, it may be held that the recognition of territorial rights, one of the most significant attributes of civilisation, was not evolved by man, but has ever been an inherent factor in the life history of all animals."

Research has since fully substantiated this assessment. Many creatures have been studied, from three-spined sticklebacks to Southern Michigan wood mice, from the Uganda kob to the Swedish thick-billed nutcracker. (The most readily accessible bibliography appears in Ardrey.[8]) Various methods are used to stake out the territorial boundaries (for example, mammals and the use of scent, birds and the use of sound).

One of the first researchers into the territorial behaviour of animals, zoologist William Burt,[9] defined at an early stage the crucial importance of staking out and sharing land. Territorial behaviour, he observed, was important for regulating food supplies, controlling the density of populations and—through dispersal—minimising the effects of plagues. After the early field studies, based on observation through bino-

culars, experiments were conducted which yielded fascinating data. Carpenter,[10] for example, manipulated dominant members of a troop of rhesus monkeys.

> "The relation between the maintenance of a group's territorial range and the dominance status of males in interacting groups was clearly shown . . . . After I had defined the dominance rank for the seven males of Group 1 on Santiago Island, I captured and held in confinement first the most dominant male, then the next most dominant and then the third most dominant male of the group. I observed this group almost continuously for five consecutive days following each removal of a dominant male. The first and most important change which followed the removal of the most autocratic male was a marked reduction in the territorial range of the group. Whereas, Group 1 had previously not only had a relatively exclusive territory but also at times ranged freely throughout the territories of the five other groups on the Island, especially at feeding time, now Group 1 was confined to its own limited range within a coconut grove. Clearly the wider freedom of group movement depended upon the dominance of Group 1's supremely dominant male relative to the most dominant male of neighbouring troops."

We know that animals which find themselves in the periphery of their territory react as if they were feeling insecure and they become most aggressive and self-confident against intruders when standing in the centre of their territory. (Thus, animals on their home range almost always win in any conflict situation, even when the intruder is physically much stronger.)

The limitations imposed by having to be physically present to observe animal behaviour have now been partly overcome. Deer, among other animals, have been tracked by means of radio communication; and it is even possible to use satellites to track polar bears.

4. *Ideology*

The concept of territoriality, in its application to the human species, is a controversial one. There are two principal reasons. The first is that we have only begun, in the last two decades, to scratch the surface of the cultural and biological implications of territoriality for man; much more empirical research and clarification of concepts need to be undertaken.

The second reason is that the notion of territorial behaviour has been partially distorted — with the greatest interest being shown in aggression and the establishment of hierarchical systems—and used ideologically. The man who has done most to both popularise and damage the concept is American playwright Robert Ardrey.

In *The Territorial Imperative,* Ardrey argues that the territorial behaviour of animals validates the argument for private ownership of land in human social systems. As proof, he cites the agricultural yields from collectively-run state farms in the USSR, which compared very badly with the economic performance of small family-owned farms in the USA. He states:

"In any final inspection of the Soviet-American experiment with the territorial imperative, one might thumb through statistics as dreary as they are endless to demonstrate the superior efficiency of the man who owns over that of the man who shares or works for wages."

This reasoning is based on faulty logic; for if it were true, we would have to find a statistically significant difference in the performance between the tenant and landowning farmers of the UK or the USA; such a difference does not exist. But since Ardrey emphasises *peasant* farmers working harder if they own their plot of land, we can produce an interesting piece of evidence against his ideological stand. Chayanov,[11] a Russian agronomist, carefully studied the economic performance of peasants in the last decades of the nineteenth century. He found that, for various reasons, peasants who owned their land curtailed their labour inputs at an earlier stage than peasants who had to pay rent for their land. Yet according to Ardrey's interpretation, the reverse ought to have been the case!

It is the perverse use to which Ardrey puts what he calls "the biological value of the pair territory" which has given critics ample opportunity for diminishing the value of territoriality as a biological mechanism regulating (in part) the behaviour of man (Alland, 1972). Freedman,[12] a professor of psychology, who recently examined Ardrey's work, boldly asserts:

"I hope this makes clear how misleading this argument is as evidence for the existence of an innate territorial imperative in man. Unfortunately this is the kind of argument and the kind of evidence that is often presented as 'proof' of innate biological mechanisms in human beings."

In fact, the weight of evidence so far accumulated is sufficient for us to firmly declare that man does, in part, react to a biologically determined pattern of behaviour which we call territorial. In Part II, we shall examine examples of how that territorial faculty has been adapted to increasingly complex cultural developments, in order to serve the long-term social and biological interests of the human species.

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