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PERSPECTIVES ON THE SOCIAL CONDITIONS OF THE TRANSITION
FROM APE TO HUMAN

BY

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...The creation of an isolated individual outside of society
(a curiosity which can indeed only befall a civilized man who is
cast away in a wilderness and who already possesses in himself
dynamically the social forces) is as much an impossibility as
the development of speech without individuals who live together
and speak to each other.

--Marx, Grundrisse

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Abstract

In this thesis, questions about human nature, human origins, and socio-cultural evolution are explored from a broad theoretical overview and critical perspective. The scientific approach of dialectical-materialism is taken to derive specific conceptual categories by which to determine the underlying structures of social systems and the dynamics of systemic change.

Various established notions which equate humans and non-humans behaviourally and socially are reviewed (e.g., ethology and paleontology) and found to be lacking both in methodological application and in their usefulness in providing theoretical paradigms for social research. Moreover, discussion of functionalist socio-cultural theory reveals serious drawbacks for developing adequate processual theory in the functionalist framework.

The alternative proposed here is a dialectical approach which takes a relational view of social reality--which sees all aspects of the system as inter-dependent and internally dynamic. And, which considers change as a permanent, ongoing phenomenon which occurs as two levels: the functional level (quantitative change) and the systemic level (qualitative change). Evolutionary change is a process of qualitative change in which systems generate entirely new systems. Accordingly, human society represents an example of a distinct system which is unique in its capacities and potentialities from animal societies. The major distinction lies in the fact that human social organization is dominated primarily by social forces rather than biological forces.

This qualitative difference may be more fully understood by examining the specific social relations that exist among human beings

as they pool their labour, skills, and knowledge in predetermined, economic activities which are necessary to their lives. These social relations are manifest through social production which is activity and process through which humans are capable of more than just functionally maintaining themselves as individuals, but are able to express the needs and potentialities of the collective group through subsistence production, labour allocation, recognition of differential social relationships (such as kinship or class relations), language, and the products of these-- art, religion, science, recreation, and family life.

The inter-relatedness of social forms and their dependence on necessary structural relations is emphasized in this analysis along with continuous testing of an hypothesis that suggests the emergence of social production as the necessary, unifying condition of cultural life. Lastly, some observations are put forward with regard to the strengths and limitations of this particular perspective and its implications for developing anthropological theory.

INTRODUCTION:

World views about culture and human nature are basically historical philosophies which grow out of the political and economic milieu of their times and therefore change rather predictably from century to century, from decade to decade in more or less conformity with the state of affairs surrounding them. As social scientists, we should make sure that we understand the basis of our ideas and the relationship they have to concrete social phenomena so that our analyses take into account, as much as possible, this historical reality without blinding us to their "truth" or "fiction" or "rightness" or "wrongness" of our interpretation.

In keeping with this task, the ideas about human nature, instinct, consciousness, man's role or purpose, etc. must be put in their proper perspective as historical and social products rather than as mere facts.

We are sometimes inclined to believe that all science from the ancients through the Medieval scholastics and right up to the "age of reason" was nothing more than mythology and black magic and that finally with the "Enlightenment" all conjecture and superstition was wiped away and replaced by a rational, hard-cold-facts science. In fact, this belief is wrong; science prior to the eighteenth century lacked anything but precision and concern with logic, and the fathers of what is called modern science was not devoid of their guiding assumptions which were usually in keeping with Christian doctrine and faith (cf. Moore, 1974).

Even Charles Darwin held to the notion that man is a spiritual

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creature who is motivated by his "moral instincts" (see Darwin, 1871).

The question that Darwin and others of his time were seeking to dispell, as evolutionary theories began to suggest man's relatedness to the animal kingdom was that man is "just another animal". And to prove that man is indeed different from animals, the presence of a higher faculty, a "moral instinct" had to be explained in the new, evolutionary terminology as being under the influence of natural selection.

Actually, the doubt about the nature of humans which the new theories were raising and the old beliefs were being stretched to conform to had an underlying sociological and economic constriction which was peculiar to the conditions of Europe and in particular to England in the 19th Century. The conditions were that the industrial revolution was in full progress at home and the need for new raw materials was encouraging the colonial conquests abroad. Under such circumstances, a teleological world view was not altogether obsolete in that the English ruling class could utilize the idea that white men had a devine mission to help the savage nations out of darkness by bringing them civilization and Christian salvation, and yet, the new ideas developing in science about progress and change also sounded plausible.

* Darwin in The Descent of Man: And Selection in Relation to Sex (1871) wrote a scientific justification of his beliefs attempting to show that man's moral instincts, which by the way differentiate man from animal, have been perfected through Natural Selection and have developed in some races to a higher degree than in other races:

"At present day, civilised nations are everywhere supplanting barbarous nations...and they succeed mainly, though not exclusively, through their arts, which are a product of the intellect. It is therefore highly probable...the intellectual faculties have been mainly and gradually perfected through natural selection and this conclusion is sufficient for our purposes" (Darwin, 1871: 131).

Slowly, the idea began to emerge that if man was in fact part of the natural world, i.e., subject to the laws of nature, and if nature continued to demonstrate cumulative advances at every level, then, an ideology which reasoned change to be good and beneficial was necessary; while ideas which presumed static relationships would no longer suffice. One such static idea began to undergo attack. Namely, the concept of instinct as it was applied to humans as well as animals. An early critic of the instinct concept was Lewis Henry Morgan who wrote a little-known monograph in 1868 entitled, The American Beaver and His Works. Morgan's main point was to disclaim the popular view that vast differences separate the human mind from the animal mind (again, we can refer to Darwin's idea that animals are morally inferior to man) and he presented his case in the following statement:

In the first place, the term "instinct" to explain the intelligent acts of animals should be abandoned. The term was an invention of the metaphysicians to assert and maintain the mental principle of the human species and that of the inferior animals. With its multiform definitions and with the repeated enlargements of its signification, it is wholly incapable of explaining the phenomena of animal intelligence...In the second place we are led to recognize in the mutes* the possession of a free intelligence. In other words, they are endowed with a mental principle which performs for them the same office that the human mind does for man...

[Morgan 1868: 275-277]

Morgan's idea was to eliminate the concept instinct altogether and desist from the view of man's superiority to animals; (Morgan's position which met its heyday much later in the 1930's when one influential faction of animal behaviourists, led by Tinbergen, Lehrman,

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Morgan called the beavers "mutes" because as he saw it, the only difference that amounted to much between man and beaver was the beavers' lack of language.

and others, split with the ethological school of behaviour under the direction of Konrad Lorenz. The split elaborated itself along the lines of learning versus instinct models with the Tinbergen group insisting that the behaviour of an organism is as much due to its development during the organism's lifetime as to any in-born drives or instincts (Manning, 1972: Chapter 2).

Although Morgan's basic assumptions did not become popular for another sixty-five years or so, even in 1868 the groundwork was being laid for another scientific approach to the question of human nature, one which did not rely on teleology or religious dogmatism and prepared the way for empirical and naturalistic investigation of behavioural phenomena. As a consequence, new definitions of man and culture were able to arise; for the first time, the role of the environment as a dynamic force began to be considered and the interests of science gradually changed from describing more or less static or slowly evolving life to explaining how flexible behaviour can be under the proper external conditions.

This shift in fundamental ideas was very significant not only for the scientific community but it gave a logical interpretation to a whole era which was already advancing beyond the old order and was deeply embedded in the necessities of free movement, expansions and fluctuations of free labour and markets for trade. The social immobility which characterized the days of serfdom, caste, and slavery had to give way completely under the demands of the rapidly evolving social system, therefore, given these pressures it was overdue that science should grasp the mutability of forms and structures. As an ideological foundation, freedom meant not only that an organism could change its behaviour during

its lifetime depending on its environmental conditions, but put in more common terms, any man could rise above the conditions of his birth, and social class was no longer a permanent status. At the same time, however, freedom did not abolish social class, but merely reaffirmed it and widened the gap between the classes by granting the same freedom to the ruling class to extend and tighten its control (freedom of trade, free enterprise, etc.).

So, we can see by tracing these developments that our ideas and our science have gone through many shifts and trends, always maintaining a logical and necessary relation to the whole of society. But, it would be misleading to convey an image of a smooth procession of thought leading from one historical period to the next. There have been many contradictions in the development of scientific ideas and some of the ideas which are popular at the present time are actually modifications of older ideas. The revitalization of the instinct concept as interpreted through the work of Konrad Lorenz and the Ethological school of thought has played an important part in shaping the current, popular notions about human behaviour. Ethology has maintained the central role of instinct and promoted it to the level of a neuro-psychological mechanism which underlies all behaviour (Lorenz 1966).

On the other hand, the Behaviourist school has abandoned instinct in favor of various learning theory models and has at the same time resurrected the old notion of tabula rasa, that is the notion that the mind is a "blank slate" at birth and that everything is learned during life's experience. According to this theory, all behaviour can be discerned inside a framework of stimulus-response (Shishkin, 1976: 178).

Both the Lorenzian theory and the Behaviourist theory, while

seemingly diametrically opposed to one another, contain a common element. As Soviet ethnologist, Alexander Shishkin, put it, their common goal is to "Place human and animal behaviour on the same footing", that is to equalize the behaviours in a quantitative manner, and thus minimize the evolutionary (qualitative) significance of species. In essence, what the Lorenzians say is "man is like animal", while the Behaviourists say, "animal is like man". These viewpoints share a perspective of "continuity of development", which suggests that all evolutionary differences can be reduced to matters of degree. However, when such perspectives are applied to the study of human social phenomena, the question of culture must be accounted for in a different manner.

Anthropology has offered no adequate solution to the problem of defining culture as either a uniquely human phenomenon or as quantitative, adaptational extention of biological systems. This debate has remained unresolved with a few attempts to compromise the issue (See Sahlins, 1972). But, mainly the question remains ambiguous in the anthropological literature.

Some examples of the diversity of viewpoints can be found by reviewing the classic definitions. For example, Franz Boas regarded culture as unique to man due to his tool-using and language abilities (reviewed in Kroeber & Kluckhohn 1952). Similarly, Kroeber and Kluckhohn themselves suggest that "culture is behaviour acquired and transmitted by social learning" (Kroeber & Kluckhohn 1952). Another popular view, developed by Leslie A. White among others, is the idea that symbols and "symbolling" behaviour best characterize culture. White states this position in the following manner:

Symboling is a kind of behaviour in which imperceptible meanings are bestowed freely and arbitrarily upon things and events in the external world...Symboling is a kind of behaviour of which man (and only man) is capable.

[White 1949: xxxxviii]

Most socio-cultural anthropologists would agree that culture is a special category which does distinguish certain activities and behaviours which are different from (other) animals. For example, human beings build civilizations, till the soil, make pottery and implements of work and art, exchange goods, develop writing and money systems, sell their labour power, and buy the labour power of others, marry and reckon kinship according to rules laid down by society, and furthermore, are capable of speaking to each other and reflecting upon all of these activities. However, disagreement comes in determining to what extent these activities and behaviours are entirely human and not to be found in other species to some degree.

Morgan's position that the human mind is not qualitatively different from beavers' would meet with approval among many contemporary anthropologists and primatologists. From their studies of ape and monkey behaviour, they have come to the conclusion that what we see in primates' behaviour are the rudiments of cultural behaviour. Van Lawick-Goodall, Crook, Burton, Gardner & Gerdner, Sugiyama, Tiger & Fox, to name a few of the leading students of primate behaviour, have found instances of tool-using and language learning in their research which led John Hurrell Crook to coin the term, preculture (See Crook 1972). As the term suggests, primates may be considered to be on the course to cultural evolution, therefore, the distinction between human and nonhuman may be only a minor one--a progressively narrowing one at that.

The studies in primate behaviour have focused on comparative behaviour largely, a tendency which has deflected much emphasis in anthropological research from culture and holistic phenomena to discrete characteristics. The methodology utilized in primate research has been borrowed from ethology and animal behaviour studies which employ an empirical base to demonstrate how similar primate and human behaviour are when compared functionally. What differences are admitted are attributed to specialization of adaptation rather than qualitative difference. Thus, culture as a special category becomes inconsequential.

But, the question of culture cannot be avoided quite so facilely. Within evolutionary theory, there must be room to consider qualitative change as well as quantitative change. In fact, qualitative change may be even more central to the question of evolution when we consider the meaning of concepts such as species, etc. According to James Faris (1975), the affect of theory stressing the continuities and similarities of development "have been to cripple research rather than advance it". And, furthermore:

Social similarities and differences established between human and other animals must be seen as the results of processes which are specifiable, selective pressures which must be documented...we must understand those qualitative differences between human societies and those of other animals, for at those points processes will be disjunctive and different laws of development and differential dynamics will be at work. It is these points of processual disjunction that we can meaningfully speak of as the distinctions between other animal societies and human society.

[Faris 1975: 244]

Faris's point is well taken that there are serious methodological problems to be found in strictly comparative studies of wholly distinct Systems. As impressive as statistical charts and computer print-outs may be to some, there do seem to be some fundamental differences in the

ways humans relate to one another and the ways that, for example, chimpanzees behave.

The wisdom of abandoning the culture concept as a qualitative category can be seriously questioned. A more fruitful approach may be to study culture as a holistic phenomenon which can be seen as having developed as a logically inter-related system rather than a piecemeal development. By focusing all of their attention on the discrete isolated parts, the primate behaviourists have lost perspective on how the parts actually function, why they evolved as they have, and how is the system as a whole capable of changing.

It is possible that in overlooking these basic problems, what may appear to be behavioural analogy between species is only an illusion and behaviour such as chimpanzees using "termite sticks" and learning to understand human sign language, etc. only look like human behaviour. The social context in which these behaviours fit may need to be investigated before it can be said that the functional bases are identical or even similar in nature.

This requires a completely different approach, a deductive rather than an inductive methodology which would focus primarily on the nature of social life itself, the material conditions and social relations of the group, and the functions the group provides for its members. Through this kind of analysis, it would become clear what kinds of activities and behaviours would or could develop, what would be beneficial and what would be aberrant, and what those behaviours do as opposed to how they superficially appear.

In this analysis, qualitative criteria should be accepted as critical factors. For example, the criterion of species is an indis-

pensible category in evolutionary biology, yet, facile comparisons between species effectively eliminate its significance. Ernst Mayr, a foremost evolutionary biologist, has reiterated the value of the species criterion in this statement:

The species is not only the basic unit of classification but, also, one of the most important units of interaction in acology and ethology. The origin of species signifying the origin of essentially irreversible discontinuities with entirely new potentialities is the most important single event in evolution. Darwin who devoted so much of his life to the systematics of species, fully appreciated the significance of this level...

[Mayr 1970: 9]

It is important to remind ourselves of the special relation which species has to the process of evolution because its significance can be easily forgotten when doing comparative analyses. Mayr's point is quite clear that what designates the separation between species and what marks their origins are irreversible discontinuities; in other words, for evolutionary theory, it is not important to focus on continuity of development, i.e., the similarities between different forms, but it is crucial to demonstrate how species are unique and what new potentials they possess.

The advantage of such a deductive method is its ways of starting at the level of the system, analysing the relational parts as they interact, and deducing the systemic process from their interactions. This allows for the qualitative characteristics to be discerned and, also, accounts for the continuities or similarities that exist. Marx's formulation of the problem of methodology is appropriate here when he said,

The anatomy of the man is the key to the anatomy of the ape, since nothing can result at the end of a process that did not occur at its beginning as a prerequisite or condition...all elements of the process must be present from its inception.

[quoted in Faris 1973: 13-14]

Marx's position is basically like Mayr's in that what can be deduced correctly from the most advanced to the least advanced, cannot be logically reversed. For to do so would be to assume, a priori, the existence of certain elements or entities which only emerged later. In other words, we can only recognize a potentiality by the fact that it actually emerges at some point.

The logic of this perspective, reveals how misguided inductive approaches are, e.g., the "zoological perspective" of Lionel Tiger and Robin Fox as they apply it to problems of social science (see Tiger & Fox 1972). What needs to be done to counteract and correct such piecemeal approaches to human social behaviour is to study not just behaviour, but the social and material foundations of patterns of action and thought and the ways human beings relate to each other and utilise their environment in social ways. The systems of human society need to be clarified by examining the unique social relations which humans engage in and which make us distinct from other species. Part of this task is to unravel the process underlying human differentiation and how this is done is extremely important.

If, for example, we accept Darwin's idea that man's "moral instincts" are what set him apart from animals, or Leslie White's view that "symboling" or the mental capacity to use symbols to represent other things defines us as human, we immediately run into problems of how to explain moral or mental traits in a vacuum, as if they have no

material basis. It is very difficult to explain the evolution of speech or thought without referring to what it is one is speaking or thinking about. Such capacities necessarily reflect concrete realities which are conveyed through these vehicles. Therefore, a vital part of the analysis must be a reconstruction of what the material and social conditions may have been like for proto-humans. From that we must try to sort out what factors conditioned the changes in behaviour and activity--in food gathering, hunting, shelter-building, defense, and child-rearing, etc.--that affected their daily lives. We may take tools as an example and ask what it is they are used for and how do they enhance human life. If tools could be logically separated from the contexts in which they exist, then simple comparisons could also be made between human tools and chimpanzee tools. However, the decisive factor is not that tools are present in both cases, but how they are used--socially or otherwise--and what kind of product is created by their utilisation. Is there a social value to the product?

In order to answer these kind of questions, the nature of tools and tool-using has to be re-examined in terms of their social benefit and not just as extensions of the body. If we look at hominid tools, it becomes clear that hand-axe and pebble tool kits were extremely important in appropriating food and resources while, on the other hand, there is no substantial evidence that tools were primarily meant for warfare (see Slocum 1976). Given that meat was a part of their subsistence base (important as a source of concentrated protein if not in overall bulk), we must consider our hominid ancestors as hunters whose diet and means of appropriating food had necessarily shifted from the typical primate mode of foraging and scavenging.

Fossil evidence of early hominids suggests that from Ramapithecus onwards--i.e., 8-10 million years ago--dental structure was not specifically adapted for meat-eating but served best for grinding up vegetable matter (see Buettner-Janusch 1973: Chapters 7 & 8). Given this physical limitation, we can surmise that the reasons for relying on meat as a resource must have been unusual and, perhaps, urgent. The social effects of hunting on an organization that was not previously designed to hunt would also necessitate some considerable adjustments in terms of group cohesivity, patterns of movement, and increased cooperation among individuals. The shift to hunting as a mode of subsistence would entail complete reorganization in terms of labour through qualitative transformations in social relations whereby subsistence becomes a social rather than an individual concern--indeed, a radical change from the dominant relations in primate societies.

In this context, tools can be seen to serve specific needs determined by the productive capacity of the new social relations. As part of this process, early human society began to behave differently from other primate societies, releasing the potential of the group to confront the needs of its members cooperatively.

The implication of this new kind of social organization led to the freeing of productive potential on a social scale, allowing human beings to "act on nature in conscious and purposive ways" in the course of socially producing the means of subsistence (Faris & Newcomer 1973: 7). As James Faris and Peter Newcomer suggest, social production, from the very beginning, involved decisions about differential labour allocations, and concomitantly, awareness of alternatives, the capacity to value labour, and consequently, the ability to plan and produce in mutually

beneficial ways (Faris and Newcomer: 7). Social production allowed early humans to overcome the constraints which limit the growth of animal populations and enabled them to organize production so as to accommodate population growth (see Faris 1975 and Boserup 1965). For human society, population growth is a progressive result of the recognition of labour potential and this characteristic alone, places human social dynamics in a qualitatively different position than the dynamics which influence animal societies.

There have been few attempts by physical or cultural anthropologists to deal with the question of human evolution in this perspective. Most notably the work of James Faris and Peter Newcomer have basically elaborated on the tradition begun by Frederick Engels in 1876. In that year, Engels, in an unfinished essay, The Part Played By Labour in the Transition From Ape to Man, described the evolution of the human hand, tools, and labour as an inseparable complex. He said:

...Before a flint could be fashioned into a knife by human hands, a period of time must have elapsed in comparison with which the historical period known to us is insignificant. But, the decisive step was taken: the hand became free... The hand is not only the organ of labour, but, also the product of labour. Only by labour, by adaptation to ever new operations, by inheritance of the resulting special developments of muscles, ligaments, and over longer periods of time, bones as well, and by the ever-renewed employment of these inherited improvements in new and more complicated operations, has the hand attained the high degree of perfection that enabled it to conjure into being the pictures of Raphael, the statues of Thorwaldsen, the music of Paganini.

Hundreds of thousands of years--of no greater significance in the history of the earth than one second in the life of man--certainly elapsed before human society arose out of a band of tree-climbing monkeys. Yet, it finally did appear. And what do we find once more as the characteristic difference between the bank of monkeys and human society? Labour. The ape horde was satisfied to browse over the feeding area determined for it by geographical conditions or the degree of resistance of neighboring hordes; it undertook migrations and struggles to win new feeding grounds, but it was incapable of extracting from the area which supplied it

with food more than the region offered in its natural state, except perhaps, that the horde unconsciously fertilised the soil with its own excrement. As soon as all possible feeding grounds were occupied, further increase in monkey population could not occur.

[Engels, 1940: 285-286]

What we may infer from Engels is a process of change than do most contemporary analyses. He saw human evolution as a process conditioned by specific social factors which affect physical development as residing in a context of cooperative labour. What Engels analysis may lack in terms of precision of mechanisms and details of inheritance (his tendency was to be rather Lamarckian), he certainly made up for in his comprehension of the inter-relations of organic and social factors and a perspective of the overall process of change. Engels' argument is almost simplistic in its clarity: "First came labour, after it, and then side by side with it, articulate speech...men in the making came to the point where they had something to say to each other" (Engels: 284). But, in terms of its delineation of a process, even the modern field research of primatologist, Jane Van Lawick-Goodall (1965) with its fineness of detail and measurement is pale beside Engels.

Beyond the specifics of hand, tool, and language origins, the single criterion which lends meaning to the others is to be found in social production--i.e., the way in which social relations are organized to utilise labour, skills, tools, resources, etc. for the benefit of the group as a whole. Through social production, human society is capable of producing social surplus to be stored, divided, and shared in the normal course of activities, which, contrary to the Malthusian principle, enables society to accommodate for increased population.*

* See Chapter 1, "The Dynamics of Animal Social Organization", discussion of social surplus.

This is in part due to the nature of cooperative labour and also because the product of an individual's labour under these conditions is greater than the amount required by that individual to enable him/her to reproduce the same amount another day. Social surplus explains the basis on which expansion and intensification of production can be planned and effected, and exchange, redistribution of wealth, and exploitation occur under various social systems.

Social production, therefore, is the difference which best distinguishes human society from other societies. It is an activity by which subsistence is directly produced, but it is also a process which sets the necessary conditions for the evolution and elaboration of all that is called culture. Culture consists of everything which is produced by humans in the normal routine of their lives. It also represents the means by which people produce subsistence, artifacts, and ideas. Methodologically, culture may be regarded as being both synonymous with social production and at the same time being a product of it. Just as Engels referred to the human hand as both the organ of and the product of labour, so is culture linked to social production in an inseparable dialectic. Thus, culture is a dynamic and ever-changing reality which should be understood as a qualitative and intricately complex human condition.

This perspective takes issue with the literature that suggests culture is a qualitative phenomenon, an adaptation, or a "coping" mechanism whereby humans remain qualitatively unchanged from (other) animals. All of these functionalist ideas regard culture as something extraneous to human nature--an overlay to a basic primate model, not quintessential to being human. For example, John H. Crook's term,

"protoculture" connotes a quantifiable intermediary phase between primates and humans, suggesting that culture consists of certain discrete behaviours and nothing more. Others in the field of primatologic research, for example, Premack and Gardner & Gardner, have formulated theories about the learned aspect of culture, experimenting with higher order primates and language. Their idea is that if culture is a learned phenomenon, then, it should be possible to teach culture.

The problem with these ideas of "protoculture" is that while it suggests a transitional phase, it contains no formulation of how the process occurs. Since phenomena are treated as static entities, of course, the element of change is missing. On the other hand, the learning experiments of Premack and the Gardners, in spite of their relative success, fail to ask why it is that primates do not speak to each other naturally. And, further, what value would culture have for animals who do not produce their means of subsistence socially?

Quite obviously, such views do not ask these questions because they do not perceive culture as a way of life or as an expression of a particular mode of being. As a mode of life and as an expression of itself, culture must be regarded as a part of each individual as he or she is embedded in the social system. A human being raised up in society need not learn to be cultural any more than birds must learn to fly. Birds do fly and humans are cultural because it is their nature to be so. And for humans, that nature exists exclusively in society.

It can be argued that variations of social practice and particular socio-systems are, in fact, transmitted by learning. But, that is quite a different matter; the existence of culture is the ability to be socially productive, to recognize and realize the value of labour, and

to distinguish individuals socially on the basis of the work they perform in the production process. Cases of individuals--feral or "wolf" children--who have lived outside of society tend to corroborate the point that culture cannot exist outside of social relations (see Wild Boy of Aveyron 1962).

The ideas presented here have developed out of an elaboration of the theoretical model put forward by Faris and Newcomer (1973) and the desire to clarify our understanding of the culture concept and "human nature" through a holistic, social and historical framework. The approach taken is based on a methodology of Marxist analysis--dialectical materialist--in the belief that such a method has much to offer social scientific research in its freshness, objectivity, and historical accountability.*

The organization of this thesis is designed to address the fundamental problem of formulating a Marxist analysis of human evolution and in particular, the transition from ape to human. Sections have been laid out to assess the theoretical and practical implications of conventional methodology in anthropology and the underlying ideological views which they reflect about our society.

The chapters are organized in the following manner: Chapter One, "The Dynamics of Animal Social Organization", discusses the ecological conditions of animal populations, the ways in which animal society is organized to serve the basic interests of the individual organism rather than the group as such, and how the forces of natural selection on a population constrain the potential for social change.

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The fact that Marx's ideas have created such enormous reaction in Western social science over the past century makes the renewed interest in Marxist methodology and theory a significant development. Perhaps this is because a Marxist approach is better equipped to deal with the social issues related to the general crisis of capitalism and the anti-imperialist movements in the Third World--both of which have had an unquestionable affect on the practice of anthropology.

Chapter Two is an historical discussion of the theories of Darwin, Marx, and Engels, a comparison of their ideas as products of 19th Century European thought and how these ideas have influenced our understanding of evolutionary process. This discussion also serves the purpose of developing a perspective in which to comprehend the relationship between social and biological evolution.

Chapter Three discusses three bio-social approaches to human evolution: the morphological view which considers physical change as preceding social change; the sociological view which tends to anthropomorphize animal behaviour; and the ethological views of Lorenz, and Tiger and Fox's "zoological perspective" of social science.

Chapter Four, entitled "A Theoretical Discussion on the Criteria of Humaness" deals with the cultural phenomena of language, tools, kinship, and territorial relations by first examining the conventional views on their origins and significance, and then, suggesting an alternative perspective in the concept of social production.

Chapter Five consists of an explication of the theory of social production as a dialectical way of understanding the integration of the cultural criteria discussed in Chapter Four and offers a holistic interpretation of their evolution as a system stemming from the conditions of economic cooperation and sharing imposed on the social relations of the group. Expressed in terms of underlying social relations of production, i.e., labour organized in definite ways for the production of subsistence, social production is conceived as the organization of activities that characterize the transition from ape to human in the most fundamental sense.

Chapter Six provides a schematic framework of what the transition may have been like, how forces may have converged at a particular time and under particular conditions to necessitate the rise of new social relations based on the needs of society.

Chapter Seven concludes with a discussion of some of the theoretical implications of social production and dialectical methodology for anthropological research in general.

CHAPTER 1

The Dynamics of Animal Social Organization

Animal social organization has been discussed from various perspectives--for example, from a behavioural viewpoint which may take a genetic (ethological) approach or a sociological approach*. Another perspective deals with social organization in its macro-relationships in the ecosystem. These perspectives all contribute to our general knowledge of the subject, but in this case we will explore the relations of the group as (1) a functional phenomenon and, (2) as an evolutionary development. This approach will entail that we look at the ecological parameters of the group in terms of population dynamics which regulate the group's size and dispersion in relation to resources, and selective pressures influencing individual behaviour.

The reason we begin from this perspective is to understand something about the functional maintenance of animal society--e.g., what the group is capable of responding to in its relations with other groups, internally among its own members, and with respect to available resources in its habitat. As a part of this complex nexus of relations, it is useful to know what particular role the group plays in the ecosystem and how it is involved in the transference of food-energy from different levels of the system.

A central theme in ecological studies involves determining specific cycles or energy transformations within a defined ecosystem and how these transformations of matter represent a balance in the utilisation

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See Chapter 3, "A Critique of Three Functionalist Approaches".

of energy in the ecosphere--energy is neither lost nor gained during these material transformations (see R. L. Smith 1974). A major task of such an analysis then, is to explain how change occurs in the context of these homeostatic relationships.

At first, the notions of change and stability seem to contradict each other. They do, in fact, if we take the idea of stability quite literally, but stability in an ecological sense means relatively stable relations over time and fluctuations remaining within acceptable ranges. Basically, ecological systems are maintenance system which account for quantitative change of factors and minor reassortments of such things as group size, number, range, and spatial arrangement. This kind of change must fall within predetermined limits, but it does not affect those limits, which are considered, more or less, constant for the purposes of ecological study (Smith 1974).

As a result, quantitative change is perceptible almost daily within a given entity, such as a population, while over the long term these changes are fundamentally insignificant. However, qualitative change cannot be discerned according to ecological parameters because it affects the relations between entities, not the entities per se. Thus, qualitative change affects the very limits which condition the extent to which quantitative change may go.

It is important to distinguish between these two types of change. While one is useful in measuring functional variation, only qualitative change is meaningful to the problem of systemic or evolutionary transformation. For purposes of this discussion both modes of change will be considered--quantitative change as a way of defining the functional role of animal social behavior and organization, i.e., what it can and cannot

do, and the qualitative mode to understand the underlying dynamics of the group and how it changes. In the first case, animal social organization will be studied as a behavioural component which intersects the eco-system of population-habitat.* In another way, it will be examined from the perspective of population dynamics and the mechanism of natural selection influencing the responses of the individual to the group. Lastly, the question of systemic change will be explored in terms of motivating factors and conditioning forces inside the system. From this should come some understanding of the evolutionary significance of social organization for animals, what can the group do and what it cannot do, and what are the material conditions that motivate change.

To begin with, we ask, what is the function of the group within an animal population? We know that the basic requirements for survival, ie., food, water, rest, must be acquired by each individual and we can assume that the group in some way confers certain advantages for satisfying these requirements. Also, in the course of a lifetime, the population must reproduce itself sexually, and we can surmise that being in groups facilitates this function. Of course, there are many ways of satisfying these basic needs and grouping is not the only way. However, in the cases of most animals some form of social organization is involved at least part of the time. For some species, this is accomplished through loosely

* Behaviour is described as a feed-back mechanism, standing between the genetic potential of the organism and its environment. Ernst Mayr (1966) referred to this model as the "synthetic theory" of evolution and credited it as the primary force of change.

defined aggregations with little structure or permanency to the arrangement. For others, cohesive units or societies are formed which stay together most of the time (see Manning 1972, Schaller 1972, Smith 1974).

Other examples of types of grouping can be found in song birds who pair-mate and occupy distinct territories which they defend from other pairs as breeding units. Solitary animals like cats or digger wasps make contact during mating season, otherwise, their other needs are achieved without the benefit of the group. At the other end of the scale, honey bees are highly social all year round, but their sociality is not determined by such things as mating season, territorial or range factors. Instead, by a very complex, inborn programming to the sight and smell of available resources, which can also be detected by the movements and chemical excretions of other bees, form the basis of bee society (Von Frisch 1966). The information conveyed by the so-called bee dance, is very specific and can indicate the exact location of food which may be miles away, without the slightest ambiguity (see Tinbergen 1951 & Von Frisch 1966).

The commonality of these very different kinds of groups is that they provide species-specific mechanisms by which individual members fulfill their basic requirements. Some of these mechanisms may be chemically or physically related (e.g., in the way that water fleas are attracted to the same area by virtue of the conducive chemical environment produced by their respiration), or they may be cooperative.

Aubrey Manning (1972), British animal behaviourist, has devised two general categories of groupings, social groups and non-social aggregations. He clarifies the distinction in the following manner:

Within the animal kingdom there are an enormous variety of groupings. A true society will involve more than a mated pair or a mother and her off-spring; it will mean a stable group whose members inter-communicate extensively and bear some relatively permanent social relationships to one another...Compared with true societies, the organization within a flock of birds or a school of fish is much less complex...When we come down to a swarm of fleas gathered in some area rich in food, or a mass of Drosophila collected on some rotting fruit, then quite clearly we are not justified in using the term society [Manning, 1972: 234].

As a general definition, this serves fairly well, although the criteria are not sufficiently precise. The reference to "extensive" communications and to "permanent" relations are rather vague and relative when comparing an animal with the life-span of Drosophila to that of a chimpanzee. Nevertheless, with a few exceptions, the criteria make sense and so make a necessary distinction between kinds of groups. In spite of the ambiguities and the different modes of grouping that exist, it is interesting to note how the modes of grouping function in similar ways. Both confer survival benefits for the species and special mechanisms for growth, protection from predators, stimulation and synchronization of breeding, communication of certain kinds of information, and the maintenance of optimal physical conditions (Manning: 234). Grouping serves these purposes on the individual level, in the first place, and ultimately, on the species level, operating through the population-environmental conditions.

The phenomenon of grouping also has been studied in terms of its evolutionary potential, as a dynamic force in and of itself. This aspect was introduced as a component of the population dynamic by V. C. Wynne-Edwards in work, Animal Dispersion in Relation to Social Behaviour (1964). In this way he proposed a principle of group behaviour suggesting that group life entails certain adaptations of individuals to

each other. Through this adaptational response there supposedly evolves a "group interest" which functions thereafter as a central dynamic of social organization (see Wynne-Edwards 1964).

The notion of group response to environmental factors developed as a way of explaining the basis of cooperative behaviour which Wynne-Edwards interpreted as "mutual interest", "shared goals", "instinctive altruism", and "self-sacrifice". The annual migration of lemmings (their legendary "march to the sea") has been romantically depicted in these ways, and some scientists, like Wynne-Edwards, have tried to explain these assumptions in biological terms. The origin of the group interest idea is clearly a perception of animal behaviour as interpreted through the eyes of human experience. Obviously, Wynne-Edwards recognized certain co-operative qualities in human interactions, but failed to correctly analyze the material basis of those interactions. Likewise, he overlooked the unique, dynamic character of human social relations. Thus, his assumptions were based on imprecisely developed ideas that sharing and mutual interest have a genetic foundation.

The group interest hypothesis follows this logic: A mechanism of selection and preservation of useful traits would operate on the group as an entity, in much the same way that natural selection operates to preserve advantageous traits in individual organisms. Group selection would, therefore, tend to preserve those characteristics which have definite social advantage, in this case, self-sacrifice as an expression of altruism among lemmings (see Wynee-Edwards 1962).

The group becomes an objective phenomenon existing for the benefit of its members, and also, the individual members contributing in some ways to the betterment of the group.

While this explanation seems to substantiate the claim for a group principle, it is inconsistent. For example, critics have suggested that a group selection principle contradicts the operation of natural selection on the grounds that random assortment in a population would produce variability and, therefore, a single genetic trait would not be universal throughout the population. In this case of a so-called social trait, universality of the trait would be a necessary condition. Secondly, the traits that would be preserved in a population would be traits which would lend some sort of benefit. The problem with a group trait like self-sacrifice is that there can be no long-term advantage to it, since most of the population (presumably most individuals would possess some degree of a favorable trait) would die off exercising it. As a result, those individuals remaining would be without the trait and it is they who would live long enough to breed successfully, and it is their offspring who would survive. Simply stated, a group interest principle could not co-exist with natural selection.

Wynne-Edwards' attempt to prove a group principle of animal social behaviour is theoretically untenable. But, does this mean that co-operation among animals does not exist? And, if so, is their cooperation among human beings? His inability to prove a biological basis to group-centered behaviour does not necessarily negate the existence of cooperation, but rather suggests that, perhaps, we should look for a basis elsewhere.

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From a lecture presented by Professor Evans, Department of Zoology, University of Manitoba, 1974.

As was mentioned earlier, Wynne-Edwards' theory was built on rather casual and sunsystematic observation of human social behaviour; what he saw as inherent patterns of human interaction he misinterpreted as biological rather than historical and social phenomena. Therefore, he assumed there to be no significant difference between animal social relations and human social relations and lumped them together as sub-types in the ecosystem.

What Wynne-Edwards overlooked, however, is that human society is based on the material necessity of sharing of subsistence and pooling of labour, not on any moral, altruism principle. As a consequence, human sharing and cooperation play an objective role which, indeed, serves the interests of the group as mechanisms of social existence. Animal societies cooperate also, but in qualitatively different ways. Hans Kummer (1968) writing about baboon society has emphasized the cooperative value of the group as it functions in locating resources. He says,

There is no sharing or passing of gathered food or prepared shelter, and mutual assistance is absent or negligible; only infants are carried or nursed. However, they do function in locating resources and exchanging this information.

[Kummer 1968: 42]

In sharing information, the well-being of the individuals is maintained because the information is then used by each individual for itself to satisfy its own personal needs. Cooperation of this kind obviously has very definite limits since the group does not share in the actual subsistence or shelter. Nevertheless, the cooperation in exchanging information about the location of resources is very important for baboons. The difference between this kind of cooperation and human cooperation lies in what is shared and who benefits. The information exchanged

among baboons helps each individual fulfill his own needs, but, it is the information which is shared, not the food itself, and this is the important difference. Cooperation on this level, therefore, is a way of enabling individual maintenance and survival without the necessity for economic cooperation.

On the other hand, human cooperation is more than a mere aid to individual procurement. It establishes social linkages between individuals on the basis of economic necessity, and as a result, such linkages become indispensable, not only to the survival of each individual, but to the development of the group as an definable entity. In these circumstances, individuals and the group are practically speaking, inseparable. These relations are not to be regarded as adjunctive to or modifications of fundamentally, asocial behaviour, but are structurally rooted in the internal dynamics of the collectivity and are functionally necessary to the perpetuation and development of the group.

Correctly understood, cooperation has nothing whatsoever to do with moral concepts, such as altruism, but indicates the extent to which material conditions necessitate sharing and mutual aid. In order to grasp the meaning of material forces in this case it is useful to summarize some of the implications of ecology on population dynamics and to distinguish social, material conditions from ecological conditions.

As components of biological systems, animal societies are shaped both directly and subtly by the environment. These pressures determine such factors as group size, dispersion, breeding patterns, etc., as well as various internal mechanisms which regulate the degree of change in these factors.

Kummer discusses these relationships and how they impinge upon the baboon group's capabilities. According to Kummer, the size of a group is directly correlated to the distribution of food in the habitat (Kummer, 1968:43). Furthermore, this correlation seems to hinge on the maximum number of animals that can feed simultaneously on a single unit or area of resources. This constraint on the number in the group also affects the number of animals that can forage together as well as how they must be dispersed (Kummer: 43). Obviously, the richness or poorness of a habitat, varying from one ecozone to another, and also varying from one season to another, will bear a direct influence on what the group will look like and how strong the dominance relations will be at a given time (Kummer, 1968).

The quantitative characteristics of social organization, size, dispersion, dominance hierarchies, among others, act as regulatory mechanisms for the structure of the group, and it is undeniable that food is a powerful pressure in terms of population dynamics. But, the Malthusian principle is only one factor in many which may limit growth. Wynne-Edwards points out that food will act as the ultimate or final control mechanism but, before the ultimate control becomes necessary, a number of other factors may come into play, which will have the same effect of reducing the population's size without having to starve out the population.

These regulatory mechanisms are all behavioural and species-specific.* They include various forms of competition for such things as

* Wynne-Edwards called these behaviours, conventional behaviours because they act in place of strict environmental mechanisms. (See Animal Dispersion in Relation to Social Behaviour (1964).

nesting sites, the exclusion of individuals from breeding through competition over territory, through hierarchy and dominance relations, migrations and epideictic displays. These behaviours establish certain rights to take food and to breed, but they rarely involve outright fights to the death or direct competition over resources. Instead, they serve as warning signals and as intermediary mechanisms that affect the ability of the individual to survive. Thus, from this viewpoint, animal social behaviour functions largely as internal constraints which are dictated by the conditions external to the population. Primarily, it is the individual which is affected by these constraints, but ultimately the population and then the species receive the outcome.

These dynamics, however, are entirely different from those which govern human social organization. First of all, human behaviour does not function as conventional behaviour does for animals. This is due to the fact that human behaviour does not constrain population growth, and, also because it is socially, not biologically determined. For example, human hierarchies are sometimes compared with animal dominance relations, but, in fact, they are quite different. Where social hierarchies exist in human society, there are social divisions which reflect the mode of economic activity in the society--a quality of economic activity which is characteristically cooperative regardless of the particular mode it is found in.

Further, human behaviour does not inhibit population growth, but actually enables growth due to the unique human ability to produce subsistence by transforming natural resources into social products, and the consequent creation of social surplus. Social surplus is obviously quite different from foraging or browsing for food. Likewise, it is

also quite different from the storage of surplus which squirrels do. Squirrel surplus is simply storage of food for a later time and the squirrel does nothing more with the food than move it from one place to another. Basically, the nuts remain as they were - they are in no way transformed from their original state and their purpose is to be utilised by the animal that stored them. In this way, the surplus is entirely individual.

Social surplus is all the things which squirrel surplus is - but more. Because the activity which produces the surplus is cooperative, the process itself is qualitatively different. Furthermore, the surplus is not just stored for the use of individuals during lean times, but is divided and utilised socially (i.e., resources produced by an individual are characteristically shared within the group and can prevent scarcity through planning). The transformation that actually takes place in the process of production does not necessarily refer to refining, milling, tanning or any other method of preparation, but more fundamentally, to the character of the productive process itself, i.e., the social process through which nature is utilised at the group level. Furthermore, the social process of production removes the constraints of growth, which all animal species (including squirrels) are subject to. By doing so, a new potential is released which enables and accommodates growth unheard of * in animal populations. The fact that human society can do these unique things as a consequence of a unique kind of cooperation, suggests that the ecological parameters do not apply to human society and that an

* Contrary to Thomas Malthus' "An Essay on the Principles of Population as It Effects the Future Impoverishment of Society" (1798).

altogether different set of relations must exist between the human group and the environment. The exact nature of these relations will be dealt with in more depth in the next chapters.

So far this discussion has emphasized two principle ideas: (1) The relationship between ecology and animal social organization, and, (2) The functional value of the group to its members. In the first problem we have seen that the effects of environmental pressure are what define the limits of change within the group. Consequently, the forces which determine the structure of the group and the behaviours of its members must stand outside of the group itself. The question of the group's function vis a vis the individual has been explored in terms of the existence of an objectified entity called the group whose interests are identical with the interests of the isolated individual. Also, the meaning of cooperation as either an adjunctive factor or a socially necessary and permanent relation has been discussed. Both questions deal with change--how it occurs, what kind of change affects which parts of the system, the difference between quantitative and qualitative change, and the impossibility of a single theory of evolution that can successfully encompass human systems and animal system.

Within biological theory, there are two main constructs which account for the emergence of new species. They are, (1) that there should be a steady flow of variation (mutation) in a population, and (2) that selective effects of the environment are always in operation (Mayr 1963: 2). Darwin was the first to recognize that change is the result of these two conflicting forces working themselves out (Mayr 1963). Speciation is the end result of this process, being achieved by means of natural selection.

The level at which natural selection operates is the level of the individual organism. The individual is the key of the process because certain advantageous traits are selected and preserved in the gene pool of a population and it is the individual in whom the traits appear. As a result of the selective process, certain individuals possessing the advantageous traits will be better adapted. Of course, in the strict sense, the phrase "survival of the fittest" refers to the survival of adaptive traits in a population, not to the survival of adaptive individuals. Nevertheless, since it is the individual through whom the process must pass initially, the existence of "fit" individuals is also a reality, (Mayr 1963 & 1971).

When applied, the principle of natural selection assumes that the first effects of change will be felt by the individual organism and, with regard to the group, that "the response of a social animal to the other members of its group will evolve to its own best advantage" (Manning, 1972: 233). What this means is that the society exists mainly as a benefit to the needs of the individual, and that one way to define animal society is to say that society consists of so many individuals, all behaving in their own best interests. While there are many examples of cooperation among animals, cooperative behaviour should be understood in the context of the individualist principle of natural selection as a coincidental function.

The evolutionary significance of cooperation for animal social behaviour is limited, yet, there are numerous examples of animal cooperation which deserve to be understood correctly on their own terms. The defensive behaviour of musk oxen or the hunting behaviour of wolves, lions, and tigers (see Schaller 1972; Manning 1972) are especially

interesting examples because they seem to support the notion that animals cooperate in the same way that humans do, and that the differences we observe between species are simply quantitative.

The behaviours of musk oxen or wolves or humans are species specific and facile comparisons tend to cloud the unique factors and characteristics of their evolution and function. In the case of musk oxen's characteristic defensive formation against predators, the young and females huddle together in the center of a circle which is surrounded by the adult males who group shoulder-to-shoulder, facing outward, with their heads lowered meeting the on-coming predator(s). The impression this behavior gives is that of mutual aid and protection of the smaller and weaker animals; at least, this is an interpretation we might make if we were not aware of the problems of the group-interest theory.

When the actual behaviours are examined in their context, what we have is this: A slow, heavy ungulate living on open tundra and beset with predators who can easily outrun them. Under these circumstances, the best kind of protection for the species is for the individuals to stand close together as a mass thereby making it more difficult for the predator to single out its prey (Manning 1972). Simply in terms of self-interest, there would be enough motivation for the individual to prefer to group together than to run alone. In terms of group-interest, one could presume a degree of mutual aid in these actions, but it is not necessary to do so. Given the errors of the group-interest theory and the mechanisms controlling animal behaviour, a self-interest explanation is entirely plausible and consistent.

Every example of animal cooperation should be analysed according to criteria which explore the functional prerequisites as well as the

social relevance of the behaviours under observation. Another example of a misinterpreted animal behaviour is the way that wolves appear to cooperate when they run in formation - the characteristic fan-shaped pack. Strictly speaking, the pack structure and formation are governed by strong dominance relations in the group which function as an internal mechanism for regulating the size of the group in relation to the available resources. Given that dominance relations are a dispersionary factor, i.e., one which spaces out the individuals at a tolerable distance from one another, the hunt formation is better understood as an avoidance behaviour rather than a cooperative one. It is interesting to note that among wolves the dominance relations are typically strong at all times and that virtually all behaviours, be it hunting, feeding, mating, scouting, defending, or whatever, are carried out in the context of these strict relations of dominance.

All of this discussion serves to support the view that animal society is fundamentally a group of individuals, who behave as individuals in their own best interests even when cooperating with others. This individualism, if you will, maintains an integrity of the individual from the group and a particular autonomy in matters of subsistence. The forces of the environment on the individual invoke selective mechanisms which preserve this state of relations in the interests of survival of the species.

The potential for change lies locked in the interstices of ecology, reproductive isolation, rates of mutation, adaptation, and selection, factors which exist independently of the animal group or society. These

* Verbal Comm., Newcomer 1975.

internal relations of the biological system determine every aspect of social behaviour and in turn, social behaviour establishes the boundaries of the group. Change in these circumstances is necessarily slow and conservative with the social organization at the tail end of the chain of responses to changed conditions.

Some researchers into animal behaviour have commented that behaviour is one of the most flexible aspects, adapting much more quickly to external pressures than, for example, bones or tissue (Mayr, 1963). Perhaps, for this reason, there has been some interest in discovering a sort of extra-biological explanation that can account for behavioural change apart from structural change. Social learning has been suggested as the factor which guides the behaviour of highly intelligent animals, such as primates.

In studies on primates, in particular the studies of Itani, Sugiyama, Gardner & Gardner, Harlow and Crook, the social learning factor has been developed as an almost independent thesis together with adaptive intelligence and these ideas have spun off into realms suggesting the origins of cultural behaviour and a link between human society and animal behaviour.*

These studies commit the same errors that Wynne-Edwards made in presuming that the same basic factors rule the evolution of human and animal and the attempt is made to find the answer in quantitative analysis of the systems and then comparison of the discrete data. To say

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J. H. Crook (1972) in a paper entitled "The Socio-Ecology of Primates" has developed the idea of "protoculture" as an adaptive behavioural response bridging the gap between humans and (other) primates.

that primates learn quickly and are adept at mimicry should not blind us to the basically conservative nature of biological change of which animal behaviour is a part. We should recognize that the ability to adapt rapidly to changing circumstances is the true evolutionary development and the specific behaviours are not especially significant unless they persist and are eventually selected for.

For example, when primates are used as experimental subjects in behaviour studies, they are very fast at picking up new behaviours and "aping" their human contacts. But, what is important for them are behaviours that enhance their ability to survive under changing conditions and which have long-term value. What can be learned rapidly can also be forgotten rapidly unless there is some functional benefit to be gained. Primates have been found quite adaptable to sign language, for instance (Gardner & Gardner 1967), but all we need ask is what good is sign language for chimpanzees in the wild? Why should it survive outside of the laboratory? In order to establish a cultural predisposition in primates, it would be necessary to find the prerequisites in the material conditions of primate life. For example, it would be necessary to show how the individuals relate to each other, and what sorts of activities they routinely perform that would make language a necessity. Perhaps it can be said that in the presence of humans primates may find it helpful to communicate on a similar level to their human companions. This may be considered a behavioural modification which has a short term advantage, but as far as having any real evolutionary significance, it is very improbable, indeed.

Behavioural adaptations and modifications must, therefore, be functionally advantageous to the organism under permanently changed

circumstances before any qualitative change will result. According to Ernst Mayr (1971), some short term advantages will be useful as long as they do not interfere with more established patterns. Other behaviours may persist and may even replace older behaviours after generations if the environment selects for their survival; otherwise, modifications should be regarded as "pre-adapted" but, without any qualitative significance for the species (Mayr 1971: 356).

Social organization among animal species is thoroughly bound up with ecological and genetic parameters which condition their response. Basically, the forces that influence the group are the same ones that affect the isolated individual (see Manning 1972). The dynamic potential of such systems should therefore be viewed as existing outside of the group itself, but within the boundaries of the species. Animal social organization is a sub-set of larger biological systems and change will affect it only indirectly through the changed behaviours of its individual members.

This discussion has attempted to analyze the structure of animal social organization and its role as a mediating factor for individual adaptation and change. In so doing, it has provided us with some basis on which to critique the assertions of comparative behaviourists as to the so-called similarities between human and animal society. Points made here will become useful later in elaborating the distinctions.

CHAPTER 2

The Forces of Change: A Discussion of the Ideas of Darwin, Marx and Engels

Theories of change are different from other kinds of theories because they must perceive the totality of a process from beginning to end. Apart from distinguishing one form from another and delineating series of events or stages of development, evolutionary theory must be able to explain the dynamic process by which stages transform themselves.

This analysis focuses on change and seeks to understand the historical rise of evolutionary science in the 19th Century, the development of dialectics as a scientific methodology, and the profound effects the ideas of Charles Darwin, Karl Marx, and Frederick Engels have had on our own thinking. In particular, this will attempt to explore some of the parallels in evolutionary theory put forward by Marx and Engels on one hand, and Darwin on the other, parallels which historians like Jacques Barzun (1958)^{*} have documented, but which may be obscure to most of us due to the very different nature of their subject matter.

Marx and Engels philosophy of political economy, and their analyses of historical transformations of society were the product of nearly forty years of collaboration. At about the same time, Darwin was devoting himself as a natural historian on the H.M.S. Beagle and thereafter, to the discovery of the first dynamic theory of biological evolution. Although their field of interest did not obviously overlap (except for Engels rather in-depth studies into the laws of physics, chemistry, and

*Darwin, Marx, and Wagner: Critique of a Heritage, 1958, Doubleday/Anchor Books.

natural sciences, (see Dialectics of Nature, 1940), the theoretical issues and methodological outlook central to the way Darwin approached the study of natural systems and the way Marx and Engels looked at human history are remarkably similar. Specifically, interests in the nature of systems and systemic change were crucial to Darwin's theory of natural selection as to Marx and Engels' theory of class struggle.

For Darwin, the question was to understand the origin of species as an outcome of specific, conflicting forces in nature. Namely, the struggle between the ontogenetic potential of the organism and the influencing pressures from the environment. His arrival at the theory of natural selection was an unprecedented step toward comprehending these very complex relations involved in the struggle for existence (Darwin 1962). Marx and Engels in a similar way, sought to specify the forces which underlie historical processes. In this case, the forces are social and take the form of objectified social relations among individuals who cooperate in producing their means of subsistence (Faris 1975).

The fact that Darwin, Marx, and Engels were men of the 19th Century is not inconsequential to the parallels in their scientific theories. The 19th Century was a time of tremendous political unrest in France and Germany in particular, and of rapid economic growth and expansion especially concentrated in England. In these countries where Marx, Engels, and Darwin lived the vestiges of a feudal economic system were being abandoned in favor of a progressive industrial capitalism, new forms of technology, and colonial conquests of Africa and other parts of the world for raw materials and labour to feed the needs of capital accumulation and new markets. In the midst of all of this progress,

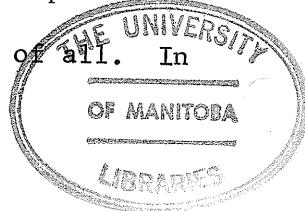
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See Walter Rodney, How Europe Underdeveloped Africa, 1972.

scientific theory which had not yet adapted to the new visions of the world, was thrown into a veritable intellectual revolution which could grasp the realities. Both the theories of Marx and Engels, and of Darwin, as Peter Newcomer (1971) has correctly noted, "derived quite directly from the social conditions of the nineteenth century: Darwin projected the human condition onto the animal kingdom, and Marx explored the reasons for that condition's existence. Both men's science showed a hidden and deadly struggle in the seemingly peaceful and natural world (Newcomer, 1971: 9).

It is worthwhile noting that before Darwin, the state at which biological science was in the feudal ages, led by the Systematists who were satisfied to merely classify taxonomic forms. The dilemma of science at the time was there was no theory which could explain how biological forms developed, excluding Creationist theories, and the need for scientific progress was being felt acutely. A flood of theories of evolution began to appear from people such as Lamarck, Lyell, Keyserling, Von Baer, Spencer, Wallace, and Darwin himself (Moore, 1974). Of course, most of these efforts proved only partially fruitful. To take an example, Lamarck proposed a theory of change that credited evolution to changed habits which supposedly become acquired during an organism's lifetime. By such a theory, Lamarck attempted to explain the functional relationship between an organism and its environment, and why, for example, giraffes have long necks and like to eat the leaves at the tops of trees.

While Lamarckism boldly advanced the notion of change into a rather static science, the theory he offered was totally lacking. Its mechanical view of species adaptation vulgarized the subtleties and complexities relations which exist between organism and environment, first of all. In



addition, it failed to specify the dynamic force by which certain favorable adaptations are preserved, namely, natural selection. It would be unfair to simply discount Lamarck as a vulgar evolutionist because he was responsible for helping prepare the way for the development of a rigorous evolutionary theory.

At the same time, political economists and utopian philosophers were searching for an explanation of scientific growth and social change: Owen, Saint-Simon, Fourier, Smith, Proudhon, and others came up with theories of profits and the iron law of wages, etc. But, when Marx wrote Capital in 1859, he perceived his theory as different from the idealism of other thinkers and he appreciated the "down to earth" concern with which Darwin treated the subject of evolution. In fact, Marx is said to have so admired Darwin that he wanted to dedicate the first volume of Capital to him (Capital was published the same year as Darwin's Origin of Species). Darwin declined the tribute, however, saying that he knew nothing about political economy and anyway, philosophical discussions gave him headaches!*

In spite of Darwin's reluctance to recognize what Marx recognized, the theoretical contributions of the two men do share some common perspectives. For example, both approached their tasks as the study of changing systems--systems which are not merely repositories of static elements, but comprise active, mutually dependent elements which develop as structural antagonisms with systems. Conflict and resolution are the motor of systemic change. Thus, Darwin's notion of "survival of the fittest" and Marx and Engels' theory of class struggle grew out of their

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Verbal communication between Michael Simon, historian of science, and Peter Newcomer, professor of anthropology, University of Connecticut, 1970.

common perceptions and analyses of the world.

Marx and Engels' viewpoint was an explicitly dialectical view of material reality which they elaborated from Hegel's dialectics (Cf. Bertell Ollman, 1975). But, whereas Hegel was an idealist philosopher, i.e., he saw intellectual development preconditioning material life, Marx and Engels conception of society began with a description of the practical, historical necessities of life (i.e., food, shelter, clothing) and with the premise that the social production of these basic requirements lead people to certain views of the world. Therefore, for Marx and Engels, ideas were the reflection of the ordinary, but necessary activities which sustain human beings.

While Darwin never consciously subscribed to the philosophy of dialectics, as we shall see, his theories implicitly contain a dialectical viewpoint which will be discussed shortly. In order to do this we need to explicate what is meant by a dialectical philosophy and methodology. On this we can refer to Frederick Engels who perhaps more than Marx, explicated the dialectic for us. Briefly he said:

The dialectic is a science of the most general laws of all nature...When we reflect on nature, or the history of mankind, or our own intellectual activity, the first picture presented to us is of an endless maze of relations in which nothing remains what, where, and as it was, but everything moves, changes, comes into being and passes out of existence.

[Ollman, 1975: 54]

What this view suggests are two things: (1) That the world consists of many, complete systems which are internally dynamic sets of relations, and (2) Everything in the world operates according to definite laws of motion and change. Quite simply, the dialectic is a

relational view of the world in which entities or relations do not stand still or alone, but are constantly inter-acting with other entities. At the same time, all relations and their preconditions are understood as being in motion, so that their behaviours are changing through their movements and logically affecting everything around them. In time, movements may become profound and their effects may create tensions or contradictions which can not be reduced by minor alterations in the relations. When this happens, qualitative changes result which challenge the very character of the former system of relations, and may allow new potentialities to come out as new species, or new social systems, etc.

Consequently, the dialectic is concerned with two kinds of change--quantitative change which is any change in degree, size, number, or any measurable difference, and qualitative change which is change of kind or essence. The goal of the dialectic is to understand the nature of both kinds of change and how they are related. Qualitative change also involves quantitative change in its process. But qualitative change being a change of essence, sets certain new conditions for the development of the system.

A critical concept is the transformation of quantity to quality, which is not a metaphysical problem but relates to the actual emergence of systems which are capable of behaving in unique and irreversible ways (Ollman, 1975). When we think about evolutionary change, we see that transformational change is extremely crucial to the whole process--how does a new species originate? How does A become B? How do we distinguish between biological systems and social systems? And what phases must one recognizable entity pass through before it becomes recognizable as a different entity? These are the sort of questions that the

dialectic addresses.

In a concise essay entitled, "Dialectic As Outlook" (1975), Bertell Ollman characterized the transformational process by saying transformation enables the emergence of new, previously unheard of relations from the conditions of the old (Ollman 1975). The basic assumption of the dialectical methodology is that before their actual development, new relations exist as potentialities within the previous system, but that their actualization can only be understood as part of the transformational process. New, qualitative relations in some ways resemble their predecessors, but more importantly, they are capable of performing functions which the old relations could not and this allows them to behave differently (Ollman 1975: 55).

Throughout the process of transformation, change is conceived as an inseparable part of the system. In dialectical analysis, there is never any attempt to isolate entities or slow their movements, as for example in Structural-Functionalist analysis. To do so would be to violate the integrity of the system and its essence as a changing process. According to dialectical methodology, change is not a mystical process, but is completely comprehensible and deducible from its effects and is fundamental to all systems. As an illustration we can look at Engels' classic description of the transformation of a solid, to a liquid, to a gas:

(The application of heat to a solid body)...loosens the connections of the separate molecules until finally the transition to the liquid state occurs. In the liquid state, also, on continued application of heat, it increases the motion of the molecules until a degree is reached at which the latter split off altogether from the mass at a definite velocity determined for each molecule by its chemical constituency, they move away individually in a free state.

[Engels, 1949: 44]

During the process we see the relations among the molecules undergoing qualitative change due to the conditioning factor of temperature. Under fairly constant temperature, the molecules move about but in a more or less fixed fashion, thus, retaining their identity as molecules of liquid, molecules of gas, or molecules of solid. But, when the temperature is reduced or increased, a turning point is achieved whereby the nature of the entity is qualitatively transformed. Therefore, the transformational process involves total change which is essentially discernible only by its structural (internal) relations and what new interactions they are capable of.

How we comprehend transformational change is suggested by the concept of development through contradiction (Ollman: 56) which is a basic law of dialectical motion. Contradiction is characteristic of all relationships in which certain elements appear to oppose each other's interests, and the presence of contradiction-resolution behaviours as aspects of structural relations is regarded as the motor of systemic change.

In the language of dialectics, the resolution of a contradiction does not mean that one of the opposing elements is removed from the relationship, but that things which seem to be totally opposite are in reality related by internal characteristics. This relationship allows for subtle and extremely complex outcomes of a situation so that under certain circumstances, aspects of both sides of the contradiction may merge, recombine, and emerge as a third, related but qualitatively different resolution of the contradiction. This concept of merger is known as the "mutual penetration of polar opposites" which suggests that nothing is totally destroyed in the process of contradiction-resolution, but that previously hidden aspects are joined together to create a new set of factors. Accord-

ingly, as old contradictions are resolved, new contradictions are immediately present in the new relations. This suggests that contradiction is a permanent condition and that it can never be eliminated, or blended into "harmonious" relations. This principle of contradiction explains its continuous challenge within systems which force elements to develop to their fullest capacity and then push beyond the limits of the system into a new system.

Engels said that change through contradiction cannot be charted or mapped out in any casual, straight-line fashion, but consists of "...a whole series of subforms in which the winding up and running down of universal motion goes on in opposition to both attraction and repulsion (Engels, 1940: 46). Contradiction, then, is not to be viewed as an "either/or", "thesis/antithesis" situation, but a process through which elements of the contradiction incorporate each other and generate new forms.

Having summarized some of the basics of dialectical thought, we can begin to examine Darwin's theory in this light. It can be argued that the theory of natural selection contains implicitly the idea of development through contradiction, for what Darwin was attempting to uncover was the process by which new species (systems) emerge from the old. In the Origin of Species (1962), Darwin described the evolutionary process in the following manner:

Again, it may be asked how it is that varieties I have called incipient species become ultimately converted into good and distinct species...How do these species arise? All these results follow from the struggle for life--meaning all interactions between species in a distinct area as well as competition within a single species. Owing to this struggle, variations, however slight and from whatever cause preceeding, if they be any degree profitable to the individuals of a species in their infinitely complex

relations to other organic beings and to their physical conditions of life, will tend to the preservation of such individuals and will generally be inherited by their offspring.

[Darwin, 1962: 76]

Clearly, Darwin's interest was with the task of specifying the interactions within and surrounding species in order to understand the forces which allowed "incipient species" to become "good and distinct species". As in any dialectical analysis, the dynamic process as Darwin saw it, lay between the active entities, that is in their relations, and not in single, casual factors or mechanical series of events. The result of the process is the emergence of new, qualitative phenomena--species. Darwin understood that every modification or adaptation contained the inherent potential (incipiency) to develop beyond its structural limitations, but he also knew that by themselves, adaptational (quantitative) changes were insufficient to produce the origin of a new species. Only the continuous struggle between species, within species, and within the physical environment produce the results. Transformation, therefore, is the culmination of a long and very complex process, and not to be equated simply with the cumulative effects of smaller changes, but the cumulative effects and then some.

In this sense, the process of change can only be known by its outcome and dialectical methodology attempts to account for the process in a deductive manner. For example, the system is never conceived as a piecemeal phenomenon with its separate parts relating only in a functional model. That is, there is a kind of predetermining logic underlying all phenomenological questions and which influence the possible in any situation. A phrase from Hegel places the question of the possible in the

context of necessity. He said, "Freedom consists of the recognition of necessity", therefore, within the realm of the possible, change may occur. (quoted in Newcomer 1971). In order to understand what may be possible, we need to make a thorough study of the structure of the system that defines the problem.

For Marx and Engels, the task was to study the relations of human society as an historical process, applying the methodological perspective of dialectical-materialism in a way that was not too different from Darwin's method. In essence, Marx and Engels began by specifying the dominant relations of social systems and the contradictions that arise historically from them. In the Theses on Feuerbach (1947), they define these relations in the following way:

The first premise of all human history is, of course, the existence of living human individuals. Thus, the first act to be established is the physical organization of these individuals and their consequent relations to the rest of nature...Men begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence, a step which is conditioned by their physical organization.

The way in which men produce their means of subsistence depends first of all on the nature of the actual means they find in existence and have to reproduce. This mode of production is not to be considered as simply as being the production of the physical existence of the individuals. Rather, it is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part. As individuals express their life, so they are. What they are, therefore, coincides with their production, both with what they produce and how they produce.

[Marx & Engels, 1947: 42]

Human life is characterized, therefore, by the relations or organization of productive activities, firstly for mere subsistence, and then, as a social expression among individuals. A further analysis of production finds the relations of production as the organization of individuals

into objective roles vis a vis production, coming into play with material factors, such as natural resources, technology, domesticated animals, labour, skills and knowledge--i.e., the productive forces. Together, relations and forces of production form the dialectical basis (the mode of production) of social systems through whose routine interactions, society evolves.

These, then, are the analytical tools of applied dialectical-materialism, which when consistently applied, allow us to see a multi-dimensional, moving-picture view of the world such that Engels remarked, "nothing remains what, where, and as it was" for long. The contradictions within society propel it through history and cause it to undergo qualitative developments in the mode of production, e.g., in the transition of feudal society into capitalist society. At the same time, dialectical methodology enables us to criticize "theories" of change which seek dynamic forces outside of the system under analysis as simplistic and deterministic explanations which can only produce static models and therefore, must be continuously frustrated in their efforts to understand change.

In this discussion, we have come from an overview of some parallels in the theories of Marx and Engels and Darwin to an exposition of the dialectical method. It deserves to be pointed out that while there exist definite similarities between these on the theoretical level, there are also some distinct differences which stand out especially among the numerous vulgarizations of "Marxian" and "Darwinian" thought.

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Among the former would be the metaphysical or "intellectual" Marxists who tend to repeat the errors of utopian thinking. And, a case of the latter is found among the Social Darwinians, such as Herbert Spencer and also, Darwin himself (see The Descent of Man 1904).

These differences are not just the products of misguided elaborators, but reflect a crucial difference between social science and biological science and have to do with the intersection of ethics and scientific objectivity.

Leon Eisenberg (1972) in an essay called, "The Human Nature of Human Nature", points out that in any other science but social science, the ethics of the investigator stand outside of the subject matter:

The planets will move as they always have whether we adopt a geocentric or heliocentric view of the heavens... But, the behaviour of man is not independent of the theories of human behaviour that men adopt. One example...So long as the 'nature' of the insane was thought to be violent and so long as the insane were chained, beaten, and locked in cells, madmen raged and fumed. With the introduction of "moral" treatment in the 19th Century, violence in mental asylums markedly abated.

[Eisenberg, 1972: 123]

Eisenberg points out something very interesting which has been a matter of debate in social science; namely, that to be objective is not the same as being neutral in one's views. Social science can never be neutral since the ideas of the investigator cannot be separated from the fact that he or she is a social being, and therefore, logically, a part of the investigation. When Darwin described the "struggle for existence" among animal species, his theoretical perspective seemed as remote from ethical concerns as an astronomer gazing at the movement of planets. But, when he used his theory, as he did, to describe the "enlightened nations" as the "fittest" to rule, suddenly, the theory of natural selection became a matter of social interpretation. On this, Peter Newcomer in a paper entitled, "Marx As Method and Metaphysic" (1971), suggests that Darwin's theory implicitly upheld the status quo:

Darwin's findings, however, had the effect of legitimizing nineteenth century social life--by emphasizing competition for the resources necessary for survival and the

beneficial effects of that struggle, his work had the effect of making nineteenth century oppression and misery and its worst effects appear at least inevitable.

The work of Marx, on the other hand, went far beyond this to show that those conditions were gratuitous and that human misery is indeed a product of human activity.

[Newcomer 1971: 9]

In these ways, Marx and Engels' system of ideas are quite different from Darwin's. Through explicit usage of dialectical analysis, with an eye to their practical implications, the investigator cannot detach himself/herself and claim neutrality through various "non-participant" guises. This, perhaps, is the most important contribution dialectics makes to social science, for it recognizes in itself the contradictions of society and is, therefore, capable of self-criticism in a way that, for example, Structural-Functionalism cannot be. Its careful application can open some productive avenues of research and theoretical discussion which are sorely needed. The dialectical method and perspective will be applied in the discussions which follow.

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Empirical studies of poverty, intelligence, or "sub-cultural" differences display their biases by their subject matter and their claims for neutrality are often a pretext for taking the position acceptable to the status quo.

CHAPTER 3

A Critique of Three Functionalist Approaches to Human Evolution

In this chapter, the goals and methodology of three functionalist approaches to human behaviour and evolution will be discussed, compared, and contrasted. These approaches are common to the body of literature in physical anthropology and primatology. They are (1) a morphological approach which focuses on the so-called primacy of bio-structural change as the antecedent to social change, which is exemplified by the work of John Napier, Sherrill Washburn and Philip Lieberman. (2) A category of research called sociobiology in which the ethological viewpoint is often stressed to show the "phylogenetic basis" of behaviour. This approach characteristically equates human and animal social behaviour in terms which may be more appropriate for animal species than human society (I say may be because this view has been criticized by students of animal behaviour as well as by social scientists). Foremost of the practitioners of this approach are Konrad Lorenz, Lionel Tiger and Robin Fox, Desmond Morris, and Robert Ardrey. And, (3) the sociological approach* which borrows its methodology, and categories of analysis largely from the social sciences, and seeks to demonstrate behavioural analogy between humans and animals. Rather than comparing human to animals as the ethologists do, this approach reverses the reference points and sets up human behaviour as the model by which to compare animal behaviour. Theories of learning and functionalist organizational models are routinely applied, and progressive adaptation through learned repertoires of behaviour are considered to be the most important factors in human evolution.

* My terminology.

The ethological and sociological approaches have some things in common, most noticeably, their preoccupation with comparative study. Both utilise analogical methods to equate humans and animals and to minimize the qualitative differences between them. In so doing, they mistakenly equate discrete behaviours which only appear to be similar, but in fact, are structurally unrelated. However, the sociological and ethological approaches differ along the lines of comparison they choose. The sociological approach is clearly anthropomorphic in its description of animal behaviour, while the ethological approach has been labeled the "ratomorphic" viewpoint by critics (See Shishkin 1976).

It should be noted that the ethological, sociological, and morphological approaches are all comparative and functionalist methodologies which see the goal of research as the elucidation of discrete data. At no time is there presumed to be any over-all logic or inherent dynamic to systems. Short-term change is valid to study because it is quantifiable and amenable to this piecemeal approach. The co-existence of factors which may be only tentatively related in a functional sense are elevated to a broader significance as bearing the cumulative effects of evolutionary change. The process of change is virtually disregarded.

The following discussion will seek to show how these three approaches fail to consider evolution as a process. In their determination to lump all of nature under one category, they have been responsible for confusing or ignoring other significant categories, such as species and culture. As will be demonstrated, the logical inconsistencies of these approaches reflect the inadequacies of their underlying methodologies as well as their lack of coherent, processual theory. Alternative viewpoints will be suggested.

The Morphological Approach

In physical anthropology the literature on human evolution expresses the over-riding opinion that biology, or more precisely, structural morphology preceeds behaviour adaptation in evolution. There are numerous examples of such an approach. For example, S. L. Washburn sees tool-making as the outcome of structural modifications in the human hand (See Washburn 1960 & 1974). Philip Lieberman has argued that language is primarily the function of neurological expansion of the brain (Lieberman 1972). Another example is found in John Napier's writing on the fundamental importance of hominid bi-pedalism for the corresponding motor developments of the brain (Napier 1970).

In somewhat more sophisticated views such as Stephen Gartlan's and the theses of Buettner-Janusch, multiple factors are taken into account as part of a structural complex (see Gartlan 1972 and Buettner-Janusch 1973). Nevertheless, behaviour remains subordinate in relation to biological and morphological determinants.

A partial understanding of these views can be found in historical terms having originated in the 19th Century paleontology where most great emphasis has always been on "concrete" versus social interpretation. This attitude is reflected in Napier's statement that, "The straight answer lies not in the theorizing of amateur and professional social anthropologists, but in the discoveries and interpretations of physical anthropologists and human paleontologists" (Napier 1970: 218).

Although S. L. Washburn takes a more sanguine attitude, he generally agrees with Napier that, ..."from a short term point of view, human structure makes human behaviour possible...". But, he also concedes, "from an evolutionary point of view, behaviour and structure form an interacting

"complex" (Washburn, 1960: 3). Given that Washburn's own descriptive categories of "motor homunculus", "sensory homunculus", etc., subscribe to the structural/morphological bias, we can surmise that he also views the short term approach as the most constructive.

The favoritism shown toward the short term, quantitative approach over the evolutionary approach may stem in part from the assumption that structure and morphology are more tangible and conservative phenomena, and are, therefore, more definitive of the process as a whole. It follows from this line of reasoning, then, that social behaviour is to be regarded as complementary to structure and morphology in the way it develops and that the evolution of behaviour is a response to these other, presumably, more significant changes.

While this attitude is only one example of an overall, bio-social approach to human evolution, this particular example contains some methodological problems apart from the rest. As a quantitative approach, it takes a mechanical view of evolution. On the one hand, there is a tendency to regard structure as somewhat distinct from behaviour; in fact, the two are often referred to as parallel developments, which can therefore be discussed separately. On the other, when the interconnection is recognized, behaviour is treated as a secondary factor.

The theoretical difficulties this poses are enormous because given that only discrete factors, e.g., the hand, foot, brain, etc., are considered, the inter-relations among them and what they mean in the context of a way of life are completely ignored. Evolutionary concerns are sacrificed for purely descriptive interests.

While the advocates of this approach are interested in placing the data in an evolutionary construct, they lack a theoretical basis to do so;

the data cannot "tell" its own story, but must be interpreted. There is nothing intrinsic to bone, muscle, and nerve tissue that cause a hand to grasp a rock and use it as a tool. The motivation for this act is a response to the needs of the group and the individual. Morphological structure, while it is valuable to the perfecting of this kind of behaviour is functionally speaking, coincidental to the actual behaviour.

Such approaches fail to address the social requirements of hominids as they evolved from the ape mode of society. In this light, behaviour, especially social behaviour, must be considered primary to morphological change. To better appreciate the relationship of behaviour to morphology in a Darwinian sense, Ernst Mayr (1970) offers these analytical criteria:

The idea that morphological distinctiveness is the decisive criterion of species rank is fallacious, although, it is based on a correct observation of a frequent correlation between reproductive isolation and morphological differences. It is fallacious because it overlooks the strictly secondary role of morphological difference. The primary criterion of species rank of a natural population is reproductive isolation. The degree of morphological difference displayed is a secondary by-product of the genetic divergence resulting from reproductive isolation.

[Mayr 1970: 21]

Mayr is correct in pointing out that, "a shift to a new niche or adaptive zone is almost without exception, initiated by a change of behaviour", and therefore, reproductive isolation is primarily a behavioural response (Mayr 1970: 362). But, this is true only for Darwinian populations in whom the response to external pressure is met first by the individual and subsequently filtered down to the species. In the case of hominid evolution, we have to consider a new element conditioning and absorbing change---the social group. At this point, the connection between behaviour, that is social behaviour, and biological evolution

becomes more obscure due to the fact that society is no longer responding to the world in the same ways as before.

In order to redefine this relationship, it is necessary to explore the assumptions upon which the physical evidence is assessed. The fossil discoveries of early hominids have given us a great deal of information which suggests what their conditions of life may have been like. We know, for example, that Australopithecines were making stone tools at least 1.75 million years ago and according to Washburn, the brain size of these hominids had not advanced significantly from apes (Washburn 1960: 123). Based on this information, Washburn feels that intelligence per se, was probably not a crucial factor in the initial divergence.

As an indisputable tool-user, *Australopithecus* must have come to need tools in his daily life. This we can safely surmise from the co-incidence of pebble tools and animal bones in Australopithecine sites. No other primates have left behind these kinds of intriguing remains of their existence and this difference strongly suggests qualitative differences beginning to emerge between primitive human and ape. In spite of this, we find a tendency in the literature to down-play the larger significance of tool-use and hunting. Washburn refers to this as "Australopithecines were the first to chip a fist-sized piece of stone into a useful weapon" (Washburn: 158). While Napier says, "It is a short step from modifying a tool for immediate use to modifying a tool for future eventualities". (Napier 1970: 204).

Both statements reflect the obvious connection between the making of a tool and its intended use--that is, a tool is not just an extension of the hand, but that is as far as their analyses go. More pointedly, Buettner-Janusch raises the question of tool-use in relation to the

general mode of behaviour:

Once there is evidence that the making of tools to a particular plan has developed, we must assume that symbolic communication and education are part of the repertory of traits possessed by the primates whose fossils are associated with the tools.

[Buettner-Janusch 1972: 315]

Indeed, there is a strong implication that different kinds of social characteristics must have evolved along with tools. But, in order to satisfactorily explain this relationship, it is necessary to go beyond merely examining the tool-kits of hominids. First, we must ask how were tools used, who used them, and for what ends? In order to answer these questions we must also ask ourselves, who were the tool users--what was their social context?

The importance of the relationship of tools and social life can only be discovered by making a thorough analysis of the mode of existence of early hominids and in particular, their subsistence activities and relations. Tools are quite obviously related to subsistence activities, but we can also infer that in order to carry out certain kinds of activities, communications would be extremely important also. Thus, we must consider the evolution of language, side-by-side with tools for subsistence. Cooperative labour necessitated both a means of appropriating subsistence and a means of dividing the tasks and the products of labour. These involve a mode of communication which is capable of conveying certain kinds of information and for collective decision making. The problem underlying the evolution of tools is, therefore, a social problem of understanding the nature of the changes affecting hominid social organization. The answers are not to be found by reference to "concrete" physical data, not in superficial observations that tools had some

functional value. Rather, they lie in our interpretations of these facts and observations with respect to the social nature of human society and how it operates as a mode of life for its members.

Physical anthropology has typically eschewed this course of inquiry as being purely hypothetical. It is true that we can never know exactly what our hominid ancestors were like, yet, the task of discovering the social nature of human beings is not impossible. Given what we can learn about human society by studying its present characteristics in a dialectical way, coupled with fragmentary, but useful remanants of hominids, we can begin to work out a tentative hypothesis which recognizes the social implications of material data and their significance within a holistic framework.

At present, there are few models of this type of social evolutionary analysis; James Faris (1975) and Kathleen Gough (1973) represent this approach. In a paper entitled, Social Evolution, Population and Production, Faris offers a generalized schema for understanding the "critical disjunction between human society and animal society" which, as he says, is the first step towards developing an understanding of the special social character of human society, and therefore, its subsequent evolution (Faris 1975). In her paper, The Origin of the Family, Gough explores the evolutionary significance of the family to the whole of human evolution. (Gough 1973). Both offer some preliminary insights into, not only the question of human evolution, but how methodology shapes the kind of analysis one arrives at.

Gough discusses the influences which changed subsistence activity had on the structure of hominid social organization:

With the change to hunting, group territories became larger...but because their infants were helpless, nursing women could only hunt small game close to home. This then produced the sexual division of labour.

[Gough 1973: 6]

Group subsistence, thus, came to be the primary concern of the individuals in the group: "men supplied meat and women and children supplied vegetable produce--all for general consumption" (Gough: 7). The planning that such a cooperative existence entailed also affected the creation and utilisation of tools for predetermined tasks. Thus, the cooperative principle which guided social relations especially through the organisation of the economy came to be embodied in the materials which went into making tools, and in this way, tools became social in the context in which they were created and put to use.

It is impossible from a dialectical viewpoint to discuss the origin of tools without discussing the ways work is divided and labour is allocated among the group. Gough makes a point by referring to the division of labour in support of her argument that the human family arose out of the specific sexual divisions and age divisions in the community; thus, Gough perceives of social allocations of labour as an extention of the so-called natural division of labour. While Gough is perhaps correct in pointing out some of the material reasons for women assuming different roles from men in the productive unit, she may be overstating the inherent, biological differences as the primary condition for the division of labour in human society. Sexual roles do seem to be the case among many primate species where the females are considerably smaller and lighter than the males and can therefore, forage in different parts of the habitat. But, we must remember that primates are not socially productive in the sense

that they share their means of subsistence collectively. However, with humans, the division of labour is the arbitrary dividing up of activities which are collectively beneficial and the particular division depends largely on the type of resource being socially appropriated and not on the fixed capabilities of individuals. In this way, sexual or age differences in a community of human beings are given social meaning above and beyond the biological distinctions (see Slocum 1976, and Friedl 1975).

James Faris, on the other hand, deals with the subject of speech and tools from a fairly clear perspective of the social dialectic. He says,

Animals can use tools, even make them, but this is only as individuals and animal tools do not embody labour for the group. In human society, tools increase manpower for production, changed land tenure or mobility patterns, and different forms of work organization.

[Faris 1975: 247]

The definitive criterion of human tools, according to Faris, is the way labour potential is realized in, by, and for the group; where these relations exist, so will we find the concomitant and necessary relations of labour and language.

It is suggested here that all of these factors in the most primitive sense characterized Australopithecine life and marked the major qualitative step from ape social organization to human social relations. In the new conditions, behaviour was freed from the prior constraints of natural selection and biological systems and became part of predominantly social relations with the capacity to advance social life in materially conscious ways.

The question of methodology cannot be ignored in the task of reconstructing the critical factors in the transition from ape to human for the

way we formulate the problem will determine the kind of results we can expect. In this case, the question may be phrased in predominantly social terms or biological terms. The answer, however, is not quite so obvious because when we consider the theoretical problem of transformational change, development through contradiction, etc., what we may safely categorize as social behaviour for animals is not social for human beings; and, conversely, what is biologically determined for animal populations is not so for humans. As we shall see, the approaches which treat "society" as a single, undifferentiated phenomenon offers little in the way of elucidating either human or animal behaviour. In following the morphological approach, social questions are always framed in structural/anatomical terms. However, in the next approach to be discussed, the assumptions are phrased in sociological terms, again, employing a comparative and quantitative method.

The Sociological and Ethological Viewpoints

Under the broad heading of "~~sociobiology~~", two points of view diverge; one deals with social behaviour of primates in sociological terms by applying principles of learning theory. The other employs genetic mechanisms and utilises concepts borrowed from ethology to explicate human behaviour. Both insist on a theory of "continuity of development" which tends to minimize qualitative disjunction in evolutionary development and allows for cross-species comparison to be made. In essence, while both views start from different premises, their end results effectively equate human behaviour and primate behaviour. This thinking has influenced much of the work on social behaviour and cultural evolution in anthropology for more than twenty years.

The sociological viewpoint was stated by John H. Crook (1970) when he called for a "synthesis" of ethology and sociology to account for social behaviour. Along with Crook, J. Itani (1960), Russell & Russell (1972), Kummer (1967), Sugiyama (1973), and many others engaged in this brand of research in which primate behaviour was considered to be highly flexible and characterizing tendencies toward cultural development. Learning theory played a major role in their methodological approach, for as they viewed it, culture was distinguishable by the level of intelligence of a species and its capacity for social learning. Therefore, it was believed that if such a theory could be correctly applied it could lead to certain insights about the mechanisms of cultural evolution.

As a result, the principles of learning theory as developed by Skinner, Seligman, Thorndike and other psychologists were adapted to this problem. Much of the literature since the late 1940's has been devoted to this approach. For example, the classic studies of macaques who learned to "wash" their food by observation of the insightful behaviour of one individual and Jane Van Lawick-Goodall's studies of chimpanzees learning to make "termite sticks" by similar observation (see Itani 1960 and Van Lawick-Goodall 1965). From these studies it was noted that rapid transmission of new behaviours was involved without concomitant physical adaptations occurring, and it was suggested that learning itself is a kind of adaptation which evolves in higher orders and plays a significant role in the general evolution of primate species. Moreover, the advocates of this approach saw the sheer ability to learn as something representing a distinct cultural feature---a protocultural predisposition which eventually

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Crook said that ethology alone was insufficient because it only deals with the behaviour of isolated individuals.

leads to fully cultural behaviour of Homo Sapiens (Crook 1970: 308, also Burton & Bick 1973).

Thus, learning as a theoretical construct and dynamic principle was posited as a major influence affecting the differentiation of hominids from the primate stock. Crook saw it as the root cause of human history when he said, "Primate societies are thus conceived of as Proto-cultural communities subject to Darwinian selection in addition to processes of historical change" (Crook: 308). (We may note there is close similarity between Crook's position and Wynne-Edwards' group interest principle which has been widely criticized within zoological circles.)

From the ethological point of view, learning theory is also useful, but primarily as a way of specifying the neural and genetic mechanisms underlying it. The ethologists' concern is not what learning does or contributes to the development of a species, but how it works within a phylogenetic framework (see Tiger & Fox 1973). This is in keeping with the main objectives of their perspective which is to explain the selection and transmission of genetically programmed behaviour and to show how such behavioural mechanisms dictate social organization (Tiger & Fox 1973: 22). Sociological interpretations, according to Lionel Tiger and Robin Fox, only get in the way of understanding the "basis" of human society.

These assumptions do not agree, obviously, with the more general interests ascribed to learning by the sociological viewpoint. Learning for the latter is regarded as a dynamic yet flexible capacity. But, it too has certain drawbacks as a general theory stemming from its functionalist methodology and its failure to recognize qualitative differences between human and other societies.

For example, a major flaw of the sociological approach lies in

its use of analogical comparisons between primate and human social organization. Popular terminology, such as "family", "status", "charisma", "tradition", "custom", and "culture" have been transferred from human studies to primate studies with the assumption that the descriptive phenomena are basically the same. Sugiyama, for instance, compares the Kalahari Bushmen's "trance-dance" with chimpanzee "booming" displays (Sugiyama 1972). Others, including Itani, the Russells, and Goodall discuss "incest avoidance", baboon "harems" and tool use in precisely the same terms suggesting, again, that neither human nor primate society are integrally distinct (see Itani 1972, Russell & Russell 1972, and Van Lawick-Goodall 1965).

These studies overlook that superficial analogy is insufficient for explaining genuine similarities or differences. And, they further neglect to see that the functions of behaviours must be understood in terms of their dynamic relations which affect the lives of the individuals and the material circumstances of the group. For Sugiyama to suggest that Bushmen are like chimpanzees displays an astounding ignorance of social production as the basis of human society and in that context, of the inter-relationship between economics and ideology. The same criticism should be served the Russells for equating human polygyny with baboon "harems". The only similarity lies in the ratio of one male to more than one female. While marriage and kinship relations play an important role in the nature of production and exchange for human societies, baboon, have no reason to produce or exchange subsistence, therefore, their so-called harem relations are nothing more than dominance relations responding to specific factors in the environment (see Kummer 1968). Lastly, Itani's idea that incest avoidance originated in a "taboo" among monkeys against having

sexual relations with one's mother can be repudiated when we consider that incest avoidance is not a biological phenomenon among humans but a social phenomenon governed by rules which determine the degree of relationship among individuals, and who is or is not in a marriageable category to oneself (see Levi-Strauss 1949).*

The point to learn from these examples is that analogical comparison between species leads to serious errors in our analyses. When we assess the worth of concepts like proto-culture, we must not confuse analogy--i.e., superficial similarities, with homology or structural relatedness. Potato-washing among macaques may resemble human behaviour, and it certainly involves rather complex learning capacities, but do these things by themselves represent culture or should we not be looking for other parameters?

The answer to these questions lies in our analysis of the nature of human social organization and our ability to uncover the mistaken assumptions that behaviour is the relevant focus of human social analysis. From a functionalist perspective, social systems are inductive categories and can only be defined as the sum of its parts. As a descriptive methodology this works well because it is assumed that all one needs to do is correctly identify the parts, describe their functional inter-actions, and the analysis is complete. However, from a dialectical perspective, the significant relations are often not readily apparent. We remember Marx's comment that if all nature were obvious, there would be no need for science.

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See Chapter 4 for more on the basis of kinship in human society.

The major problem with superficial description is that it leaves questions of origins, motivations, and structural unity of behaviour unexplored. In the example of potato-washing reported by Itani, the situation which led to the behavioural adaptation had much to do with the conditions of the research itself - i.e., the monkeys were artificially maintained as a colony by the provision of food and these conditions were unusual in themselves. The fact that the behaviour was readily accepted by the other monkeys without any visible interference with usual behaviour suggests that the potato-washing in itself was not as significant as the researchers thought, but fit into the range of possible responses for their species.

In order for new behaviours to mean something in an evolutionary sense, the behaviours must be capable of extending the existing range to the extent that old behaviours cease to be utilised or the new behaviours come to play a greater role. Of course, while the addition of one such behaviour to macaque repertoire would not be sufficient to produce a genuine evolutionary change, nevertheless, it is even difficult to conceive of many such adaptations having a cumulative effect to this extent--mainly because the abilities represented by behavioural adaptations such as potato-washing are well within the possible repertoire of macaque behaviour. The kind of changes which would have a definite influence on the evolution of cultural behaviour would have to create severe disjunctions in the normal patterns of activity to the extent that modified behaviour alone would not suffice to meet the new needs of the individuals. In the case of the transition to culture, primitive humans experienced a total reorganization of their social relations based on entirely new principles of social existence, so that permanent relations between individuals became necessary for survival.

The sociological viewpoint also assumes that learning development in primates is a causal factor. To accept this means that we must regard the various mechanisms of learning, e.g., rote learning, insight, recall, repetitive learning, etc., as if they were logically independent of the process itself and what is being learned. Ethologists, Tiger & Fox, share this notion when they say, "what is learning is as important as what is learned" (Tiger & Fox 1973: 26). But, we must insist that the mechanisms and content of learning are mutually dependent and cannot be logically separated. Without reference to the kinds of information they convey, and therefore the social contexts in which they operate the mechanisms are hollow constructs. In taking this view, we also lose sight of the fact that learning develops in response to material requirements of life.

In the analysis of qualitative transformation, it is absolutely necessary to know the substance of the change as well as the direction, forces, relations--all relevant aspects of the process. The capacity to learn is certainly not unimportant in this process, but its own development is intrinsically understood in and through the system of relations. Consider for a moment, the capacity to learn in the context of a transformational process in which the relations and the underlying conditions of change have undergone irreversible alterations and in which the entire range of behaviour patterns have been dramatically reorganized. In a social transformation of this kind, even the function of learning would be changed, from an individual process--i.e., one individual observing another individual washing potatoes in a stream and imitating the behaviour--to a thoroughly socialized process in which the individuals deliberately teach each other new things. Teaching is the qualitative disjunction of the

learning process, as it is manifest in human society. It is the same social dimension which reflects itself in the character of all existing relations of the human mode. Through sharing, experience and knowledge becomes an essential part of the group's means of survival--it becomes the group's history which supercedes the knowledge of any single individual.

In short, these are the problems of the sociological viewpoint as it is related to primate evolution. The other viewpoint which remains to be dealt with is the ethological perspective or as Lionel Tiger and Robin Fox have dubbed it, the "zoological perspective in social science" (Tiger & Fox, 1973). Some of the major differences with the sociological viewpoint have been briefly mentioned, namely, that the purpose is to elucidate human behaviour in terms of animal behaviour assuming that phylogenetic parameters sharply define the limits. In contrast to the anthropomorphic tendencies of the sociological view, anthropologist, Alexander Shishkin, has called this the "ratomorphic" view of human behaviour (Shishkin, 1976: 181).

As a classic example of this perspective, Tiger and Fox have most clearly enunciated the goals and biases in a paper whose title evokes almost as much controversy as the content--"The Zoological Perspective in Social Science" (1972). Their intention is to cut to the core of the social/cultural foundations of social science by laying out a series of criteria for behavioural analysis. Firstly, they suggest an interdisciplinary approach, combining "three strands of science--comparative sociology, physical anthropology, and ethology...to be augmented by psychiatry". Secondly, they suggest that analysis should not proceed from the analysis of social systems per se, "but from the selection and transmission of

genetically programmed behavioural as well as anatomical systems. And, lastly, they propose that these genetic behaviours be regarded as "the unitary basis of human social organization, placing human behaviour as a subfield of comparative zoology" (Tiger & Fox: 1972 22).

Tiger & Fox's claims for an interdisciplinary approach appear shallow when we consider their strong intellectual debt to the Lorenzian school of ethology. Indeed, their inductive categories, e.g., territoriality, aggression, bonding, imprinting, ritualized displays, etc. carry the trademarks of this approach. While their specific work is logically weak and often confused, there are also serious methodological problems inherent in ethology which deserve substantive argument.

The Lorenzian model emphasizes the importance of distinguishing between innate and learned behaviour, suggesting that learning can only develop in a limited way and cannot affect the innate, fixed capacity of the organism (Manning, 1972: 31). It should be pointed out that Lorenz and colleagues developed their ideas primarily with respect to fish and bird species. Since they believed the principles to be universal, they often generalized with ease from species to species. The main precepts of ethology involve innate capacities, called Fixed Action Patterns (F.A.P.) which when brought under the pressures of external stimuli respond with predictable regularity. It is presumed that these responses are the fundamental criteria of species distinctiveness, molded precisely over time to fit rather constant environmental conditions. Moreover, the organism is thought to be equipped with internal neural mechanisms, called Innate Releasing Mechanisms which are innate and unalterable responses to particular "releaser" stimuli. For ethologists, behaviour is thus specifically defined in terms of these mechanisms; e.g., Imprinting, Aggression,

Mating, Nesting and Territorial Display.

Within this highly circumscribed range, behaviour is thought to exist in a lock-stepped relationship with environmental conditions-- hardly a developmental relationship. Change would be imperceptible during an organisms' lifetime, while the question of long-term, i.e. evolutionary dynamics are not addressed. Although Lorenz did attempt to cover the question by saying that the "least variable parts of a system, i.e., those which appear most frequently as a cause and least frequently as effect" should be credited with the dynamic potential, (as quoted in Tiger & Fox 1972) it is clear that ethology offers no coherent theory of social behaviour evolution, but present a static, ultra-conservative model. According to Aubrey-Manning (1972) in An Introduction to Animal Behaviour, "the majority of workers would now agree...ethology is inadequate" (Manning 1972: 23).

Yet, it is this approach which Tiger and Fox embrace in their attempt to apply it to human social behaviour. While they admit there are cultural aspects to human society which ethology traditionally has not addressed, nevertheless, the "non-cultural" aspects such as aggression, bonding, and ritualized displays are conducive to ethological analysis, and anyway, are the most characteristic, as they are the "least variable parts" (Tiger & Fox 1973: 23). As an example, they suggest "male bonding" as such a non-cultural behaviour which is supremely adapted for defense and hunting activities (p. 23). (Tiger & Fox 1973: 23)

Aside from the fact that the concept of "male bonding" completely ignores the role of women in social evolution, their blind category also fails to see the connection of hunting and defense to other social activities. They view such activities in isolation. By equating humans and

non-humans on the basis of a common tendency for "bonding", the qualitative difference between human bonding for mutual aid in production and primate bonding are disregarded. It is abundantly clear from the literature that bonding among animal species does not serve any socially productive function; it exists among mother and offspring and also among mates primarily for sexual reproduction. In no ways do they create (nor do they need to create) organizations to allocate labour and work our strategies for production and distribution of subsistence. Human society, on the other hand, must perform these activities for survival and this is the fundamental difference which Tiger and Fox completely overlook.

A number of critics have commented on the negative implication of the zoological perspective for social science. Alexander Shishkin, a Soviet ethnologist, takes Konrad Lorenz to task over the views of human nature expressed in his famous book, On Aggression. Shishkin says:

Actually, we have no authentic data about innate sources of man's aggression. Scientists who regard man as a predator seeing others as his prey or as a means to attain his ends, are apparently aware only of the relationships between men which is most characteristic of the society based on the principle of money-making.

In such a society there are also men and women fighting for freedom, progress, and enlightenment of the masses--men and women prepared to make sacrifices for that end. Indeed, are they motivated by any aggressive purposes? Is it also right to say that the masses of men involved in the aggressive wars waged in the interests of capital do so out of innate aggressiveness? One need only pose these questions to realize the groundlessness of man's innate aggressiveness [Shishkin, 1976: 182].

Sally Slocum in her paper, "Woman the Gatherer: Male Bias in Anthropology" (1976), suggests that the notion of aggression as humans' basic "instinct" in hunting for subsistence only takes into account the

"killing" part of the activity, completely ignoring the cooperative aspects of the hunt and the reason for hunting which is to get food for survival--not out of any destructive motive. She also levels criticism at Tiger and Fox for their anti-female bias in their notion of "male bonding". Slocum suggests that their own prejudice has blinded them to the fact that gathering which is typically women's work produces more bulk in the diets of band societies than hunting.

The undermining of cooperation and mutual aid among human beings as a necessary part of daily life is, perhaps, the most devastating "contribution" ethology has made to social science. Thus, Lorenz has said, "with the development of weapons and new methods of killing, the instinct for aggression meets less resistance in the innate taboo of fratricide" (as quoted in Shishkin 1976: 181). This image of ourselves as "killer apes" has ideological value for those who would wish to impose certain types of social controls because the conclusions they foster say no amount of cultural frosting-over will change a basically aggressive human nature. Therefore, war, murder, rape and every sort of destruction are "natural" (although, regrettable) to us, and therefore, beyond our power to willfully change. Under such circumstances, the only hope is to impose social controls in a political way to repress human nature as much as possible.

Another flaw of this approach resides in the question of species

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It should be noted as a comment on Lorenz, that the seminal work into ethology was done by Lorenz in Germany during the Nazi regime. While other scientists and intellectuals were forced to flee Germany or were exterminated during the war, Lorenz was free to carry on his experiments because his research was not considered to be threatening to Fascist ideology. His subsequent immigration to the United States was part of the scientific/diplomatic/political rapprochement which brought to North America such notable "refugees" as Drs. Werner Von Braun and Edward Teller.

survival faced with such a negative force as aggression. Such a dynamic would tend to lessen the chances for survival, it would seem. Thus, natural selection would probably select against its persistence rather than reinforce it. But, to the contrary, the historical development of human society has been characterized by progressive developments--population growth, habitation of nearly all parts of the world, phenomenal production of material goods and accumulation of wealth--not decline as one might expect. How do we account for this contradiction? The ethologists have not even asked this question because their method of inquiry satisfies their curiosity and supplies them with a scientific justification of their conclusions--the nature of which tends to support (whether they are all aware of it or not) certain kinds of exploitive socio-political systems which consistently encourage and financially back this kind of research.

The reasons for the inability of ethology to challenge the existing system or sufficiently answer its critics' charges of scientific inconsistency can only be understood by the short-comings of its own methodology. A theory which is ultra-conservative in its view of change certainly cannot comprehend dialectical change or the significance of transformation. Moreover, a theory which posits continuity of development of functional units cannot recognize qualitative change which produces irreversible and unique disjunctions characterizing new systems. Human society is just such a disjunction from animal society and Darwinian principles of development. The mode of human social organization is qualitatively distinct from any other mode or system precisely because it is a socially productive system which creates subsistence and enhances its own development through growth.

Unless culture is seen in this light as not just an adaptation but

as an indispensable, total mode of existence, it is impossible to understand the survival and progress of human society. As Shishkin puts it, "Nature has not produced a single capitalist or worker, nor accordingly, class mentality, ideology, moral rules of theories. All these are products of history" (Shishkin: 188). Indeed, until social science really begins to accept society and culture as social-historical developments, not contingent on morphological determinants or biological subsystems, the efforts to understand human origins and subsequent social change will remain at their presently underdeveloped stages.

In conclusion, the rallying cry of the "zoological perspective" to abandon all social and cultural approaches to social science is theoretically and ethically impoverished when examined in the light of the historical development of human society. In general, the weaknesses of ethology are more apparent through what it cannot explain than what it purports to understand.

A similar argument can be made with reference to the sociological viewpoint which, like ethology, seeks to place human and nonhuman on an evolutionary continuum, but seeks to do so from an anthropomorphic approach. These perspectives adopt a functionalist methodology which describes systems in terms of static, quantitative affects rather than by disjunctive, evolutionary criteria. Functionalism produces a kind of analysis in which isolated variables are presumed to interact according to some motivational force which is external to them. Actually, all this yields are descriptions of systems which are incapable of changing beyond rigidly defined limits. What is missing, therefore, is a conception of process and transformation of social systems--i.e., how structural relations inter-relate in developmental ways and how they contain the seeds

of successive systems. Functionalism does not and cannot offer a theory of systemic change which is quintessential to an understanding of the evolution of human society. The next chapters are devoted to understanding and developing an alternative methodological approach to overcome these limitations.

CHAPTER 4

Some Theoretical Issues Regarding the Criteria of Humaneness

The purpose of this chapter is to discuss the criteria of culture in a general way in order to discover the process of their origin. Much ethnographic detail has been left out of this discussion although not ignored because the theoretical implications of processual change and methodology are of primary concern here.

The question of cultural origins is problematic because the term culture is itself problematic. Few anthropologists mean quite the same thing when they talk about culture. To some, it conjures up catalogues of components, e.g., language, material traits, art, religion, etc. For others, it takes form in concepts such as adaptive, integrative, super-organic. Then, there are those who tend to define culture as meaning only the material or artifactual content of society, for example, language and culture, culture and personality, etc.

The quandry over what exactly is culture is understandably confusing to the student, but it reflects a philosophical issue which anthropology as a discipline devoted to the question has failed to de-mystify. That is, what makes humans different from animals? For those who are interested in clarifying the question, however, the term culture with all of its diffuse meanings simply aggravates the confusion more.

Perhaps, the solution is to take a new approach and abandon the term for the time being, and focus, instead, on the characteristic criteria of social life with the intention of trying to understand the relational significance of these criteria and their origins as aspects of a unified social process. The following discussion will attempt to achieve this by looking into the social dynamics which gave rise to the relations of

language, tools, and economic and social organization. These relations considered dialectically, are part of a single system which necessarily developed together--in relation to each other--as a total mode of life, which characterized the transformation from pre-hominid to early human society. None of these relations are considered late developments, but go back to the roots of our heritage, probably sometime in the late Miocene Epoch. This heritage is based on the emergence of a unique kind of social life actuated by social relations that serve the group's interests through social production of the means of subsistence. Organization is, therefore, internally dynamic, being able to determine the relations of individuals to each other on the basis of mutual needs and labour allocation. This approach will clarify the parts played by the various criteria of culture in the process of socio-cultural evolution. It will be seen that the concept of culture can express the qualitative difference of human society when understood in a materialist and dialectical way.

-On Language-

Language is a relation. It is not an entity which evolved separately from culture and environment as, for example, Edward Sapir (1949) attempted to do. Neither is it a unitary force or "the most important factor which differentiates man from other animals..." as Philip Lieberman and E. Crelin have suggested (Lieberman and Crelin 1972: 77). On the contrary, the internal characteristics which are distinctive of language, i.e., displacement, discreetness, productivity, etc. which are unique from other systems of communication, bear a definite relationship to the distinctiveness of the total mode of life of the first hominids. C. F. Hockett (1960) had a good sense of the relational significance of language when he wrote:

The development (of language) must be visualized as occurring in the context of evolution of the primate horde into the primitive society of food gatherers and hunters, an integral part, but a part of the total evolution of behaviour [Hockett 1960: 186].

Hockett understood that language cannot be considered to have had an independent origin--language is much too different from primate calls to be explained as simply a modification of animal communication. Furthermore, he suggests that the dynamic which produced language must have had a social basis and a definite relationship to the specific activities (i.e., hunting and gathering) of primitive society. In making these observations, Hockett was careful, however, to avoid the pitfalls of many cultural theorists who in equating language with culture, suggest a causal relationship between the two. Hockett recognized that while language is an objective criterion of human life, it is not a causal criterion. But, beyond this, Hockett's analysis does not elaborate.

The significance of language is that it conveys a certain kind of information, information which is both necessary for certain kinds of activities and is at the same time only made possible by these same activities. Thus, language is capable of two special functions. Displacement allows the speaker to talk about something which was present yesterday, will be present tomorrow, or about something which is going on at the present moment somewhere beyond the sight and sound of the speakers. Language is also capable of productivity. To linguists, this means that a speaker can talk about something which he or she has never experienced before. These two communication facilities can only be understood as developing in the practical context of social life where planning and the ability to organize socially for survival were necessary. Since no other system of communication is capable of combining displacement and producti-

vity with discreteness of meaning and a traditional or learned system of transmission, we are led to conclude that language reflects a quality of social life which is different from any other kind.

If we look closely at the relationship of language and social life, we can see some obvious reasons why primates do not have a language system. The activities which primates perform, e.g. foraging, nest-building, child-rearing, and defense, are activities which are carried on by each individual for himself. A primate builds a nest for his own use, forages to feed himself, nurses and transports her own infant, and defends himself from predators (a primate does not throw himself into the clutches of a predator in order to protect another animal; neither does a primate mourn the loss of a fallen comrade). These activities represent a quality of social life in which the interests of the individual animal are foremost and in which the group's survival is enhanced only indirectly by the well-being of each individual. In this relationship there is no direct social benefit inherent in the nature of the primate group precisely because each individual provides exclusively for himself and because there is no contribution made either economically or socially to other members of the group. The sole exception of course is the relationship of the mother to her infant, but this is an exception which is beyond the individual mother's control; it is a biological requisite and not a social choice.

This is quite different from human society in which subsistence is mutually organized and labour is socially allocated to different members with the implicit understanding that even those who are not productive themselves, e.g. the very young and the very old and infirm, will get a share. In human society social life takes on a completely new dimension;

it becomes a mode of life which exists fundamentally for the benefit of the group; and the individual's relation to the group takes on a conscious social reality as a member of society.

It is due to these social differences that human society communicates through language and primate society does not. Language is the consequence of very specific and distinctive kinds of social relations which manifest their basic character in subsistence production and labour allocation. The limitations of language experiments with non-humans can be plainly understood in this context. For example, the experiments of the Gardners (1967) and others in painstakingly teaching language to chimpanzees resulted in only limited production of language with the aid of American Sign Language (ASL). It is important to note that even these results were only possible through the chimps' association with their human experimentors. It was this human relationship which encouraged and reinforced a completely foreign behaviour to the limits of chimpanzee ability. Language does not exist in wild chimpanzees. In their natural environment there are no such social relations which necessitate language development. Primates have nothing to say to each other that cannot be communicated quite adequately through their own system of communication.

Frederick Engels recognized this in his essay, The Part Played By Labour in the Transition From Ape to Man, first written in 1876. He wrote:

...the development of labour necessarily helped to bring the members of society closer together by increasing cases of mutual support and joint activity, and by making clear the advantage of this joint activity to each individual. In short, men in the making arrived at the point where they had something to say to each other.

[Engels 1940: 6]

Therefore, language was more than a social "tool" or adaptation along the road of cultural evolution; it was the absolutely necessary development for the new way of life, both as a product of particular social conditions and relations (i.e., labour) and as a force in itself for the continuation of this course of evolution. From this point of view, then, language is a phenomenon containing a double or dialectical relationship as an expression of the qualitative shift into the new mode of life in which the members literally needed society for the first time and contributed to it.

The origin of this shift must have taken place very early in hominid evolution. To our knowledge, Australopithecines of the Pliocene-Pleistocene were the first hominids whose physical remains strongly suggests their involvement in the transitional process from ape to human at least four million years ago (see Richard Leakey 1971). The evidence of the complex of pebble tools and hunting leads us to the assumption that patterns were evolving which were quite unprecedented in comparison to the patterns of primates or predatory animals. A new kind of social organization was emerging which made these new patterns possible and which involved new relations between individuals with language as a means of carrying on relations of production.

In attempting to locate the origin of language, perhaps as far back as the Australopithecines, the writings of P. Lieberman and E. Crelin (1972) must be addressed. In their article, "On the Speech of Neanderthal Man", they make a case for Neanderthal being incapable of speech based on their attempt to reconstruct the vocal anatomy of Neanderthal from fossil material. They arrived at this position by taking the view that human speech is "essentially the product of a source, the larynx for vowels and a super-laryngeal vocal tract transfer function..." and that together with the development of the frontal lobes of the brain, these offered the necessary

and sufficient preconditions for language production. Neanderthal, they claim, was incapable of speech because they lacked both of these pre-conditions (Lieberman and Crelin 1972: 77).

It should be noted that Loren Brace has criticized Lieberman & Crelin's general hypothesis. However, few critics have carefully explicated the faults in their methodological framework which is based exclusively on the functional dimensions of anatomy and physiology. Secondly, their analysis only begs the question of origins. The Salient questions remain unasked: What created the vocal organs and for that matter, why? Our pre-hominid ancestors certainly got along without speech. What changed in the conditions of their lives that produced this unusual course of development?

Most physical anthropologists would agree that this development can be accounted for by natural selection pressures on the species. However, such a response still fails to get at the heart of the problem. Exactly what were those pressures and why was the development of organs for speech
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a logical response?

The questions remain of what produced the changes and why. These are really the crucial questions to be addressed for in order to develop scientific hypotheses about human evolution, we must probe the specific dynamics of change. Lieberman and Crelin's hypothesis is highly deterministic

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Perhaps the next line of argument would be that the vocal anatomy followed the shift to bi-pedalism, freedom of the hand, etc., and that all these changes were influenced by a long prior shift in habitat. But such tautological arguments only lead us back to the problem of trying to interpret what are fundamentally social phenomena in other than social terms.

precisely because it attempts to define social reality in other than social terms, and by doing so suggests a completely separate course of evolution for language. According to their hypothesis language becomes a very recent development emerging with the first modern-looking humans and just preceding the fluorescence of culture. (Lieberman & Crelin 1972).

From the framework being developed in this paper, the position of biological determinists like Lieberman and Crelin is totally unacceptable. Their view that social relations and language are not intrinsically related would have us seeking origins outside of the context of the phenomena themselves. But, the social relations of language are deduced from social conditions. Thus, the role of anatomy and physiology is not the major determinant to language. Rather, one is led to ask - given certain anatomical and physiological features - what kind of language was possible. Anatomy and physiology cannot determine the presence or absence of social relations, per se.

Thus in the case of Neanderthal, it does not matter whether they were capable of producing the entire range of sounds possible in modern speech or not. It is well known that no single modern language utilizes all of the sounds possible for our vocal equipment to produce. It seems entirely plausible that given a somewhat narrower range of sounds, some sort of speech was indeed possible.

More importantly though, given what we know about the mode of life of Neanderthal, it would appear that language was an indispensable relation for them. Neanderthal lived a way of life that is recognizably human. They hunted utilizing quite sophisticated tools and techniques, they had fire, they made plans of their activities and recounted their experiences through their art; significantly, they buried their dead. Neanderthal was

a socially productive being in every respect including having a conscious awareness of self in relation to the collective group. It is therefore, impossible to consider Neanderthal lacking in the most obvious relation, language, any more than it is to consider a person with a serious speech impediment or even a laryngectomy patient, incapable of language. The most important condition for language is that the necessary social relations be present. Without them language is altogether useless, with them, language is absolutely indispensable.

Given this analysis, where then in the scale of hominid evolution are we to find the origins of language? We can only pursue the line of social evidence as far back as it will take us, and look at the earlier hominids in this new light. Taking up the example of Australopithecines again, we can attempt to analyze the conditions which existed for them and the social relations which are implied in those conditions.

What little concrete evidence we have about Australopithecines tells us that they made and used tools. Tools in themselves do not tell us very much. Inferences must be made about the possible uses to which the tools were put to and in the case of pebble tools, whether or not they were hand-fashioned or naturally appropriated. The mere presence of tools does not imply humanness. As we know, chimpanzees and other animals use tools and they are certainly not human by virtue of that. It is necessary to know what the tools were used for, and how they were used because that is what makes tools so important to human society.

The evidence from Australopithecines strongly suggests that they not only had tools, but that they used them in association with techniques of cooperative activity. The known sites of Australopithecine habitation in Africa, North India, Burma and China have turned up pebble

and social process of change. We also come to realize that the people involved are not silent actors in the drama, but are both affected by and the agents of the changing circumstances.

This discussion has attempted to demonstrate the dialectical process in which language is embedded. It has been argued that one cannot talk about language without talking about its relation to productive activity and to the organization of that activity through the application of labour and tools in a social context. The context of cultural criteria, therefore, is a social one with roots extending as far back as the differentiation of hominid from ape. Certainly, these cultural criteria did not spring full-blown or overnight. However, it is important to understand that they did emerge as a unit of relations, as a complete mode of life because none of them alone could serve any logical function. Language is a relation which contains many relations, all of them structurally and functionally unique to the human mode of life.

The Significance of Tools

As the few brief comments in the last section suggested, tools only become comprehensible when we consider the unity of relations and conditions of which they are a part. Tools have long been awarded special status in anthropology as the most enduring evidence of cultural life. Indeed, the idea has flourished that tools alone provide a definitive boundary in human evolution. Kenneth Oakley, S. L. Washburn, Leslie A. White among others believe that tools or technology actually form the

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At least ten million years ago in the late Miocene Epoch (see Chapter 6 for hypothetical reconstruction of the transitional process).

basis on which all other cultural patterns rest. (See Oakley, 1954, 1972; Washburn, 1960, 1972 and White, 1949).

This view came under attack when Jane Van Lawick-Goodall (1967, 1968) began publishing the results of her studies of chimpanzees which included the evidence that chimpanzees use twigs as tools to get at termites. In light of this, the claims to tools being a uniquely human development seemed to be wrong and more and more researchers began to study contemporary primate behaviour in search of answers to the origins of culture. The search has even extended beyond primates. For example, it has been reported that certain species of sea otters use flat stones on which they break open hard-shelled molluscs, and woodpeckers eat the seeds of pine cones by first, wedging the pine cone in a crevice in a tree trunk (Oakley, 1972: 17-19). All of these examples and more, seem to clearly contradict the technological determinists who previously thought tools were the decisive criterion of human beings. We are left to wonder whether their basic assumptions about the criteria of culture were wrong or whether their analysis of tools was wrong. As we shall see, both their assumptions and analysis were wrong.

While few of the technological determinists have recanted their earlier views, they attempted to re-consider their hypotheses about the nature of tools and their significance in human society. More recently, anthropologists writing about tools have adopted a cultural ecological framework or statistical analysis of tool complexes. From these perspectives, tools are viewed as an aid which enable humans to harness

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Factorial analysis of tools as practiced by Lewis and Sally Binford among others, provides a statistical base for helping to locate particular kinds of artifacts in a site. While it may be useful to know this information to understand how sites may have been utilised, it is doubtful that it can shed much light on the origin of tool use or its subsequent development in society.

greater quantities of energy than other species. Or they are viewed stylistically or as artifactual "clusterings". Technology, in the broad sense, is occasionally seen as an upsetting factor to the balance of relations in the ecosystem (see Schumacher's Small Is Beautiful for this current view). Thus, the cultural ecological, and technological determinist viewpoints simply do not address the significance of tools in human evolution and do not seem to recognize any qualitative differences between human tools and primate tools.

There major concern has been to demonstrate whether tools are a positive or negative phenomenon either in terms of increasing the energy capacity of the species or disrupting the harmony of nature. Both points of view are simplistic. It is irrelevant to say tools are "bad" or "good" because the fact is that tools have been important historically in the development of human society and the question of their evolution is intricately linked to the evolution of Homo Sapiens as socially productive beings.

In our analysis of tools, we should remember that there is nothing inherent in a tool, be it a stone chopper or a conveyor belt, that gives it special value. All tool and technology are merely hardware until we begin to look at the purposes for which they are intended and the ways in which they are used. This means we must inquire into the social relations of tool-using.

From this perspective, human tool-use can be seen as serving an entirely different kind of function from chimpanzee tool-use. Thus, that tools have a fundamental social value for human society whereas the value of tools for chimpanzees and other animals is strictly individual. When humans use tools it is for the purpose of productive labour, and through labour allocation tools become not only a product of society but a benefit

to it as well. This function of tools allows the human tool-user to do something which chimpanzees are not capable of, to take a natural resource, apply labour-power to it with the aid of tools, and produce something altogether different from it. What is produced is no longer a natural product, appropriated directly from nature, but a social product possessing all of the properties of the social relations that created it.

Tools in relation to social production also contain an inherent potential which does not characterize tools used for non-social appropriation. This is the potential to create a social surplus and thereby provide for more than the needs of the individual tool-user. It is this process that embodies the essential difference of tools in human society and tools used by primates. It is a difference which has a qualitative significance.

The way that tools relate to language should be obvious at this point in the discussion: tools cannot speak for themselves but must be spoken for through the social relations they embody. Only human tool-users can explain the special significance of tools in their lives. To a chimpanzee, for whom a twig-tool has no social significance whatsoever, there is no need to explain the twig-tools' value; it serves one chimp alone and he certainly knows what he is doing with it.

The unity between tools and language becomes apparent through their relation to social productive activity and the new, indeed, unique role of tools in human evolution. Therefore, it is incorrect to regard tools as either a determining force or as an adaptation alone. Tools and technology are not alien to us, beyond our comprehension or control, for no matter how complex or threatening they may become, the problem does not lie in the hardware but in the social relations that created them with a

particular value in mind. In order to understand the origin of tools or the relevance of tools to particular historical epochs, the work to be done is to study society--the structure of social relations and the forces of production (i.e. technology, resources, industries, etc.) as they have evolved historically and as they interact at a given moment. Only through this kind of analysis, can anthropology advance its knowledge of tools in society.

Social and Economic Organization

This thesis advances the view that there are many relations of social and economic organization which are subject to the laws of dialectical development and which correspond directly to the requirements of social production in every society. The social relations which serve social production are the relations of kinship, territory, property relations and social rules.

In functional analysis which is characteristic of much socio-cultural anthropology, these relations have been viewed strictly as ideological or superstructural components of culture, a view which suggests a relationship but fails to specify the nature of that relationship. This view is acceptable only while the phenomena under discussion are treated as components of, rather than as, relations of society; that is, as being inter-related only at the functional level of the system. However, at the same time that components are regarded as functionally related, their internal, i.e. structural, relations are ignored insofar as they express qualitative differences.

Defining social relations as components of some larger, but, unspecified system ignores the larger system altogether. Moreover, in the absence of an over-all systemic logic, the "logic" of each component takes on a greater significance than it deserves, so that the components often come to be defined as the regulators of the system itself. This approach is practiced in some variation by the majority of anthropologists and social scientists, even though the social phenomena do not exist a priori, but are generated by the internal relations of the system itself and are therefore, reflections of the system in which they occur.

A functional analysis sacrifices historical depth and relational clarity by levelling out qualitative differences and by reducing everything to a matter of difference of degree. Thus kinship has often been defined in a functionalist approach as a genealogical phenomenon instead of a social and economic one (see Wertman 1976). Similarly, territory relations of pre-class societies have often been equated with the relations of private property. When all that is being considered are the surface appearances of things, e.g., "family", or "ownership", these sorts of simplistic analyses prevail.

But, as we know from Engels, Morgan, Lévi-Strauss, Fried and Gough, among others, kinship and genealogy do not correspond neatly in most societies. Within the corporate kinship networks of pre-class societies, kinship plays a very fundamental role in the organization of social and economic relations and the terms of kinship are defined according to these parameters, not according to the parameters of consanguinity. On this subject, Lévi-Strauss (1949) made this critical observation:

We should not look for imaginary continuity between nature in which biological heredity prevails, and culture which is dominated by institutional rules made possible by language. Consequently, although it is impossible to grasp the precise point of transition between nature and culture, our criterion has distinct positive value--rules and norms with all their variety proper to them belong to culture, what is universal must belong to nature.

[Lévi-Strauss 1949: 2-3]

Similarly, L. H. Morgan made this comment on the relationship of consanguinity and the family:

The family represents an active principle. It is never stationary but advances from a lower to a higher condition. Systems of consanguinity, on the contrary, are passive, recording the progress made by the family at long intervals apart, changing only radically when the family has radically changed...

[Morgan 1877: Part III, ch. 1]

Frederick Engels, developing and generalizing some of Morgan's ideas, said:

While the family continues to live, the system of consanguinity becomes ossified, and while this latter continues to exist in the customary form, the family outgrows it.

[Engels 1972: 46]

These three statements reveals a mutual agreement about the nature of the family--that it is not a phenomenon which can be defined externally by the laws of biology, but rather it is a phenomenon which is governed by the rules of society. Moreover, society's rules are not static, but evolve and redefine themselves through the relations people engage in daily through the tasks of reproducing the material conditions of their lives. In general terms, the relations of people involved in social production may be said to define the nature of the family at a particular moment in history and the structure of the family further determines the value, if any, placed on consanguinity.

One critical relation is the relation of labour to the material means of production. This relation embodies two central processes: (1) the allocation of labour, and (2) the distribution of the social surplus created by labour.

The allocation of labour results in social divisions of labour which break down into criteria of age, sex, skill, experience, physical and mental characteristics and other personal qualities. These divisions, far from being arbitrary or natural, are allocated in recognition of the value of cooperative labour and the contribution that each individual makes to the general interest through the social surplus he or she creates. Social division of labour is therefore consciously and collectively organized; it does not hinge on biological determinants, for although there may be such things as "men's work" and "women's work", biology does not

determine what those categories mean, - society does.

Labour allocation, therefore, is but one aspect of kinship. The other is resource allocation. Implicitly, both aspects effect the kinds and degrees of relationships that develop among the members of society. Kinship serves the function of channeling social surplus in societies where there are no class divisions and it performs this function simultaneously with the function of labour allocation. For example, two men who commonly work together for any of a variety of reasons, soon come to see each other in special terms. Through their joint labour, an alliance is created which extends beyond the two of them. Because of the division of labour, the product of their labour is also divided, shared as part of the total produced by the wider community. They must, therefore, rely on other people as well as each other for the things of necessity which other production units are producing. This division of labour automatically builds into the relationship of the two men, a network of relations who produce, consume, and exchange with each other either directly or indirectly. So that such things as kinship and other systems of differentiating degrees of relationship among a community of people reflect the reality of these basic economic divisions.

But, kinship also reflects beyond the immediate circumstances by creating alliance networks outside of the local group. Through marriage, for example, such alliances are formed which incorporate an even broader network of people into which one can potentially be drawn for wider exchange and territorial access (see Wertman 1976).

The multiplicity of elaboration which kinship systems are subject to are the result of these long-term, practical matters of alliance building and sharing patterns established among people who perform different

but complementary work. Anthropologists have often been mystified by the complexity of kinship in the "simplest" of societies--e.g. Australian aborigines. By focusing their concern on genealogy and ideological aspects of such systems, they have missed the obvious connection of kinship to social production, and by so doing have overlooked the practical essence and rationality inherent in kin-based societies.

At first, the suggestion that practicality and complexity are two sides of the same phenomenon may, fundamentally appear contradictory and therefore mutually exclusive. But, if kinship were merely a matter of reckoning descent, as many anthropologists believe, then all might agree that all formal systems, or at least the most elaborate, would be quite unnecessary and would not have developed in the first place. Certainly, in class societies where class considerations over-ride all other association by defining not only labour allocation but also the rights to access and ownership of basic resources, kinship has been limited to a very minor role. However, pre-class societies in which access and ownership are not restricted or unequal and where the practical and casual nature of production is constantly confronting new requirements, new means, new methods, and new social relations of production present an entirely different situation. This constant movement and change requires precise ways of identifying kin and flexibility for extending the potentialities of the social system. Formalized kinship systems, therefore, provide a rational way of organizing and reorganizing the internal social relations of society to keep up with the advances made at the material base of the system.

Formal kinship operates in very positive ways to internalize the inherent potential for change. Levi-Strauss's opinion that cultural

rules are essentially prescriptive rules challenges the idea that culture is a negative factor, i.e. a regulator or inhibitor of human nature. Rules of society help make the potentialities of the system concrete and rather than limiting freedom, they allow freedom to be actualized through the necessities of social life. This view of society leads us to another understanding; that social systems are neither arbitrary nor accidental in their general effects. The necessity of social organization through labour makes human society both rational and dynamic. As Levi-Strauss put it, "Culture is not merely juxtaposed to life or superimposed upon it, but in one way serves as a substitute for life, and in the other, uses and transforms it to bring about the synthesis of a new order" (Levi-Strauss 1949: 4). Culture is therefore, a liberating force on human social relations allowing new modes of production to emerge independent of biological laws.

Social rules and specifically, kinship, serves this function by providing new ways of dealing with the contingencies of social and economic life within the social framework. As conditions alter, so do social systems. The complexities of formal systems do not impede this change. In fact, they facilitate change precisely because of the flexibility built into the systems themselves, which allows for expansion, manipulation, and exception. Hence, kinship systems with all of their elaborations may be seen as rational solutions to the anticipation of changing conditions and changing needs in society.

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One fundamental difference between rule-systems and law-systems is that whereas law-systems institutionalize and narrow the range of avenues for change, rule-systems formalize and broaden the range of possibilities. Thus, we see that rule-systems and law-systems are qualitative systems, structurally unlike one another and governed by different kinds of social relations.

Kinship is a central aspect of organization in pre-class societies. It is the aspect which defines the nature of productive relations, but it would be a mistake to think it is this aspect which generates those relations. Underlying the principles of kinship there are sets of material conditions - i.e., needs, resources, means, etc., to which kinship is a logical response. Kinship organizes these elements by applying social relations to them in specific ways. One example of this organization can be seen in the origin of the family as an economic unit, a sub-unit of generalized kin relations in which the productive relations are most intense and concentrated. At this micro level, is captured all of the characteristic relations of the society at large.

While some anthropologists have argued that the family existed prior to the corporate group, this may be repudiated on the basis that labour allocation and the resulting differentiation of social relations created the family itself. Morton Fried (1967) denies that the character of the band society is determined by the family organization: "It is improbable that human families existed as isolated, autonomous units until the bands of which they were a part were forced into areas of low natural food potential, or what amounts to the same thing, were not able to leave areas that were becoming low in natural food potential" (Fried 1967: 69). Much earlier, Frederick Engels argued that the human society emerged first in the form of the "horde":

As far as we have ascertained, the higher vertebrates know only two forms of the family: polygamy and the single pair. In both cases only one adult male, only one "husband" is permissible. The jealousy of the male representing both tie and limits of the family, bring the animal family into conflict with the horde. The horde, the higher form, is rendered impossible here, loosened there, or dissolved altogether during the mating season; at best its continued development is hindered by the jealousy of the male. This alone suffices to prove that the animal family and the pri-

mitive human society are incompatible things; that primitive man working his way up out of the animal stage either knew no family whatsoever, or at the most, knew a family that is non-existent among animals...Mutual toleration among the adult males, freedom from jealousy was however, the first condition for the building of those large and enduring groups in the midst of which alone the transition from animal to man could be achieved.

[Engels 1942: 49]

We can extend these arguments by saying that if we are to accept the family-origin theory of society, then we are faced with the problem of explaining the corporate relations in which all family groups are enmeshed, and the social rules which establish the form structures to which the family is subject. The regularity and general nature of social rules do not imply separate origins in isolated family units, but on the contrary, suggest a corporate basis which underlies the family unit.

Thus, the origin of the family must be understood as a historical development of differential degrees of relationship which arose in the earliest stages of the evolution of social production and labour allocation. In this context, the family, in all of its forms, developed as a specialized production unit conforming to the general demands of the society in which it is found and changing in its form and function over time, as the underlying social structures change.

Residence patterns emerge as a logical extension of kinship. However, merely because patterns exist, rules of residence cannot be automatically assumed. Certainly, before particular residence patterns

* There is apparently much evidence for doubt that "residence" rules actually exist. According to Paul Wertman (1976), residence manifests itself as a purely casual decision, one of convenience or preference. In fact, rules of residence may be regarded as creations of anthropologists' imaginations and not as reflecting any reality of social organization.

became traditionalized, residence was probably determined on a casual basis of which people one associated with most. Fried, for example, believes that the origin of kinship rests in the choice of residence partners:

"We are probably close relatives because we live together..." (Fried 1967: 124). Although this statement may capture some sense of the casualness and practicality of kinship reckoning, it would be wrong to reduce the question to a matter of residence determining kin relations or visa versa because both residence and kinship are related through the social and economic organization of labour. Whom one lives with and whom one regards as kin are virtually the same issue in pre-class societies. It may be correct to assume that they originated as a single phenomenon while the element of necessity prompted the development of kin relations, residence developed simply as a matter of convenience or preference.

The question of whether "family hunting territory systems" among band societies has been a subject of debate in anthropology in recent years (see B. J. Williams 1974). Those arguing that family territories were aboriginal assume that the family unit is the basic structure of social organization and that territorial ownership reflects only a difference of degree from ownership of private property. In criticism of this view, Leacock (1954), Hickerson (1967), and Bishop (1970, 1974) have argued that what has been observed as family hunting territory among North American band societies is not an aboriginal development, but, the product of contact with Europeans during the fur trade period (Wertman 1976: 88).

To fully understand the significance of territory relations, it is necessary to look at the underlying conditions, i.e., the mode of production of a particular society, in order to find out to what ends land and resources are put and who ultimately controls the social product.

For example, it appears that with the advent of the fur trade in North America, certain structural changes occurred in the mode of production which affected the structure of territory relations as well as the structure of kinship. Prior to this, social units were more fluid, the basis of land occupation being the structure of alliances for subsistence production. (Wertman: 97). Territorial occupancy was, therefore, not static but constantly shifting as production units altered and moved around. Ownership as such was not a consideration as territories were common property and access was available to all.

These relations of groups to territory were restructured following the introduction of trapping for trade as the primary mode of production. But, even then, territory remained a group or corporate possession rather than privatized, individual ownership becoming more defined in terms of production for trade. Private ownership remained unheard of as former alliance groups altered themselves to fit the new circumstances imposed by colonial domination.

Private property, on the other hand, entails a whole new set of social relations based on the emergence of social classes who have unequal access to basic resources. This process begins as Eleanor Leacock suggests with, "...the breaking down of the corporate kin group into individual families and the individualization of property rights, the downgrading of women's status, the strengthening of rank, and the usurpation of powers by chiefs..."(Leacock 1973: 58). As this process is spurred on by the increase in productivity, the diversification of commodities, finer divisions of labour and the growth of urban centers with the rise of the state, class expression achieves its acme in individual ownership

* Toward an alternative perspective of Cree kinship and social organization.

of private property. Kinship in the formal sense is completely forgotten and is replaced by kinship in the legal sense for the purpose of adjudicating hereditary title to private property. For those members of society who own no property, legal kinship (i.e. geneological kinship) means very little, but serves instead to isolate people into nuclear family units which must thereafter be solely responsible for themselves with no clear, reciprocal ties to any other family units. For the majority of the population, then, their position is determined by their social class and by their alienation from ownership of property and from previous social alliances and kin relations.

Private property and territory relations are qualitative manifestations which share absolutely no structural similarity except that their origins are both rooted in the social and historical conditions of production. But, since the direction of movement is from corporate ownership to private ownership, the latter system does contain faint features of the previous system. As Engels said, "The family contains in embryo not only slavery, but serfdom, since from the very beginning it is connected with agricultural services. It contains in miniature all the antagonisms which later developed on a wide scale within society and its state". (Engels 1972: 60).

It may be fairly obvious at this point that questions of ownership appear as structural adjuncts to kinship and class, but it would be incorrect to assume from this any causal relation. The way these aspects relate is through a mutual basis in the mode of production. This relationship is dialectical, stemming from the energies inherent in the interactions of different aspects as they seek to resolve specific problems of subsistence production. The focus which is needed to rationally

interpret these relations is a historical and material one which regards the system as the critical dynamic and the aspects as the internal social manifestations of that dynamic in process. Like the origin of language and tools, the origin of human social organization catalogues a single determining process--the production and reproduction of life in a new mode.

CHAPTER 5

Social Production as the Distinguishing Criterion of Human Society

The previous chapter introduced social production as a unifying concept which integrates the various criteria of culture in a comprehensive, historical-materialist manner. Social production incorporates the dynamics of social change and a view of culture as a totality, in its very conception. It is this which differentiates it from the more traditional conceptions of culture in anthropology.

This chapter discusses social production in greater depth and in the dynamic sense as a complex of features and tensions which embody change. In order to do this, social production must be compared to conventional notions of culture and to the nature of animal cooperation. Both of these have tended to mystify the qualitatively different character of culture and its uniqueness to human evolution.

Among the characteristics which will be discussed are the thoroughly social nature of cooperation in subsistence production, and the concomitant relations and forces that arise with it - e.g., the social allocation of labour, the recognition of differential relations among individuals in society, and the emergence of conscious action and decision-making regarding the needs of the group vis a vis the material means at hand.

Labour is understood in this complex to play a major role in the social process of production as the active and consciously manipulated element which embodies the collective interests of society in its capacity to produce subsistence in a cooperative manner. And, further, labour is seen as occupying a special role historically in its ability to reproduce itself materially, that is, by the production of basic subsistence, and

socially in the way social relations are regenerated through human activities day-to-day, year-to-year, and generation-to-generation.

The manifestations of a socially productive way of life have been traditionally treated in anthropology as the fundamental criteria which distinguish culture (see Kroeber & Kluckhohn 1952). But, these visible criteria should be seen as developing within very complex inter-relationships based on the necessary conditions of production. To fully understand their structural relatedness they should be seen as an evolutionary complex which emerged concomitantly with the transition from ape to human, thus making possible further evolution of new patterns of production and social organization within the established mode of human life.

To view society as a system in motion with all of its aspects changing and being changed through their structural relations should not pose any insurmountable problems for analysis. Social systems can and should be understood in terms of social categories, and the concept of social production generates such categories and expresses them as an internally dynamic system of tensions and forces which produce social change. The discussion which follows will explicate the concept of social production and the dialectical methodology in which it is embedded.

Social Production

Social production is a unique kind of cooperation which distinguishes human society from animal society. We know that culture involves cooperation, but forms of cooperation are also true of animal societies. For example, the studies of Von Frisch (1967) on the behaviour of honey bees, Schaller's study of lion prides (1968), studies of ungulate species which band together for defense (Manning, 1972) and of bird species who place "sentries" in strategic locations (Kropotkin, 1914), as well as

those carried out among primates have aptly demonstrated cooperative behaviour.

Any group of animals must be able to at least tolerate the presence of other individuals of the same species long enough to mate and breed--toleration being the temporary absence of active competition. In some cases, toleration extends much further and encompasses the daily life of the animals who remain together in the fairly permanent groups which Aubrey Manning referred to as "true societies". But, true social life requires more than mere toleration; it requires cooperation in the sense of exchanging information about the whereabouts of food or danger, etc. As such, it rightly deserves to be distinguished from simple toleration in a qualitative way.

As we have seen before, animal social life operates on two levels. The level of the individual and the level of the species or deme. The societal level does not play any directly significant role in terms of species evolution and it exists mainly as an advantage to each individual whose ability to survive and reproduce is enhanced by the physical presence of other members of the species. In the same way, cooperation among animals does not fulfill any basic social needs, but enhances the capabilities of each individual to maintain himself in the best possible way.

The observations made by Hans Kummer of Hamadryas baboons clearly illustrates this point. He notes: "There is no sharing or passing of gathered food or prepared shelter and mutual assistance is absent or negligible..." (Kummer, 1968: 42). Among baboons as among other animal species, cooperation is constrained by the principle of natural selection as it acts upon individual traits. Likewise, this constraint is felt in the activity of subsistence appropriation which is accomplished on an

individual basis. For baboons, life does not depend on mutual subsistence and sharing and, therefore, cooperation may be thought of as an adjunct to other behaviours which are more basic.

While human and animal cooperation are sometimes compared as if they were similar behaviour patterns, we can see that human cooperation operates in a completely different context involving subsistence production and shared economy which confronts the group as a necessary mode of existence and presents new dimensions of life on the social level. As James Faris (1975) put it succinctly:

Social production is that group activity which involves decisions about differential labor allocation... (It) cannot be simply reduced to cooperation (though, of course, this is an important and necessary factor) for some animal societies cooperate in hunting... the critical cognitive factor in social production is the recognition or cognizance of labour potential, which could be described in fact, as the emergence of consciousness.

[Faris, 1975: 235]

Therefore, group or collective interest does exist as a principle of human society and it permeates all relationships within the group. The particular relations which are established among individuals and between any individual and the group as a whole are always and fundamentally mediated by the collective interests of the group.

Perhaps the best way to characterize this difference is to say that whereas the dynamic principles which generate change in animal societies place the interests of the individual above the group and, in an evolutionary sense, minimize the significance of the group. The forces that prevail in human society articulate these interests within the social framework and together, form the basis on which survival and development may advance. As Marx and Engels, in the German Ideology (1970), noted

of this merger of the individual and the group, men only begin to see themselves as individuals as a result of history. That is, a consciousness of self is developed through the particular social relations people engage in at a particular time. Hence, with the rise of a new kind of social life, we find a concurrent development of a new kind of individual, one who sees his/her life as intricately bound up with the lives of
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others.

The quintessential difference therefore, between human and animal lies in a qualitative shift from the animal mode of life in which the needs of the individual are only partially satisfied by the aid of society, to the human mode in which individual needs can only be satisfied in society. This shift represents a complete transformation and redefinition of society and all of its relations. Society cannot adequately be explained in quantitative terms of simple cooperation, but demands entirely new conceptual categories and dynamic principles for understanding. The argument is advanced here that social production is such a dynamic category.

Furthermore, it may be argued that once cooperation was freed from its prior constraints, new relations became necessary which focused on problems of shared economy as the primary principle of group survival. Furthermore, these new relations were predominantly social relations and could no longer be characterized by the biological principles underlying

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This social principle is most readily apparent in egalitarian societies, but it is also evident in the most "individualistic" and competitive form--monopoly capitalism--where individual interests are still very much linked to group, i.e. class, interests.

the structure of Darwinian populations. Within a thoroughly socialized process based on subsistence production came the necessity to recognize certain relations and forces of production as objective phenomena. For example, social divisions of labour emerged as the individuals began to share in production, and as a result, there developed a consciousness on the part of the individuals as to their role in the social process. This consciousness grew out of the concrete reality of social production as a practical, routine activity.

Engels said of these developments occurring at the point of transition from ape to human, that when labour ceased to be individualized, it became conscious labour (Engels 1940). By this he meant that the essential relations of which labour is a part, became capable for the first time of assessing human needs and influencing individual actions in social ways, and thereby, affecting the subsequent course of their own evolution. The group was no longer relegated to the second-class role of a mere respondent to external forces.

This was achieved concretely through the individuals realizing the social value of their labour and the capacity of organized labour to provide their needs. Also, sharing in production meant that collective labour had to be allocated according to the conscious assessment of the group's needs and the nature of the material means available to it. Thus, labour allocation implies a differentiation of social relationships based on the passing of collective knowledge related to all aspects of the productive process onto successive generations. These basic characteristics of social production enable the group to reproduce itself materially and socially as well as physically. Therefore, divisions of labour are socially determined by the specific requirements of production

and such criteria as sex, age, and physical parameters apply in such a way as to ensure the benefit to the group as a whole, not as independent criteria of division of labour. Eventually, special value comes to be placed on certain aspects of the production process so that categories such as "men's" work and "women's" work come to be defined and gain differential recognition or status in some cases. (see Reiter 1976 & Friedl 1975).

The on-going nature of social production grants an historical dimension to human development. Patterns of relations at any given time owe their particular characteristics to patterns which preceded them, and can also be organized in ways so as to anticipate the future. It is in this context that we should consider the conventional anthropological notion of "tradition" in culture--tradition as the passing on of accumulated knowledge and ways of doing things. From an evolutionary viewpoint, tradition is a phenomenon deeply rooted in an unique social and material base.

Up to this point, we have defined social production as an uniquely human activity which entails the capacity of individuals to recognize the value of their labour and to organize it for subsistence production. In traditional Marxist terminology, the specific manifestation of this conscious, social activity in any society is known as the mode of production. Briefly, the mode of production consists of two dynamic forces: the forces of production which include such things as natural resources, labour, technology, skills, knowledge, etc., and the social relations of production which are the specific forms of ownership, access, and control over the material forces that are established between groups within society.

It is in the interactions of these two dynamic and mutually dependent aspects, the process of social change can be seen unfolding. The process is a dialectical one. On one side of the dialectic are the various raw materials, tools, machines, experience, etc., and the contingencies these place on the ways in which production can be carried out. On the other side, are the active characteristics of social relations determining how labour will be applied, by whom, and whom the products of labour will benefit most. The productive forces are altered considerably by the nature of the social relations, creating subsistence and other products from them, including surplus. Surplus is either distributed or accumulated depending on the type of relations that prevail at a particular time.

This constant interchange creates a dialectical tension inside the mode of production, each force challenging the other, expanding their limits, and causing changes to arise from both. Eventually, the changes reach such a point that they can no longer be accommodated within the boundaries of the previous mode and their transformation into a new mode of production occurs.

Conventional views of culture change, in attempting to explain the shift from hunting-gathering to agriculture, or from agriculture to commodity production, etc., have lacked precisely this type of analysis of transformational change in the mode of production (see Faris 1975). Often, only the forces of production are considered while the importance of the social relations of production have been ignored. Within a dialectical perspective, social relations are a vital part of the change process and, therefore, command equal recognition of their dynamic potential. On this point, Marx commented,

In the social production of life, men enter into definite relations that are indispensable and independent of their will, relations of production which correspond to a definite stage of development of their material productive forces. The sum total of these relations of production constitutes the economic structure of society, the real foundations on which rise a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life, conditions the social, political, and intellectual life process in general.

[Marx, 1970: 181]

In these ways, society is organized into social relations which reflect and determine how goods are produced and how they are distributed. As a force of production is applied in accordance with these relations, but, unlike other forces, labour has another characteristic which makes it unique. This characteristic is its creative potential to produce social surplus and to produce goods which are more valuable after production than before. Harry Braverman (1975) describes this potential in the following way:

The human capacity to perform work which Marx called "labor-power" must not be confused with the power of any non-human agency, whether natural or man-made. Human labor whether directly exercised or stored in such products as tools, machinery, or domesticated animals, represents the sole resource of humanity in confronting nature. Thus, for humans, labor-power is a special category, separate and inexchangeable with any other, simply because it is human.

[Braverman, 1975: 51]

Labour-power as the dynamic potential of labour is not simply definable by its physical dimensions, e.g., the ability to lift a hammer, make an implement, or operate a machine, but its capacity to invest the things it creates with its own potential to create other things. Similarly, labour-power society with the potential for conscious reorganization of the productive processes as the needs of society demand.

These dynamic relations and forces allow us to see that production is not a unitary activity which can somehow be divorced from the rest of social life, but permeates the entire character of social life as it is expressed through institutions, law, social rules, kinship, art, and ideology, etc. Society as a whole does not cease to function - individuals do not cease to inter-relate - after production for the day has been accomplished. People continue to rely on each other for a multiplicity of needs--for distribution, exchange, recreation, and reproduction, both social and physical. Marx and Engels make a similar point in the German Ideology (1970) when they say:

The way in which men produce their means of subsistence depends first of all on the nature of the actual means they find in existence and have to reproduce. This mode of production must not be considered simply as being the reproduction of the physical existence of the individuals. Rather, it is a definite form of expressing their life, a definite mode of life on their part.

[Marx & Engels, 1970: 43]

The forces of change arise within the context of existing social relations as the material conditions alter and there are attempts to resolve the growing contradictions inherent in this relationship. Social change is not random or an accidental kind of change, but is comprehensible and deducible from the characteristics of society mentioned thus far.

In comparison with traditional viewpoints held in anthropology which see change as a consequence of non-social (environmental) forces (see Marvin Harris, 1971), or determined by the nature of productive forces alone (White, 1949), or as a historical, "multi-lineal" phenomenon (Julian Steward, 1955), social production as a conceptual model offers an internally dynamic, historical explanation of the rise of cultural forms.

In this model, the standard criteria by which anthropology has defined culture, are understood as an unified evolutionary complex which was shaped and brought into being by social production. Social production is the unifying criterion which underlies the structural relations of society and which specifies the character of those relations. Rather than displacing the culture concept as inadequate, social production helps to clarify the meaning of culture as a product of a truly unique social process. In addition, it makes that process more intelligible by placing it too in a historical context.

CHAPTER 6

A Framework for a Scenario of the Transition From Ape to HumanIntroduction:

A proper scenario of the transition from ape to human should delineate all significant events leading up to and including the origins of a unique process of social life. In addition, it should take into account all factors of time, geographic alterations, biological and ecological factors, etc. that set the full conditions for the qualitative shift. Such a comprehensive scenario is beyond the scope of the present work; however, and for this reason, this effort will concentrate mostly on the social factors, the internal conditions of proto-hominid life and initial forces that may have been responsible for triggering the emergence of specific clusters of new social relations and a new process of change.

Since this essay has repeatedly demonstrated the inadequacies of simplistic determinism in scientific methodology, there will be no attempt to plot the transition by use of customary arrows leading hominids inevitably from forest→savanna→meat-eating→tool using, etc., but will try to explain the transition as a logical process of specific inter-related activities and relationships which involved meat-eating, tool-using, labour allocation, language, differential social relations, and to show how these may be seen as necessarily related aspects which developed together in embryo as a unified system.

Simple causal explanations and strictly ecological hypotheses are insufficient to answer how the ape to human transition occurred. What must be accounted for are the internal, social factors of primate life which allowed for the human alternative to evolve under specific conditions of

environmental change. For this reason, the dialectical method will underly this hypothetical schema and will make concrete certain of our previous assumptions about development through contradiction, quantitative to qualitative transformation, and the principle of necessity versus randomness in evolutionary processes. While the specifics of this schema are, of course, open to debate, the methodology may offer some insights into the nature of the process as a whole.

The following is an effort to demonstrate the applicability of dialectical explanation to the problems of social evolution. It will attempt to show how the potential for qualitative change existed in proto-hominid social life at the time of the transition into human society and it will also attempt to pin-point what may have been the principle contradictions that triggered the qualitative transformation at the outset.

The time period we are considering here is the Late Miocene Epoch dated at eight to ten millions years ago. It is thought that at this time the Family, Hominidae first appeared as a distinct off-shoot from the anthropoid groups and began to evolve divergently from the other Primate lineages (see Buettner-Janusch, 1973). At this same time, major geographic changes were beginning to occur. A gradual cooling of the earth's climate which had begun about fifteen million years ago was progressing into what became the great glacial periods of the Pleistocene Epoch. The land was becoming more arid and vegetation and animal life were becoming less abundant and more dispersed over the land's surface.

The first recognizable Genus of hominids, Ramapithecus, is known to have lived in East Africa and India under these conditions. Very little fossil information is known about Ramapithecus except for a few jaw fragments, nevertheless, it is generally agreed that these represent "the most

"likely ancestor to the Pleistocene hominids" (Buettner-Janusch, 1973: 219). Therefore, we will begin the discussion at this point and draw some hypotheses about the social conditions of hominid transformation based on what we know to be distinct underlying patterns in social evolution.

It is more than likely that the first hominids did not look very human although physical changes in jaw structure and probably dentition suggest they were morphologically different from apes at that time (see Buettner-Janusch 1973). However, we may surmise that these physical changes were only a part of the changes that were beginning to distinguish hominids from apes and that morphological change is indicative of related changes that were being felt in the social structure of the group. We may further assume that these social changes may have been even more striking than the accompanying physical changes since, as Mayr (1963) points out, morphological change tends to be more conservative than behavioural change.

Specifically, these social changes were beginning to affect relations within the group, motivating a qualitative shift toward a pattern of mutual subsistence as climate and resources were significantly altering. The most outstanding characteristic of these behavioural changes was that the whole group was absorbing the shift rather than a few, pre-adapted individuals. Although there was no precedent for this kind of response, the potential for it was deeply rooted in the established patterns of group cohesion and limited cooperation which characterize primate species. However, since the shift represented a unique social response, we must ask how it was actually achieved in the light of definite biological constraints on group behaviour. Social life was beginning to take on some totally new dimensions which were contravening certain inherent laws of natural selection.

In order to understand this contradictory development, we must look

again at the structural tendencies within primate groupings and examine the inherent tensions which stem from the coexistence of cooperation and individual response patterns, making them mutually exclusive principles in certain aspects of life. As we have discussed before, cooperative behaviour is a subordinate principle in primate social organization and operates so long as it does not interfere with and as long as it enhances the autonomy of the individual. The success of this relationship between cooperative and individual action depends upon keeping cooperation restricted to a range of specific behaviour patterns, as for example in jointly locating resources and exchanging information about this and about immediate danger. Cooperation fulfills certain needs as long as the critical area of individual response and adaptability is not impeded.

This contradiction remains at a low level of antagonism under conditions of sufficient food. At times of food shortage, the response among many species of primates is toward increased competition through increased dominance relations and aggressive displays (see Kummer, Rowell, DeVore, et al). But, in order for cooperation to become a practical and permanent alternative to individual appropriation of resources, what may have been the circumstances at the time of the transition, the conditions of scarcity and deprivation would have to become extreme and of long duration and all other options (including migration and dispersal) would first have to be exhausted.

The antagonism that may have arisen from these conditions would have created stress on the group's ability to disperse to the extent required by the resources and on its ability to remain cohesive enough to fulfill the needs of physical reproduction. The resolution which such a contradiction may have precipitated would be a completely different mode of

appropriating subsistence cooperatively. This in turn would involve a total restructuring of relations within the group and between populations competing for resources in the same habitat. It is also likely that these changed relations would involve a major shift to alternative resources which would otherwise have been rejected. In particular, the turn to scavenging and then hunting as an alternative source of food may have been a necessary recourse for hominid survival.

Some of these possibilities have been suggested by other students of the problem, but what most have failed to explain is how the shift to hunting was accomplished given the lack of structure in primate society for effective, long-term adjustment to predatory life. For example, in Van Lawick-Goodall's reports of occasional meat-eating among chimpanzees, for example, it has been shown that hunting can be a supplementary means of subsistence for short periods. But, she has failed to consider the implications of this kind of activity for social appropriation were it to become a permanent and necessary alternative in the absence of more common resources.

Given that primates are not structurally equipped, either socially or physically, to be true predators, we may surmise that when the shift occurred, behavioural mechanisms that would be basically primate mechanisms would have been called into play. Therefore, the social changes that we would expect to see would be necessarily drawn from potentialities already present and not an adoption of completely extraneous, i.e., predatory responses.

The potential for cooperation, of course, already existed in proto-hominids. The salient question is how this was affected by the dramatic alteration of subsistence. Most logically, the problem that proto-hominids

were faced with was how to accommodate these new requirements in the context of the old constraints on cooperative activity. Again, we can surmise that the on-going tension between cooperation and individual appropriation which previously existed at a low level of antagonism, increased considerably at this time under the pressures of a necessary scavenging and hunting subsistence and that cooperation in subsistence came to be more and more important for survival.

Kathleen Gough (1973) has suggested that cooperative hunting actually initiated the trend toward full cooperation in other aspects of life for primitive humans. If this was so, then we must consider the internal conflict that arose between the two active and mutually exclusive principles of social cooperation and natural selection and how this affected the shift from ape to human. Furthermore, we must consider the advantages of such a shift that enabled society to advance into unprecedented areas of development.

It is important to remember that the transition period took place over a very long time, constituting millions of years and that at the outset, the distinctive qualities of human society were only preconditioned potentialities that had yet to develop through internal contradiction and resolution. At first, the contradictions may have been contained within the general parameters of the primate system with scavenging and hunting being carried on with increasing difficulty through individual appropriation. But, over time, with the pressures of the new resource requirements, new methods may have evolved to better suit the circumstances.

Since predatory animals, such as wolves, are well suited to predation socially, through the structure of the pack, and physically by virtue of well-developed canine dentition and speed, we can see that in contrast

hominids were probably not very successful as individual hunters, especially when faced with competition from true predators. Under long-term circumstances such as these, the principle of individual appropriation could not serve the survival prerequisites of the individual or the species. Hence, cooperative means of appropriation may have become the only solution to the problem. At this point, cooperation may have successfully challenged the constraints of natural selection, but only after natural selection failed in its task of maintaining the individual in the best possible way.

The rise of cooperative hunting represented a revolutionary break from the previous mode of existence, and while it is unlikely that the first hominids were conscious of what they were doing, the fact that economic cooperation worked to their advantage was enough to reinforce the new activities. In the midst of these minor alterations of behaviour on their part, hominid life was immediately beset with new conditions of existence in which individual survival was becoming intricately connected to group activity, thus forming the groundwork on which social production could develop.

It is impossible to say exactly when this qualitative shift occurred, but we must begin to locate it somewhat prior to the time when hominids became taxonomically distinct from apes. From a dialectical point of view, taxonomical changes imply that significant social changes had already begun. As pointed out earlier, behavioural changes tend to precede structural (morphological) changes. This shift marked the first qualitative step in human evolution, but the process was only just begun. In no way can we

* According to Buettner-Janush, hominization began around 10 - 14 million years ago.

suggest that the point of transition marked the passage into full-blown cultural life or that every feature of social production was immediately present. But, we can say that once the first step was achieved, new potentialities were immediately present. Namely, from the beginnings of co-operative subsistence, there existed new relations of social life which set into motion a new process that eventually preconditioned the emergence of language, of social relations and forces of production, and of consciousness as a unified complex of primitive society.

The gulf between the expression of early human life and ape life is of qualitative significance. The fundamental characteristics of co-operative subsistence were reflected in the replacement of dominance relations with social relations. Sharing became an aspect of mutual appropriation of resources. By contrast, apes do not jointly participate in subsistence activity or contribute economically to the welfare of the group and therefore, we cannot expect their ancestors to have done so either. However, human society does bear this striking characteristic of social production in countless varieties of elaboration, and so we must assume this characteristic to have originated with our ancestors at the point of their differentiation from apes. These conclusions find testimony in the essential relations which comprise human society and in the qualitatively different dynamic principles which reside in cooperatively produced economy.

Few contemporary theorists have attempted to construct hypotheses of human evolution based on the unique social characteristics of human society. Marshall Sahlins (1972) wrote a paper in which he attempted to place human and primate social evolution on a continued scale of development, thereby discounting qualitative change. In another study,

B. J. Williams sought to explain the origins of band society and assumed an environmental determinist argument (see Williams 1974). Of course, Engels (1871) developed the classic philosophical work on the question, The Role of Labour in the Transition From Ape to Man. Within this tradition, Kathleen Gough (1973) has developed an hypothesis which proceeds from the premise that human society is unique from those of apes and monkeys and that theories regarding the origins of social phenomena must be subject to social analysis. In doing so, she has come up with some interesting if not altogether consistent ideas.

According to Gough, what most distinguishes human society most is its adherence to rules of conduct and organization which are clearly evident in kinship systems (Gough, 1973: 2). Although her immediate purpose is to discuss the origins of the family because she considers the family to be an important departure in the process of hominization, she begins by setting out a more general hypothesis with which to explain the rise of the family as a social phenomenon.

Gough's views and some of the ideas expressed throughout this thesis are compatible in that we recognize the importance of seeking the social origins of social phenomena and expressing them in materialist terms. Also, Gough accepts the deductive method when she says, "monkeys and apes are not prehuman ancestors..." and "fossil hominids left so little vestige of their social life..." (Gough: 1). However, Gough's search for a single rather than a unified dialectical cause of all of human evolution comes very close to a kind of determinism. In particular, she views the various aspects of society as having emerged independently at different times, often removed by entire geological epochs and she manages to arrive at this position by neglecting to accurately specify the conditions of change.

Gough's hypothesis begins with the hominid shift taking place about 12 million years ago, at the beginning of the long drought in the Miocene Epoch (Gough: 6). The next period she considers as significant comes around 1.75 million years ago with the advent of Australopithecine tools. She next locates the rise of language which according to her chronology occurred about 50,000 years ago, or more than one million years after the origin of tools. And, finally, much later, Gough discovers the beginnings of social divisions of labour (which she calls "sexual divisions" of labour) and which leads her to her main interest--the origin of the family.

Her reconstructions are characterized, therefore, by a disjointed chronology with great gulfs of time separating the major evolutionary developments. So much time is unaccounted for, that we wonder what was happening, if anything, between the major stages. Her primary assumption is that the emergence of tools preceded the advent of human society -- very much the conventional determinism in many hypotheses on human evolution. And, like the others, Gough fails to adequately explain the meaning of tools for human society, i.e., how tools are used and for what ends.

By placing the origins of language and of social divisions of labour much later than tools, she ignores the inter-relatedness of these aspects and begs the question of what made tools such an evolutionary hallmark for humans in the first place. What, for instance, distinguishes them from chimpanzee tools? Is it their durability, the fact that they were made from stone and bone instead of twigs, and if so, what does this suggest about their utilisation?

Gough's hypothesis does not deal with these kinds of questions. From a dialectical viewpoint, it is impossible to think about tools without considering the way that subsistence is appropriated. Similarly,

language becomes an indispensable relation of social production in organizing labour, etc. While the general premises of hypothesis are correct, her methodology is basically weak and her chronological stages of development pose immense difficulties for understanding society as a dialectically integrated system.

To correct these shortcomings we must draw out the linkages between the so-called stages of development, and to demonstrate that change proceeds as a dialectical process. Also, we need to know something about the prerequisite conditions of cooperative subsistence and we need a framework in which to interpret the significance of tools, labour, language, etc. as an evolutionary complex.

In order to do this, we should internalize into our analyses the dialectical relations and significance of human society and how the logic of the system defines those relations. For example, it is not enough to say that tools and language are uniquely human characteristics. We must be able to show how they exist in relation to each other and what makes them unique from chimpanzee tools or chimpanzee communication. Without this analytical perspective, any effort to understand the origins of human society will fall short of its goal. The questions which have spurred on our anthropological imaginations - namely, what is the nature of human beings? what is culture? will remain mystified.

James Faris has offered a productive approach to the task of demystifying the nature of human nature when he said:

The objectification of activity (and thus of people as producers) followed on and emerged from actual activity. It was born of struggle between the organization of activity based on bio-social requisites and dictates and organization of activity which challenged or rejected this.

[Faris, 1975: 236]

Thus, the clue to humanity lies primarily in the social relations which organize activities for subsistence and in understanding how those relations evolve in qualitative ways through the requirements of social production. The only universal factor of human nature, then, is its social being and the fact that humans always develop some kind of social relations, regardless of factors of abundance or scarcity in the environment, as a matter of necessity. It is by virtue of our thoroughly socialized existence that we distinguish ourselves and, thus, the period of transition from ape to human.

Conclusions

CHAPTER 7

By this point in the discussion certain theoretical implications of dialectical methodology have been clarified. It is now possible to suggest more specifically some of the implications of dialectical methodology for anthropological research in general, and for the task of developing an adequate theory of social change.

As we have noted, conventional theories of social-cultural evolution lack a viewpoint of change as a permanent process within social systems and a clear appreciation of the distinctive, structural relations which characterize human society. Few contemporary anthropologists have concerned themselves with these questions, but among those who have, the work of James Faris and Peter Newcomer is most insightful. Both propose a dialectical-materialist framework as a matter of theoretical and practical importance.

The initial problem confronting all who approach a radical, social science perspective is the development of a critique of the inadequacies of conventional methodologies and exposing the implicit views on human nature and culture which these methodologies contain. As Faris, Newcomer, John Moore (1974) and Bruce Trigger (1967) have all recognized, the types of research problems and approaches that have developed over the years, reflect more or less the prevailing values of the social system in which they were created. The confluence of scientific theory and "common-sense" notions of how things are is no accident, but is the logical outcome of the social, political, and economic forces which dominate our daily lives, and which also fund our research. Hence, we find the advocates

of "neutral" social science adopting and perpetuating the ruling class biases of the society in which they work (see Moore 1974 and Newcomer 1971).

This is the reality which places radical research in ever-present opposition to the status quo and calls upon the challengers to not only repeatedly demonstrate the weakness of conventional theories and methodologies, but also the social base from which they stem. Toward this objective, Newcomer (1971) has said:

...The use of sound dialectical-materialism is supposed to show one what is politically possible and what is not. As Hegel said, 'Freedom consists of the recognition of necessity'. Within the realm of the possible, we are free to attempt political change. When such change is not possible, it makes no sense to say we are free to make it...Such views make Marxist social science most unwelcome to those who are dedicated to the perpetuation of illusions about economic and social progress...It is not the fact that Marxists are "left" or "right" that makes them objectionable politically, but merely the fact that there are limits to their credulity.

[Newcomer, 1971: 11]

Therefore, the theoretical implications of an alternative perspective of social change are implicitly that it is practical at the same time.

As has been pointed out, the problem with conventional methodology has been its largely "metaphysical" focus on ideas rather than concrete realities, and an emphasis on continuities of similarities rather than disjunctive and qualitative change (Faris, 1975: 241, and Newcomer, 1971). The typical form of sociological and anthropological inquiry presupposes unitary and simple deterministic explanations of social-cultural evolution. Such thinking has led to postulations of ideal or model cultural forms, e.g., "hunting-gathering" as one form, "agriculture" as another, and "industrial" society as yet another, presumably distinct and implicitly

lineal in their development:

To focus on types, methods, or forces (tools, techniques, skills) of production as the means by which society can be classified, is to repeat the errors of Morgan...because it focuses on the consequences of productive activity, not the causes. The theory of social production focuses on relations of production (that is, the actual social relations humans enter into to produce) rather than the method or type of production.

[Faris, 1975: 237]

By bearing in mind the significance of social relations which not only utilise productive forces, but call them into being, one is precluded from the tendency to place the locus of change outside of the structural system (i.e., viewing the population, environment, technology, etc. as impinging on inherently passive individuals). Accordingly, Faris suggests that by crediting social relations as dynamic forces, the whole classificatory method is turned upside-down: "Thus, hunting and gathering economies are clearly organized for social production and can be seen in ways that approximate (in organization and returns) agricultural harvest (witness the great bison kills of the North American plains people and the 'gluts' of fishing harvests on the Northwest Coast)." (Faris: 237). In this way we can see that the crucial element distinguishing various social systems from one another is how they are organized to carry out particular activities, not the activities per se.

Another way of viewing the problems of conventional methodology is that it lacks a concern with process and is almost totally absorbed with the mechanics of change. Processual change is not the same as delineating series or stages of change, but means grasping the articulation of various forces and relations and their inherent potentialities as they evolve. One result of such misguided attempts to account for change is the development of the notion of "adaptive mechanisms" as expounded, for example, in Roy

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Rappaport's Pigs For the Ancestors. This is an attempt to explain society in terms of maintenance models rather than dynamic systems--equilibrium rather than conflict. But,

The fundamental concern is not answered by reference to statements about the necessary operations for the maintenance of life. Of course, survival and adaptation play a necessary role for evolution to take place (if evolution did not take place, the species or society would not persist)...But, evolution is known from the products of its operation, that is, from new species, the disjunctions and qualitative changes which result from its having taken place.

[Faris, 1975: 239]

The preoccupation with what is essentially quantitative change has caused anthropology to ignore the realities of qualitative, systemic change, and as a result, processual theory has been notably absent. The problem of understanding the rise of human society is, once again, a problem of understanding quantitative to qualitative transformation, change from one system to another one, different in its structural configuration, potentialities, and limitations, and yet, clearly an outgrowth of the previous system. Evolutionary change, therefore, is the result of an uneven process, not a single quantitative alteration or even a series of such alterations. As Marx said, "the anatomy of man is the key to the anatomy of the ape...". Therefore, the task of theory is to deduce the process of social change from its effects, not to presume any definite outcomes, a priori.

As a methodology which implies a holistic viewpoint, dialectical or historical-materialism is as appropriate for physical anthropological,

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See Faris and Newcomer's critique of Rappaport in "Cultural Ecology As Scientific Method: A Critical Review" (1973).

archaeological, and linguistic research as it is for social-cultural research per se. The fact that the methodology allows us to view social relations of fundamental importance does not limit its applicability strictly to those relations. It is equally important for physical anthropology and archaeology to incorporate the concept of social production into their inquiries, for as we have seen, the significance of fossil and artifactual evidence is comprehensible only within the frame of reference of the lives of real people who possessed and utilised tools and artifacts.

The value of physical and material evidence lies in the extent to which it reflects the nature of social production in early human society. However, such evidence can never be a substitute for social theory nor a primary means of explanation of social phenomena. Rather, physical anthropology and archaeology can help us refine our knowledge of particular historical circumstances by offering more precise information regarding the material conditions of early humans. It will thus be possible to make suggestions about the mode of production at any given period.

The same holds true for linguistic studies which focus on the origins of language. The underlying significance of language to human society is its ability to communicate certain kinds of information which enables people to plan out strategies, make choices, differentiate necessary tasks within production and allocate them to different individuals, and to teach others the necessary skills and information to ensure the continuation of society from one generation to the next.

The question we need to ask, then, is what kinds of conditions would have enabled, facilitated, required the emergence of a communication system such as is manifest in the speech of Homo Sapiens?...Speech had to develop for social reasons, it seems clear. What must be accomplished is a theoretical reconstruction of the social relations involved.

[Newcomer & Faris, 1973: 9]

It is missing the point to regard the origins of language outside of this social context. Language simply could not exist without the material foundations of social life, and as such, should be understood as an indispensable relation of the social process.

The deductive method of historical-materialism suggests is the importance of developing a comprehensive, theoretical framework in which to properly interpret data, whether the data be physical, archaeological, linguistic, or social in nature. According to historian, Gareth Stedman Jones (1972), we cannot expect theory to issue from data like steam from a kettle (Jones 1972). Theory is essential in order to make sense of data, and furthermore, one's theoretical framework will determine the kinds of data one chooses to emphasise. On this question, Faris points out, "... it is important to examine the requirements of adequate processual theory and the methods by which they are tested. The methodology and logic of an adequate science are equally as important as its content and subject matter...Only processual and systemic change are relevant to evolutionary theory" (Faris, 1975: 238).

The crucial problem, then, confronting anthropology and social science in general, is to establish sound theory and methodology for analyzing social change. Historical-materialism suggests that we do this by observing social reality in motion and by specifying the internal relations at a given time and place. From this perspective, the only constants we have to deal with are the constants of social production as the requisite conditions

* From a paper entitled, "History: The Poverty of Empiricism", published in Ideology in Social Science, edited by Robin Blackburn.

of all social existence, and of change itself. If it is at all possible to speak of "universals" in human society, it is these, and we should begin to incorporate this methodological outlook into social scientific inquiry.

Essentially, this thesis has attempted to use an understanding of social reality as we know it to explain the historical origins of human society. Such a deductive approach is the essence of science. It involves the discovery of certain principles which explain observable phenomena and on the basis of which prediction can be made about which of the potentialities internal to a system may be articulated next. It is precisely in this way, for example, that much progress has been made in astronomy. The existence and position of planets and constellations were predicted long before they were sighted, and indeed, astronomers knew where to point their telescopes only after fruitful elaboration of theory. If our ultimate goal is to deepen our understanding of society and human nature, then theory of social change must be elaborated just as fruitfully and our sights sharpened.

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