Bands, Fertility and the Social Organization of Early Humans

Duran Bell
University of California, Irvine

ABSTRACT

In this paper it is shown that early human society could not have been organized as bands. The contrary, and apparently universal, conception among anthropologists is based on observations of contemporary hunter-gatherers who live in regions within which fertility cannot be fully expressed, due to severe resource limitations. This is a circumstance that is expected to lead to band organization because (as this paper shows) it is inconsistent with socially defined groupings based on genetic links by which territorial claims might be made. Early humans, on the other hand, are very likely to have competed for territory as their radiation proceeded, and local groups would find advantages in their relative demographic strength. Hence, the only available Evolutionary Stable Strategy requires that people organize around the benefits of fertility-as-wealth in some indeterminate form of intergenerational aggregation, as they struggled to maintain possession of (additional) territory in the context of social circumscription. While lineages, tribes and states are the most sophisticated forms of such aggregations, the author suggests the likelihood that early humans might have possessed other forms that are ethnographically unknown.

INTRODUCTION

In their persistent search for a greater understanding of the distant past, anthropologists have peered into the dark waters of the Pleistocene; and they see moving shadows of the past, confounded by reflections of the present. The data that can be discerned are often supplemented by more easily known, but questionably relevant,

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facts of contemporary ethnography. Irving Rouse (1953: 61) suggests that 'archaeologist are accustomed to making inferences concerning nonmaterial culture in an attempt to compensate for their lack of records, basing these partially upon their collections, partially upon conditions in the sites, and partially upon whatever ethnological or historical information may be applicable'. And while archaeologists are well-aware of the dangers of exporting characteristics of contemporary hunter-gatherers into the Pleistocene, the impulse to do so is sometimes overwhelming.

> It is always the case that the richness of the ethnographic record of hunter-gatherers can exert a heavy influence (characterized dramatically by Martin Wobst in 1971 as 'tyranny') on archaeological interpretation and result in the uncritical projection of the behavior of modern hunter-gatherers into the past. So, the archaeologist seeking to understand the society of ancient humans has to tiptoe into a shadowy world of inference, conjecture, speculation, and carefully justified analogy (Bogucki 1999: 72).

Although imputations into the past are recognizably speculative, Bogucki (1999: 73) claims that 'we can be reasonably confident that early humans society had the sort of sociocultural integration which anthropologists categorized as the "band", a flexible association without permanent membership'. While bands may be differently characterized by various anthropologists and archeologists, largely as a result of placing different emphases on specific cultural features, bands are generally recognized as the simplest form of social organization among humans; and given that they are simplest, they are presumed to predate other forms. And, as Wobst complains, the evidence of contemporary ethnography makes its unavoidable intrusion into the data that informs archaeology. The presumption that early humans were organized in bands is a product of that intrusion.

Rather than employ a lineal 'evolutionary' array of social structures as a strategy for deduction, which necessarily forces an extrapolation of contemporary observations onto the very distant past, we will be able to make use of an element of information that has been of limited use to others: We know that early humans were, on the whole, demographically expansive – radiating from a location in Africa to nearly every part of the globe. This fact stands in

strong contrast with the scarcity-induced fertility controls of those socially circumscribed hunter-gatherers who, today, live in simple bands. On the basis of recent work (Bell 2003), these readily obtained observations about the management of fertility enable us to explain the fact of socially amorphous and flexible organization among the structurally simplest of contemporary hunter-gatherers and with similar immediacy recognize that a very different form of social organization had to predominate among early humans.

The purpose of this paper is to show that *band organization was not the prevailing form among early humans*. Rather, they were more commonly organized in (perhaps, ethnographically unknown) associations of individuals who were linked genealogically and whose memberships in particular groups were stable and socially prescribed. Of this, we should be 'reasonably confident'.

THE PROBLEM

The rate of growth of the human population over the many millennia has been quite low. According to Hammel (1996: 224) early humans probably faced severe mortality and low life-expectancies. 'Fertility must have exceeded mortality on average across all populations to achieve any growth, and individual populations in which fertility did not exceed mortality would have been replaced by others in which it did'. Yet, our ancestors who, on the very cusp of modern humanity, were able to prevail over an extinction process that befell many others must have faced conditions of life that accommodated rather strong *initial* increases in population. The 'speciation event' took place, almost by definition, within an accommodating niche, not in one where mortality threatened to overwhelm fertility. However, a human population would eventually become excessive relative to the carrying capacity of the local ecology. So, our understanding of the social organization of early humans must address the basic question of survival and growth in the face of locally diminishing resources, per capita, where the 'local' is continually extended beyond its primal source in the process of demographic radiation.

There can be no doubt that the low rate of growth of human population over the many millennia reflects high rates of mortality, as Hammel (1996) presumes. However, it is not the common case among human and non-human animals that the incidence of priva-

tion and starvation is allowed to be random. One of the most fundamental and essential elements of culture and social organization is the manner in which the rights to life are organized. Who lives and who dies must be answered by social forces operating under cultural rules and/or evolutionary processes. This is true for any society, including our own; and it applies to the world's population, today, where life-expectancy at birth varies from 83.5 in Andorra to 36.4 in Mozambique (source: CIA World Factbook, July 1, 2002). According to Richards (1948: 87):

> The primitive man lives, after all, very near the starvation level, either continually, or at certain seasons of the year. Thus the constituents of his daily diet, and his rules and habits of eating, are all linked in one emotional system with the institutions and activities by which food is procured.

In Richard's view, the centrality of food acquisition to each individual's survival induces a system of prestige ranking within simple societies. And we know that those systems of rank define differential rights to food and sex. In Bell (2003) it is argued that in any human society and in many non-human societies in which famine has frequency, there is an 'eating order' that defines *rightful* priority access to food. In times of plenty, this eating order is reduced to a manifestation of respect for dominant individuals, but in period of shortage, it inversely anticipates death by starvation. We find the continued use of such eating orders in much of the world today in both human and non-human societies.

Among gelada baboons, the lesser ranked females will suffer food deprivation and as the group grows larger, this deprivation becomes intolerable, leading to a (probably) losing fight for dominance. Upon losing, this subordinate group leaves to find another territory – often without success (Crook 1966; Oshawa 1979). Although the total population of the species may not grow within its ecological domain, each group attempts to increase its population to the disadvantage of other groups or subgroups. And in this context, it is to the advantage of any group to promote its own growth in number, even when the aggregate effect of such striving is destitution for the least advantage subgroups and perhaps for the majority of individuals. Given a simple technology of warfare, it is the number of fighters that matters.

One may say, categorically, that under low-technology conditions where the combative force of a group is a function of its size, the *Evolutionary Stable Strategy* (ESS) is to use greater group size as an instrument for gaining preferential access to food resources. Paradoxically, the effort to maximize growth of primary groups becomes more critical in the extreme case where the carrying capacity of the ecology prevents a growth in total population. The more privileged groups may impose food deficits and high mortality upon others by developing a rank order of access to food or by forcing lesser ranking individuals to seek, perhaps in vain, another territory. This is ESS because only a subset of those who chose this strategy can survive, all others must perish.

Hence, over the course of pre-history, the surviving groups, societies and cultures were those within which fertility was a socially recognized asset of critical value, a wealth-asset (as characterized below). In this context female infanticide is as unthinkable as the tossing of gold into the sea. Fertility can be a source of social power and the foundation of a society's aggression and defense; it becomes central to a group's claim on the territory that makes such fertility feasible. That is, fertility, as a wealth-asset, grows in tandem with the growth of territory, which is also a wealth asset, and in a seldom achieved equilibrium, each asset may grow at the same rate. The story of a particular group is never as simple as one of indefinite growth and domination. It is a field of complex multi-group action and demographic competition where some groups or societies grow; others decline and disappear after periods of early success, becoming absorbed by others.

Given the positive, albeit slow, rates of human population over the course of pre-history, we can be confident that the processes just described, processes that have continued in one form or another into the present, were predominant among very early humans. If this is so, then clearly such societies and groups were not organized as bands with flexible membership. Rather, they were organized with Wealth Holding Groups in the management of fertility and territory.

WEALTH-HOLDING GROUPS

In order to facilitate discussion, we need a general way of characterizing the non-band organization of early humans without presuming that they possessed any ethnographically or ethologically

known organizational forms. The critical characteristic that differentiates bands from all other forms is the absence of wealth-assets held by groups within the band. An absence of wealth does not imply a lack of useful possessions. A group may be 'rich' in possessions – tools, weapons, food, residences – while possessing no wealth, as defined here. And it has been found (Bell 2003) that the social organization of any society is strongly conditioned by the character, if any, of its wealth-assets. I must emphasize, however, that the effect of wealth on social organization is proto-cultural, allowing human experience, invention and specific ecologies to give substance to social forms. And it also is proto-cultural in the sense that animals that are presumed to be lacking in 'culture' also possess social organizations and social processes that are conditioned by wealth-assets.

There are two general forms of social resource, consumption goods and wealth-assets. Consumption goods are the flow of material and non-material goods that disappear with use, either immediately or in a short duration. Wealth-assets, on the other hand, have the potential of accumulation and make possible a growth in the power of any group that may lay claim to it. A cow, for example, may be a consumption good, but a managed herd of cattle is a wealth-asset. A machine is only a tool, but when managed in a particular process of accumulation, it becomes capital.

The ethnographically known set of resources that has the potential of becoming wealth-assets is human fertility, fertility of animal stock, land, and industrial equipment. Each of these resources may achieve the status of wealth if four necessary and sufficient conditions are met. These conditions or 'Criteria' are easily illustrated by reference to human fertility and land, the twin assets whose joint effective management must have been pursued by most early human groups.

Fertility, as such, simply increases the population of the relevant animal; and for many animals, especially fish, it requires only the dropping of eggs onto the seabed and swimming away. Nor, indeed, can fertility become an *effective* wealth-asset when it is claimed by only a single individual – a mother, father, or third person. The problem with single person ownership is that when that person dies, its subsequent ownership is also a single person ownership, randomly selected. On the other hand, if there is a socially generated set of heirs to fertility, then those heirs may claim the

fertility of the product of fertility – a growing asset in the possession of the socially generated multigenerational collectivity. This process is feasible if each unit of fertility is capable of producing more than one unit of fertility during its reproductive lifetime, thereby being capable of generating a growing stock of wealth: $F = \{f_1, f_2, ...\}$ over the set of generations, 1, 2, ….. This constitutes the 'Growth' Criterion of wealth assets.

Suppose, further, that there is a group of individuals, say, $G = \{g_1, g_2, ...\}$, defined on the basis of a set of rules (cultural or otherwise) as an *intergeneration collectivity* for generations 1, 2, …. And suppose that *G possesses an enforceable claim on F* – 'enforceable' by means of socially protected 'rights' or by means of its own physical force. Then, we have satisfied the 'Indefinite Life' Criterion by identifying a socially defined set of wealth-holders – a Wealth-Holding Group whose existence spans the indefinitely long life of the growing asset. This Group includes individuals who are no yet born but whose claim on the wealth-asset is the predicate of identifiable rules of distribution.

As it is with capital and land, the *social value* of fertility arises from the set of consumption goods that flow from it, such that increases in wealth imply an increasingly generous flow of consumables. These consumptions goods include any product of work-effort, including sex and military activity. In this way, those who have much wealth may also be rich and possess the ability to defend its assets. The value of wealth (or the 'power' of the wealth-asset) depends on the *anticipated flow* of future consumption benefits. (In the same way, the value of an investment share ('stock') under capitalism is a function of the anticipated future flow of dividends.) This constitutes the 'Consumption' Criterion.

Then, there is the 'Marginal Value' Criterion: In order for any asset to have positive value, it must be true that *the value of an additional unit* of the asset has positive valuation for G. In particular, if an unconstrained flow of fertility in G produces negatively valued increments in consumption, then the wealth-value of the asset drops to zero and the asset ceases to be wealth. The Marginal Value Criterion is complex criterion; but it is particularly relevant to our understanding of hunter-gatherers. I address this issue in Bell (2003: 59) with the following discussion:

> No resource should be presumed to satisfy the necessary characteristics of a wealth-asset without a careful exami-

> nation of the social context in which it resides. It is commonly the case, for example, that a group may face a shortage of grazing land for its animals, so that an increase in their number is not sustainable. Given this violation of the Marginal Value Criterion, the fertility of animals loses wealth-value and is reduced to the rank of consumer durables. As such, these animals may rationally and legitimately be exchanged for other consumer goods. Yet, an adjacent group of pastoralists, who face no ecological constraints on herd growth, would refuse to offer animal stock in this manner. Hakansson (1994) points out that in east Africa the lowland Luo were often visited by famine and, under conditions of severe food shortage, would offer cattle to highland Gusii in exchange for grain. In fact, during such times the Luo and Kipsigis even offered *children* for the grain of Gusii women (Hakansson 1994: 270). Since grain deficits were common among people in the region, the Gusii were able to maintain a steady production of 'surplus' grain for exchange with 'prestige goods'. We can say, then, that famine conditions militate against the wealth-value of both human and cattle fertility, making it rational for people to exchange cattle and children for consumption goods. The children and cattle were wealth-assets for the Gusii, but for the Luo they were reduced to the level of consumption goods (given a failure of the Marginal Value Criterion).

Hence, in order to understand the social organization of any pre-modern society, one should look first to determine the possible incidence of infanticide or any other processes that suggest the failure of fertility to satisfy the Marginal Value Criterion. And if fertility has no social value *at the margin*, then there will be no motivation for forming intergenerational Groups for the transmission thereof – Wealth-Holding Groups vanish[1]. And in the absence of viable wealth-assets, groups cannot seek to gain power over others by reference to it. This is the immediate implication of having no wealth, as characterized herein.

It is only reasonable to presume that the ecology of most early humans facilitated a positive social valuation of fertility and that, hence, some form of genetic linkage was foundational to their social structure. In order for a group to gain the benefits of fertility, it must affiliate by ascription the offspring of those women whose fertility it claims. Indeed, claiming rights to fertility means claim-

ing the indefinitely long stream of offspring of selected women by an intergenerational set of individuals who are, themselves, linked by joint rights to fertility. This set of individuals may take the form of a *lineage*. However, lineages are specific forms of cultural construction, whereas we *shall allow any culturally specifiable intergenerational collectivity to provide the organizational form,* rather than presume the occurrence of any form of organization that we know ethnographically or ethnologically. I would include among known forms of Wealth-Holding Group the *prides* of lions, the *packs* of wolves, and the *matrilines* of Gelada baboons. Each of these forms of WHG is created through fertility with violently protected claims to territory. Since the existence of WHGs is common among non-human hunters and gatherers, it is unreasonable to believe that humans could not avail themselves of such forms from the very beginning. Indeed, it seems certain that WHGs were foundational to the organization of archaic humans and even of certain hominids before them.

TERRITORIALITY

Let us now visit the Pleistocene. Here we find a heating and cooling of the Earth and the advancing and retreating of ice in the northern and southern hemispheres. It was a time when ecological variation on the African continent produced a proliferation of hominid types, one of which would have been the precursor of the genus Homo (Foley 1989). However, in the face of a process of extinction that befell most, an isolated and endogenous group of two to ten thousand individuals managed to become the foundation of a new species (Ayala 1995).

While one cannot cite rates of population growth for the late Pleistocene, it was this population whose radiation fueled the 'human diaspora' into Europe, Asia, Australia and the Americas. Certainly, these were not, in general, a people who were forced by resource deficits into a policy of population stabilization within an encapsulated geographic domain, like contemporary hunter-gatherers. While there may have remained a number of hominid groups with which early humans were forced to compete, we should assume that they were not subject to social encapsulation and that they were free to locate themselves in areas of abundant water and nutrition. At this very early stage, survival was rather easily secured (without the aid of procurement practices that would

be developed later); and humans may have lived in relatively unstructured groups or communities. Even so, there is no reason to presume that any contemporary, or ethnographically known, form of social organization prevailed at that time.

As the early groups grew in numbers, however, local ecologies would become overloaded, so that some individuals would be induced or forced to seek more distant locations. And eventually, some groups would be socially encapsulated by the presence of people who had moved to neighboring areas during earlier times. Hence, the process of demographic radiation would create progressively larger regions of socially encapsulated groups – each group forming part of the enclosure of the others[2]. There might remain the possibility of radiation from any location, but this possibility would decrease steadily with the passage of time. Groups would begin to invade the territory of their neighbors, thereby inviting violent conflict and/or groups would begin to make efforts to expel their own surplus population – selecting for exclusion weaker subgroups thereof. In these struggles demographically stronger groups would have an advantage in territorial claims.

Even in a pre-historic world that was largely empty of people, a search for new territory becomes increasingly difficult for those on the interior of the expanding population, whose search would require traversing the territory of unfamiliar, fearful and increasingly hostile others. Hence, those who are well-organized will prevail over those who are not so organized; and those who, other things equal, most effectively encourage and manage the fertility of women will possess the demographic strength to prevail in the ongoing contest to maintain access to ancestral lands and/or seize the lands of others.

It is not uncommon that strength in numbers enables members of particular groups to gain nutritional benefits and become stronger as individuals. In this event, a dominant group is larger in number and its members are healthier and stronger (a set of characteristics attributed to early hominids by Hockett and Asher [1992]). One subgroup of a community may promote the ouster of others as population increases, or the community as a whole may grow strong relative to its neighbors and seek by violent means their displacement. I have characterized this as the Evolutionary Stable Strategy.

However, if there is a process by which one group claims territory to the exclusion of others, *i.e.* territoriality, then the members

of groups must be socially identified. Groups cannot be flexible and porous. Secondly, under low technology conditions group size is generally the decisive factor in the ability of a group to maintain and extend territorial claims[3]. Consequently, the power of a group is a function of the process by which women reproduce themselves and, hence, the process by which fertility may grow potentially over an indefinite horizon.

CONTEMPORARY HUNTER-GATHERERS AND FERTILITY

However, among those extant hunter-gatherers who live in the most marginal and resource deprived locations, food is shared broadly within the resident group, with the result that the right to survive is equalized among adult males. This practice is made possible by a systematic denial of life for the newly born[4]. This is a truly remarkable solution – a general self-denial of 'natural fertility' in a non-stratified setting. It is a solution that is strongly at variance with that chosen by any other peoples or animals (Boehm 2000). It is a solution the existence of which must be explained in the context of the 'typical' (default) solution, wherein there are processes of social differentiation that allow the successful to express fertility at the expense of others.

The societies of hunter-gatherers, whose forms of organization have influenced anthropological conceptions of early human societies, have been located in resource-poor and socially encapsulated ecological niches within which widespread female infanticide signals a socially recognized redundancy of reproductive capacity. Moreover, this redundancy is visited rather uniformly upon all sectors of the society, not simply upon a socially structured set of disadvantaged families, as is common elsewhere. Consequently, neither the society nor any subgroup of the society is making an effort toward demographic dominance and territoriality.

The Punan of central Borneo are able, at the present time, to stabilize their population through emigration into the surrounding agrarian society (Hoffman 1986). However, this is a solution that is not always available. The !Kung Bushmen (Howell 1979; Lorimer 1954) practice post-partum sexual abstinence in order to increase spacing, but this also has the effect of reducing completed fertility rates, producing according to Lee (1972: 335) 'a favorable demographic picture'. In unpublished lecture notes Eric A. Smith (2005) provide Figure 11.3, below, showing that actual birth intervals

among the !Kung are just about right for producing a stable population. The G/Wi Bushmen do likewise (Silberbauer 1972), so that women commonly have only three children.

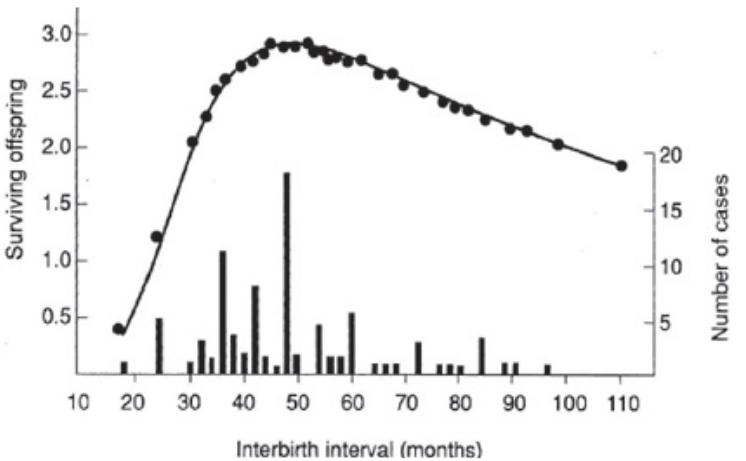

Fig. 11. 3. Modeling and testing optimal interbirtb intervals in the !Kung. The number of surviving offspring to mothers spacing their births at any specific interval can be calculated as [(reproductive lifespan/interbirth interval) x probability of survival if born at that interval], and is shown by dots connected by a hand-drawn curve. The optimal birth interval, calculated in this way, is 50 months. The observed frequency distribution of interbirth intervals, shown by the vertical bars, has a mean value of 55 months and a modal and median value of 48 months (based on 96 intervals for 65 women (after Blurton Jones 1986).

The ethnographically more common mode of population control is infanticide. Sixty seven percent of the infants in an Inuit village were killed (Rasmussen 1927). And, according to Wenke (1990: 121):

> Townsend [1971] found that the women of this group [of hunter and gatherers in New Guinea] marry soon after puberty and have about six children. Malaria and other diseases kill off about 43 % of the children early in life, but girls die from diseases at a much greater rate than boys, probably from malign neglect. If thought necessary, unwanted girls are killed by strangulation with a vine soon after birth.

Tiwi women of Melville Island, North Australia attempt abortion, sometimes by jumping from a tree or by hitting the womb with a stick (Goodale 1994). And, in her survey of this issue, Scrimshaw (1984: 453) points out that:

> In fact, regulation of either familial or societal fertility is one of the most common reasons cited for overt infanticide (Abernathy 1979; Dickermann 1975; Carr-Saunders 1922). This is often expressed in terms of limiting the population in order to avoid food shortages. Firth (1961: 202) wrote that the Tikopia practiced infanticide in proportion to available food. The midwife turns the baby face down at birth at a word from the father. This is done unwillingly, 'with limited resources in mind', and only after the family already has at least one child of each sex.

We may consider the Guayaki, as described by Clastres (1972, 1998). Clastres (1972) argues that the Guayaki hunting bands in the forests of Paraguay consist each of only several families and must range narrowly in size between 15 and 20 persons, as a condition for survival. Furthermore, the Guayaki are organized into four mutually antagonistic 'tribes', each with its own territory, so that survival of each tribe requires forms of demographic stabilization. Those methods include infanticide, sexual avoidance practices and polyandry.

The Thule were ancestral to the contemporary Inuit and, as carriers of a superior technology (that involved hunting whales on large boats), they were able to expand demographically and displace the previous society, the Dorset. According to Morrison (1997: 1):

> … Inuit people living across the top of the North American continent from Bering Strait to east Greenland. All share a recent common origin in a culture which archaeologists call *'Thule'* which arose in northwestern Alaska about 1100 years ago. Over the course of the next few centuries, Thule pioneers spread rapidly east throughout the Arctic in a series of migrations which changed the ethnic map of the entire North American Arctic. The earliest well-attested Thule site in Canada is located on southern Banks Island, and dates to about the year A. D. 1000. Within less than two centuries Thule hunters had spread as far as Greenland.

Following this early period of demographic expansion and displacement by their ancestors, the Inuit have followed a strategy of population stabilization, facilitated by infanticide. This is the commonly adopted strategy of hunter-gatherers in the most resource-constrained environments. They do not form genetically linked groups (Wealth-Holding Groups) in competition with others over scarce resources. Their strategy contrasts with that of other animals and other humans. Indeed, these peoples live in ecologies that would not have sustained the earliest of humans (or even many later humans, for that matter). Only with ecologically specific knowledge can these peoples survive. And an entailment of this knowledge is the choice of a resource distribution strategy that violates the presumed ESS. So, why would some hunter-gatherers fail to adopt the Evolutionary Stable Strategy? What are the special circumstances that would cause them to deny the struggle for demographic dominance? The answer that I can offer is three-fold.

Most importantly, during those predictably lean seasons of the year (or perhaps at all times of the year), people must disaggregate into small foraging groups as they search for smaller patches of food. *If food patches are small, then primary groups must be small and, hence, each hunting group must control its fertility.* Demographic growth of this group does not provide power, only hunger (as evidenced among the Guayaki, as mentioned above). In a domain of such scarcity female infanticide can be expected; and the small sizes of foraging groups disqualify any of them from becoming dominating power groups within the band.

Secondly, each such small *consumption* group must depend on the others during the subsequent period of aggregation when each group shares the holdings of the others, as they wait for the season of plenty (Ingold 1980). Territoriality is dysfunctional if the location of food is locally variable from one season to the next, as is certainly the case with animal prey and many other food sources. And in areas of little rainfall, it is common that annual variability is great. *Hence, there is greater benefit to being able to join other groups in other locations as circumstances change*[5]. If an individual desires to enter the location of a neighboring band, he may simply go there and join that band for some period of time. Territoriality, on the other hand, requires that people fight for and defend special access to resources, while denying access to categorical outsiders.

So, band organization is forced upon people who live in ecologies that provide few resources and, at least seasonally, provide those resources in small patches. The consequence is that the maximum size of primary groups is fairly small and that each such group must depend upon others. The argument that early humans lived in bands, then, implicitly argues that in general early humans struggled to survive in similar ecological circumstances – circumstances which are inconsistent with the fact of fairly rapid demographic expansion.

Since the term, band, has been used with different structural implications, it should be clear that there can be no 'patrilineal band' relative to the conception of band organization discussed here. There may be those who wish to speak of bands in societies for which fertility is a wealth-asset, which possess inheritable assets[6], and which control and constrain membership across groups. I will not argue with such application. However, it should be clear that we are discussing a conception of the band such that it can possess no Wealth-Holding Groups.

FROM THE COMPLEX TO THE SIMPLE

The association of hunting and gathering with band society does not arise from a lack of alternative social forms among hunter-gatherers. Native American societies, for example, were generally matrilineal, tribal associations, some of which exhibited considerable hierarchical complexity. Indeed, only a minority of ethnographically known hunter-gatherers have lived in band societies. For example, the Pitjandjara in the north-west of Australia can be described as a 'simple hunting and good-gathering people' (Tindale 1972: 218), but relative to hunter-gatherers is more extreme regions, they possess a rather complex tribal kinship structure, featuring patrilineally held territory, totemic identification and patrilocal marriage. However, archeologists have rather confidently assumed early humans to have been organized into bands. Since the time of Herbert Spencer (1857), it has been firmly established in Western thought that the simple precedes the more complex:

> It is in the nature of things that simplicity precedes complexity. This was not merely a matter of logical necessity but of empirical fact: paleontology and archeology combined to show that, with few exceptions, what was earlier

> stratigraphically was also simpler structurally. Thus it was possible for the early evolutionists to hold firmly to the view that complex cultures had had simpler antecedents (Carniero 1973: 68).

The apparent universality of processes of increasing complexity combines with the cross-cultural, comparative method to produce reasonable confidence in the notion that bands precede other forms of social organization in human evolution. Indeed, it becomes true by definition (of 'evolution'). However, more basic than evolution is the process of adaptation. Adaptation is the response of an organism or society to changing external conditions; and adaptation is not predictably in the direction of 'progress' or complexity. Although we should steadfastly avoid a specific characterization of the forms that arose among early humans, we should be confident that *observed band societies are social adaptations that replaced earlier forms* when a people found themselves in an environment lacking resources for the expression of fertility.

More complex societies would transit into bands after having been ousted from more commodious environments. Theirs is an unknown and varied history. The ecology of the Kalahari has certainly changed from one with an abundance of water and much wild game to the desert that we find today. And the people who now reside there may have live there during better times, or may have been forced onto it during the worst of times. And having been induced to move into resource-poor environments, people would be socially circumscribed by demographically stronger and better organized groups. Hence, they could fight only among themselves for relative dominance. But this practice, we know, is not a feasible strategy in the long run, given the critical advantages of flexible membership in this particular kind of environment. *This means that the extant hunter-gatherers who live in these domains are those who managed to discover an exceptional mode of survival – band organization – having previously experienced a different form of organization.*

In any case, we must not continue with the myth of people who never evolved – a mythology of hunting and gathering peoples who are frozen in time. Certainly, the Inuit have traced a complex prehistorical path, having reached locations far from the origins of humanity and having learned to survive in an ecology for which

very special adaptations are required. In the case of the Inuit, we know that they devolved from a socially and technologically more complex group called the Thule. We should be reasonably certain that other band societies are the product of similar processes of devolution.

CONCLUSION

In his justly famous paper on the origin of the state, Robert Carneiro (1970: 738) suggests that the development of the state was 'undoubtedly the most important single step ever taken in the political evolution of mankind'. And he identifies social circumscription as a central factor in this development. He also joins with Chagnon (1968) in suggesting that social circumscription is a factor in the production of larger villages within centers of population in Amazonia. In the same way we have identified social circumscription as a factor that would induce an abandonment of flexible social forms in favor of Wealth Holding Groups among very early humans. The adoption of WHGs among early humans was arguably the most important step ever taken in the *social* evolution of mankind. Our argument joins with that of Carneiro by the fact that chiefdoms and states are Wealth Holding Groups at higher levels of aggregation. All of these wealth-holding associations are justified on an evolutionary basis by their capacities for warfare and defense and, hence, by the ability of at least some privileged subset of those groups to experience the benefits of fertility.

The conventional conception of early humans presumes that they were willing to adopt a practice of killing their own offspring rather than fight for land on which to realize the benefits of fertility. It presumes that they chose the live miserably while sharing resources very broadly with others, instead of taking advantage of the demographic strength by which to claim greater nutritional adequacy. However, we have argued that it is only under very extreme ecological circumstances that people will do this. Because, if the ecology allows primary groups to become larger, then the only groups that will survive will be those that adopt the Evolutionary Stable Strategy of developing large, combative, Wealth Holding Groups. Bands would develop and survive only in territory not desired by others.

NOTES

[1] In the case of the Gusii, the loss of wealth value in children was only temporary, so that Wealth-Holding Groups could be found among them.

[2] I am ignoring here the possibility that early humans were surrounded by other hominids with whom they had to struggle for territory.

[3] The number of men is commonly quite redundant relative to the capacity of women to express fertility. Hence, men cannot be included as components of the calculation.

[4] The equalization of rights to food does not imply that all individuals face the same probabilities. Differences in access to food may differ on the basis of individual effort and ability, even when 'rights' to food are equalized. Ingold (1980) has shown that in almost every society of hunters, there are cycles of aggregation and dispersal – dispersal when food is to be found in smaller and less predictable patches – such that the subgroups associated with the more effective hunter-gatherers will fair better over time. In this way, the probability of survival will vary among families, even with equal distributions among families within a given aggregation.

[5] I am ignoring here the possibility that early humans were surrounded by other hominids with whom they had to struggle for territory.

[6] It has been pointed out by David Kronenfeld (private communication) that from the point of view of individuals, a specific band is only a component of a larger regional organization to which they belong. I could add that it is also true that the primary group is inter-temporally variable, as is any larger aggregation (Ingold 1980).

[7] There may well be tools and weapons that are transmitted by bequest; but inheritance implies a socially imposed rule of distribution. Unfortunately, English and American usage tends to compound these concepts. Only wealth, as characterized above, is deserving inheritance processes in any society.

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