

NOMADS: BEHAVIORAL AND PSYCHOLOGICAL ADJUSTMENTS TO SEDENTARIZATION

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This paper concerns the sedentarization, concentration, and urbanization of nomadic and semi-nomadic peoples. Nomadism involves a way of life which historically has characterized human groups on a world wide scale, on all six inhabited continents. Examples of nomadic groups include not only the relatively well-known Bedouin, Bedu, Danakil, Basseri, Papago, and Tuareg of Southwest Asia and North Africa, and the Tarahumara and Navajo of North America, but the Gypsies, Tinkers, and Lapps of Northern Europe as well. Cultures which have maintained this ecological solution have recently been subjected to increasing political and economic pressures toward sedentarization. The current paper presents detailed information concerning the psychological and social aspects of this type of environmental change. The general purpose of this analysis is to initiate the study of behavioral changes resulting from disruptions in group spatial organization produced by sedentarization. Two general frameworks are proposed: the first is concerned with characteristics of the sedentarization process itself; the second with the application of behavior setting analysis, derived from Ecological Psychology, to radical environmental adjustments required by sedentarization.

This paper concerns the sedentarization, concentration and urbanization of nomadic and semi-nomadic groups. Nomadism involves a way of life which historically has characterized human groups on a world wide scale, on all six inhabited continents. Cultures which have maintained this ecological solution have recently been subjected to increasing political and economic pressures toward sedentarization. Imposed sedentarization constitutes a thoroughgoing attempt to redesign the physical, spatial and social ecologies of nomadic groups.

Pastoral nomadism is part of an ecological system which, (using Southwest Asia as an exemplar) includes cities, villages and tribes. Dislocation of one aspect of this system, the nomadic sector, may be expected to have dynamic consequences for city and village economic and social structures. Despite the ancient historical roots of pastoral nomadism, sedentarization policies have been adopted by many regional governments. Pastoralism is seen as an obstacle to social and economic development. Nomadic tribesmen are construed as operating a state within a state, causing problems with land reform policy, educational objectives, and the maintenance of border integrity and security. Sedentarization policy has essentially been aimed at transforming a mobile tribal member who lives with (and from) his flock into a settled cultivator of the soil.

Despite the extensive practical repercussions of sedentarization policy, and its relevance to theories of population concentration-dispersion and urbanization, little is known of the behavioral and psychological concomitants of the process. We assume that acquisition of this latter sort of information should precede attempts to structure settlement policy or to introduce settlement projects. We further assume that the data, theory and methods developed in the study of sedentarization will contribute to the development of theories of

population density, urbanization, environmental design and socio-spatial behavior. This paper is an attempt to generate a theoretical analysis (based upon available literature) of the sedentarization process which has explicit research implications, and which could be used to guide the study of this phenomena. Hypotheses are presented which bear upon: a) the antecedents of sedentarization, and b) the psychological, social, and behavioral consequences of sedentarization.

Much is known about nomadic groups and a number of studies have been made (and conferences held) on the process of sedentarization. In almost all cases, however, social variables have taken a back seat to political and economic consequences, and psychological variables have rarely been mentioned. The present analysis therefore deals primarily with the behavioral and psychological consequences of sedentarization.

The paper focuses on two problem areas: the first concerns the characteristics of sedentarization processes. We assume that nomadism is an adaptation to a particular set of political, social, economic and physical conditions. Nomadic groups may be regarded as engaged in transactions with multiple ecologies. Changes in any of the ecologies may necessitate new adaptations; sedentarization is one such adaptation. The ecological antecedents to sedentarization are depicted in Figure 1 and include: a) the behavior of political decision makers, b) external stresses, such as drought, disease, habitat destruction, c) population growth which exceeds the allowable level of resource extraction, d) pressures from other groups (e.g. raiding), e) changes in the economic value of the groups products, and f) technological changes.

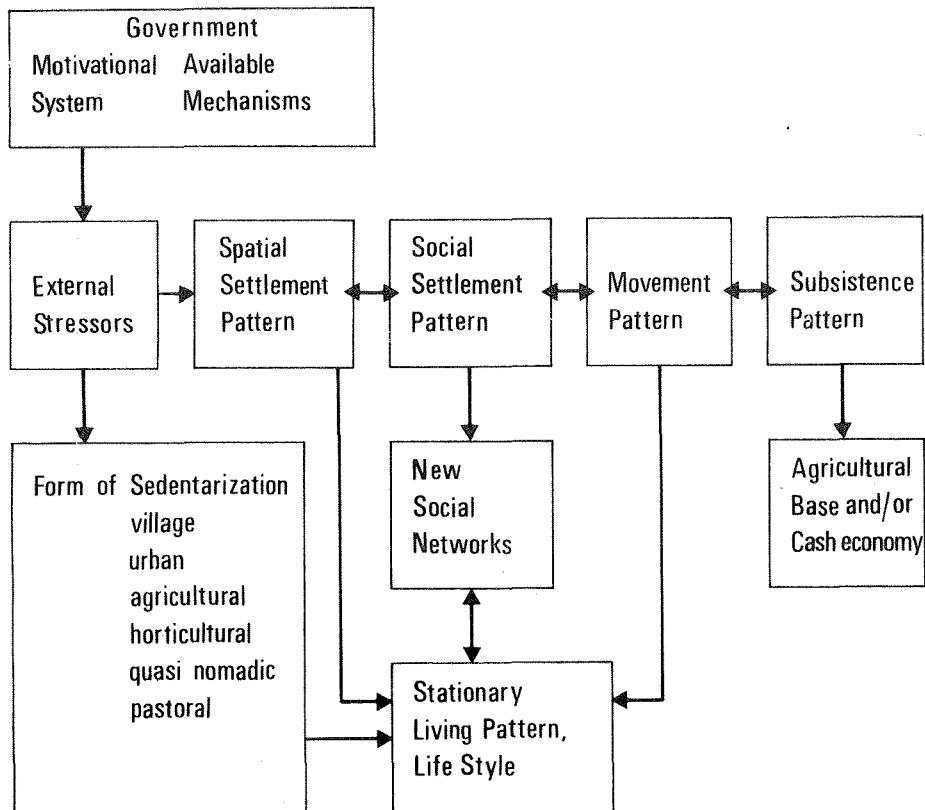


Fig. 1: An integrative model of sedentarization: Antecedents and social and spatial consequences.

ANTECEDENTS OF SEDENTARIZATION

Sedentarization is "forced" in a number of ways. Two common precipitating factors are political action and change in the physical-technological environment. An example of the former was the decision of the government of Iran, prior to World War II, to sedentarize Persian nomads. Action resulting from this decision was partially successful, but the successive partial occupation of Iran by British and Soviet forces prevented the government from policing the sedentarized groups, many of whom subsequently reverted to nomadism. The stronger and more centralized government that emerged in the 1960's, however, is reasserting a policy of sedentarization. Throughout, one determining factor appears to have been the perceived nomadic "threat": the nomad's refusal to acknowledge the jurisdiction of the national government and consistent "violation" of established political boundaries.

Less clear is the case of the Tuareg, who poured into villages and towns bordering the Sahara during the 1973 drought. To all appearances, climate sedentarized the Tuareg. Yet, droughts are cyclical; such droughts must have occurred before in Tuareg history, and been successfully endured. An explanation at least as likely as pure climatic catastrophe is that their "resistance" to environmental stressors has been worn down over a considerable period of time (Blaut, 1973), both by *removal* of long-accustomed freedoms and privileges (e.g. the "hardening" of national boundaries) and by the *imposition* of additional restrictions and regulations. Examined in this light, some differences between the Persian and Tuareg sedentarization situations may turn out to be questions not of kind, but of degree.

As indicated elsewhere in this paper, not all "nomadic" groups are *only* nomadic. Some go through cycles of nomadism-sedentarization over the year: among other groups, such as the Berber, some tribes have been sedentarized for many years, while others remain primarily nomadic. The Tuareg, who until the recent droughts in the Sahel of the Sahara appear to have been almost entirely nomadic, have developed few social structures for handling problems of a sedentarized existence. Other tribes have developed one set of behaviors appropriate to nomadism, another to temporary sedentarization, another to visiting towns, since all three contexts are part of the annual cycle of movement.

It is difficult to speculate about different effects of forced sedentarization upon purely nomadic, partially nomadic, and cyclically nomadic groups. It does not seem reasonable to assume that the adjustive mechanisms appropriate to *visiting* towns are also appropriate to *permanent dwelling* in towns. Nor is it likely that the physical or social forms of forced, permanent sedentarization closely resemble those of voluntary sedentarization, whether temporary or permanent, nor of sedentarization forced upon a group in the distant past.

There appear to be two forms of sedentarization (Fig.2). But, as the Iranian experience indicates, sedentarization is not a "one-way street"; forcibly sedentarized people may re-nomadize when the opportunity presents itself, or, alternatively, people sedentarized into "modern" structures and villages may try, within their sedentarized existence, to adapt the physical forms of traditional sedentarization, or even of nomadism (Abou-Zeid, 1973)(Fig.3).

A sedentarization project, whether voluntary or imposed, may take a number of forms including village, urban, agricultural, horticultural, quasi-nomadic or pastoral. We assume that each of these forms is associated with different sets of utilities for traditional patterns of social behavior, and that groups will be obliged to modify social institutions to some extent in order to adapt to the spatial and economic constraints of the settlement. We thus assume a broad ecological perspective which looks for relationships between environment, social institutions and individual behavior. The relationship between these factors has

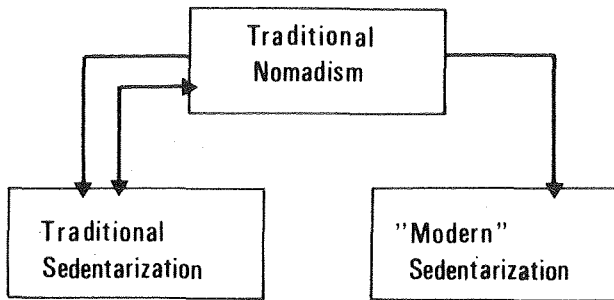


Fig. 2: Roads to sedentarization.

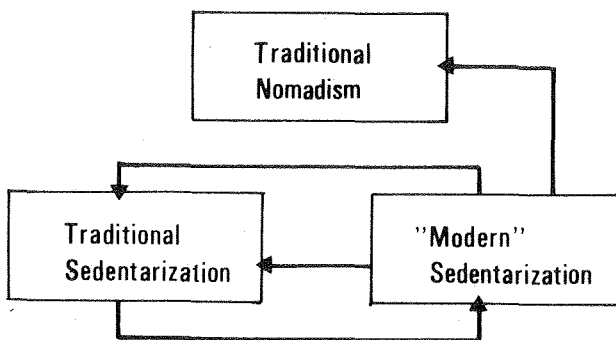


Fig. 3: Sedentarization: Reactions and later stages.

been schematized by Goldschmidt and is presented as a heuristic for organizing information (Fig.4).

Our emphasis is upon changes in the spatial distribution of people and upon the relation of these changes to other behavioral changes that occur. The major *spatial* variables with which we are concerned are those associated with mobility, and population density. Empirical evidence is rather scant, but one example (Goldschmidt, 1971) indicates that dispersion is greater and population density less in the pastoral (mobile) members of four African groups, as compared with their farming (sedentary) counterparts (Table I).

While it seems unlikely that *all* nomadic groups are less densely settled, with greater pairwise separation between homesteads, than farming groups, it appears quite likely that *in general* the sedentarization process involves *both* substantial decrease in the mobility of a previously nomadic group *and* an overall increase in settlement concentration.

SEDENTARIZATION AND PSYCHOLOGICAL ECOLOGY

Roger Barker and his associates have elaborated a model which is well suited for the analysis of environmental change. From Barker's perspective the environment is composed of a constellation of behavior settings "which can be identified and described reliably without an explicit theory and by means of a variety of survey techniques" (Barker, 1968). Each behavior setting is associated with a "standing behavior pattern", which is congruent with, and constrained by, the social and spatial structures which constitute the setting.

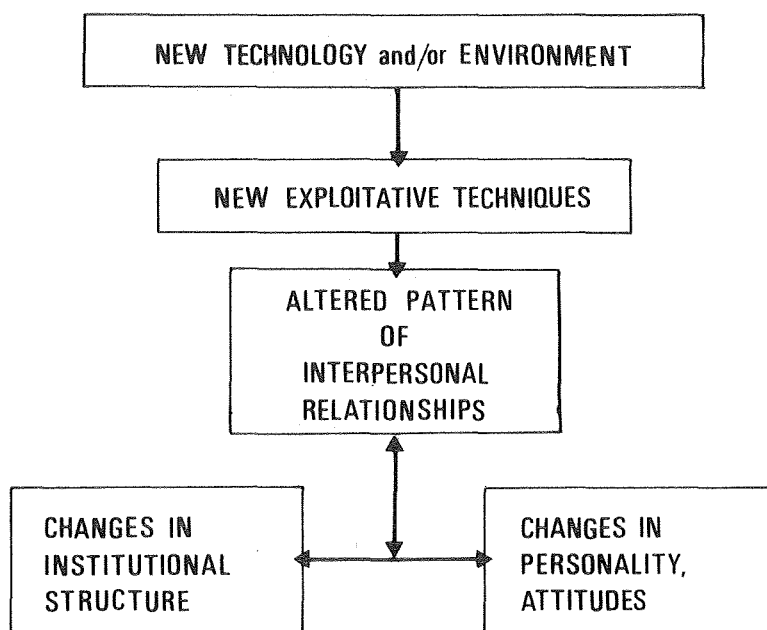


Fig. 4: A general ecological model (from Goldschmidt, 1971).

Table 1: Relation Between Pastoral and Farming Subgroups in Terms of Distances Between Homesteads and Population Density

Ratios Group	Distance Between Homesteads: Pastoral/Farming	Persons Per Square Mile: Farming/Pastoral
SEBEI	10.0	127.0
HEHE	2.3	71.7
POKOT	3.2	61.0
KAMBA	4.6	3.2

Source: Data from Goldschmidt, 1971.

The Barker model has proved useful in the analysis of such diverse environments as towns (Barker and Wright, 1955), schools (Barker and Gump, 1964), hospitals (LeCompte, 1972), and churches (Wicker and Kauma, 1972). Application of ecological analyses begin with the differentiation of an environment into spatially distinct settings and a specification of the behavior patterns associated with the setting. Settings are assumed to bring pressures to bear on performers in the setting. Setting-specific behavior is understood in terms of the *claim* of the behavior setting on its inhabitants. The degree of setting constraint is assumed to vary with the type of setting, the number of occupants in the setting, and the "program" of the setting.

The nomadic environment provides a novel context for this sort of analysis since the principal behavior settings for a nomadic group are not geographically fixed. Settings are designated in terms of the presence of specific people, objects, and activities rather than locale. The sedentarization process, with its consequent mobility changes, involves a shift to place-based behavior settings. If settings are construed as the source of behavior

constraints, the relevant question becomes: what changes in the dynamics of behavior settings are likely to occur as a result of a shift from mobile to place-based settings? In simpler language, how might the change from temporary to permanent space affect the behavior permitted in that space?

CONCENTRATION-DISPERSION OF POPULATION

The Barker model allows some specific projections concerning the changes in behavior which are likely to result from increases in population concentration. Density changes in an environment typically result in a change in the number of people who occupy a particular behavior setting, or in the number of people who are available to occupy a setting. If the number of individuals present in a setting is inadequate, or only marginally adequate, for the performance of activities required in the setting, the setting is regarded as *undermanned*. Wicker (1973) indicates that the degree of manning mediates the extent to which a behavior setting exerts a motivational influence on its constituents.

Undermanned behavior settings are associated with particular contingencies for performers. Barker asserts that such settings exert a greater claim on their occupants, generally producing more or "harder" work than adequately manned or overmanned settings. Individuals in undermanned settings are more responsible for the success or failure of the program of the setting. Individual responsibility and independence is greater. If the environment is made up of undermanned settings (as is the case in many low density conditions) individuals participate in a greater diversity of tasks and roles and are functionally more important within each setting.

Nomadic behavior settings may be regarded as "undermanned" in Barker's terminology. The number of people able to utilize a pastoral economy is limited by the number of animals grazed, which in turn is limited by the amount of available pasturage. Naderi (1973) has shown that a viable nomadic economy relies upon the continual adjustment of human population, via migration to and from villages, depending upon the vagaries of climate and pasturage. The herding unit may be regarded as marginally *manned* relative to the degree of work required in the behavior settings.

Sedentarization may be expected to produce an increase in the number of settings in the environment of a group and an increase in the ratio of people per setting. Research in organizations which increase in size has indicated that the rate of increase of individuals exceeds the rate of increase of behavior settings (Barker & Barker, 1964; Wicker, 1973; Willems, 1967). One central change in the environment of sedentarized nomads will involve the shift from a set of undermanned settings to an environment composed of adequately manned or overmanned settings. Individual members may be expected to participate in fewer settings and with less involvement in each setting. Individual autonomy and independence will be decreased as a result of the increase in the number of other members of the setting.

PARAMETERS OF PSYCHOLOGICAL, SOCIAL AND BEHAVIORAL CONSEQUENCES OF SEDENTARIZATION

The following topic headings and questions constitute hypotheses concerning the changes in individual and social behavior which might be occasioned by sedentarization.

Spatial behavior and "flexibility" of nomadic social organizations

Pastoral nomadic groups are characterized by continually shifting spatial relationships between herding units and between individuals in a herding unit. In many such cultures,

the constituency of the herding unit undergoes continual change throughout the year. It has been suggested that social relationships between members of the herding unit "take into account" the fact that individuals from different lineages will be spatially contiguous for relatively short periods of time.

Swidler (1973) has suggested, on the basis of observations of the Brahui of West Pakistan, that in any given pastoral situation, there is an optimum size of flock. When the flock size is allowed to fall below a determinable threshold, the efficiency of the herding operation and the welfare of the animals is jeopardized. Since individual family livestock holdings undergo temporal variation, it is unlikely that any single herding unit, composed of fixed member families, will be able to maintain an optimum size flock for an extended period of time. This situation, combined with the fact that individual families typically maintain different compositions of livestock, and hence periodically need to exploit different environments, leads to the conclusion that the composition of the basic sociological unit of nomadic society (the herding unit) cannot be very stable.

This instability or flexibility may be seen as a form of ecological adaptation. Spooner (1972) suggests "as nomads are continually moving as groups and as individuals, and the composition of the groups changes both absolutely and seasonally as the fluctuating resources demand greater or lesser concentration of manpower, the social organization of nomads has to cope with and reflect a fluidity far greater than that of any peasant situations." Compared with their sedentary counterparts, then, we would expect to find the social ties between neighbors in pastoral groups to be more transitory, fluid and unstable.

Personality characteristics of individuals in nomadic cultures

A culture which is based upon fluid and changeable social organizations may select for a particular range of ideologies and personality characteristics among its constituents. Edgerton (1971) and Goldschmidt (1971) report an extensive study of personality and life style differences between pastoral and farming communities in East Africa. Four tribes were studied: The Hehe, the Kamba, the Pokot, and the Sebei. Each tribe was represented by both pastoral and farming communities. The study involved pastoral-farming comparisons of values (belief regarding what is proper) attitudes (dispositions, preferences, opinion, etc.), and personality characteristics.

Between group differences were predicted from an ecological model which assumed that the behaviors of pastoralists and farmers were controlled by different sets of social and physical contingencies. Edgerton concluded that the obtained data indicate "that farmers and pastoralists live in significantly different milieus and that each milieu makes different demands on its human inhabitants and subjects them to different kinds of constraints. As a result the individual is pressed towards the kind of behavior and attitudes appropriate to the milieu in which he finds himself, and in time he not only takes on attitudes and values that are appropriate to it but some aspects of this personality too come into conformity with that milieu."

A number of writers have attributed quite specific personality traits to members of nomadic groups. Chatty (1972), for example, suggests that Middle Eastern nomads are, in general, characterized by the following attitudinal and behavioral dispositions: individual independence, prowess, reverence for leadership, respect for old age, hospitality, generosity, honoring of the promised word, respect for individual rights, mutual aid, community consciousness and loyalty. In one of the few studies directly aimed at exploring nomadic sedentary differences in personality disposition, Edgerton (1971) obtained evidence indicating that members of nomadic groups manifest greater degrees of independence and aggression than their sedentary counterparts.

Obtained differences in nomadic-sedentary comparisons of social behavior may be attributed to the combined influence of two factors. One source of obtained differences may be the specific behavior settings which constitute the nomadic environment. Members of nomadic groups move through behavior settings which are "undermanned", in Barker's 1968 terminology, requiring more contributions and responsibility from individual members. Continued interactions with such settings may result in the valuation of behaviors which are functional in setting maintenance. A second source of variance may be differential migration to nomadic and sedentary settings by individuals possessing different dispositions or skills. Since most tribes have both nomadic and sedentary communities, and since the life style of each is well known to individual members, individual personality characteristics may govern the choice of residential and economic adaptation. Differential migration to nomadic and sedentary contexts could result in observed differences in the personality characteristics of residents of these contexts, independent of the motivational consequences of the environment.

Sedentarization constitutes a major change in both social and physical ecologies. In line with the reasoning presented by Edgerton and Goldschmidt, we would expect to find that the attitudes, values and personality structure of nomadic individuals would be less congruent with, or adapted to, as a sedentary situation. Some degree of social or behavioral disfunction might be expected until individual members and social organizations are adapted to the new context. Investigations of this adaptation process has implications for sedentarization policy and procedures.

Patterns in the use of space

Various kinds of macrospatial behavior characterize nomadic groups, depending upon the particulars of economy and ecology. Johnson (1969) distinguishes between types of nomadic movement. Relationships between movement type (especially range and frequency), and the nature of social organization have been suggested. For example, Barth indicates that Basseri groups must continually reaffirm their desire to remain a group through daily consensus about coordinated movement. Sedentarization would eliminate the need for this sort of interaction, the decisions about migration which form the focus for much social exchange among the Basseri. Sedentarization would change, as well, the nature of and consequent role played by physical distance, which expresses social distance among the Basseri. Thus, the relative location of tents reflects kinship and economic dependence *within* the herding unit. Separation *among* herding units is also related to the necessity of not mixing herds, while contiguity may reflect the need for temporarily merging herds. The resulting spatial pattern, then, expresses a well-understood balance of social protocols and subsistence needs.

Norms for social interaction among members of nomadic tribes evolved in, and are probably dependent upon, mobile and dispersed spatial conditions. The disruption of established patterns of spatial relationships which is associated with sedentarization will likely have some impact on traditional social institutions and ritual behaviors. Fernea and Kennedy (1966) provide an illustration of the relationship between spatial change and social behavior in the Sudan:

In Old Nubia neighborhoods were formed largely by natural groupings of close kin. In New Nubia the assignment of houses ignored the existing social and kin groups and was based only on the size of the household unit recorded in the 1961 census. Four sizes of new houses were built, and for ease of construction, houses of the same size were grouped together. The grouping of families by size not only broke up the old neighborhoods and villages within

each district, but also segregated most of the older members of the community. Widows or elderly couples whose children had their own homes were assigned to the small-house section of the new community. Thus it is often difficult for their younger relatives, who live in the section of larger homes, to render the assistance customarily due elders. Not only have old villages and neighborhoods been disrupted, but the basic demographic pattern has suddenly and radically shifted. In contrast to scattered villages, usually containing less than a hundred residents and often separated from other communities by sand dunes and rocky hills, we now find settlements containing hundreds of persons who may see one another daily and are within easy walking distance of neighboring settlements. This transformation has challenged the continuance of ceremonial life in its traditional form. (Fernea and Kennedy, 1966).

Spatial Behavior, Dispersion, and Hospitality Codes

The social behavior of Middle-Eastern nomads follows strict and specifiable "hospitality" codes (Peristiany, 1965). Members of the tent unit (or *beit*) are obliged to extend hospitality and protection to strangers as defined by the "rights of neighborhood," and the "right of refuge" (Abou-Zeid, 1965). No guest can be refused, no refugee denied sanctuary; it is not mere sharing that is required, but frequently going hungry oneself so that strangers of a moment before, now one's guests, can eat (Thesiger, 1959). Westerners may find this practice almost as astounding as the "terribly immoral" practice of certain Eskimos who offer their wives to visitors who must stay the night or take solitary trips across the ice.

To suggest a parallel among Bedu hospitality, Eskimo wife-sharing, and life insurance not only strains credibility, but is equally offensive to Bedu, Eskimo, and Prudential alike. Nonetheless, it bears some examination. All are societally sanctioned forms of "ironing out" instabilities in the physical and social environment, of reducing the consequences of unpredictable disasters by "spreading the load." Nomadic groups such as the Bedu and Eskimo distribute this load over space, and over the people scattered through this space, so that everyone is sooner or later somewhat inconvenienced by unexpected guests, but no travelling band need die of hunger or thirst because there is no-one who will take them in. Among the Tuareg, there are no orphans; if a child's parents die, another family will take him in, and raise him as their own. In our highly nucleated society, the responsibility for a family rests solely with the head of the household; if he fails to provide, for whatever reason, the family is deprived. Hence, there is no possibility of distributing responsibility spatially and it must thus be distributed temporally via insurance payments, for example. In a nucleated, sedentary, or market-oriented society, insurance is security, often survival; in an non-nucleated, mobile, subsistence society, hospitality is security, and even more often means survival.

We assume that hospitality codes have been selected through a process of social evolution, and that they remain functional in an environment in which spatially dispersed water holes appear and disappear and in which equally dispersed forage for livestock is dependent on the vagaries of climate. The nomad's cognized environment may be a set of points on a two-dimensional plain, representing water, pasturage, and likely friendly encampments, interspersed among hostile or nonsupportive areas he must avoid. How the fundamental social institution of hospitality fares under sedentarization is an empirical question of great interest. We expect that the demographic changes which constitute sedentarization will challenge the stability of these social conventions and ideologies.

Territoriality

One distinction between pastoral nomadic or transhumant groups and sedentary agricultural or horticultural groups lies in the nature and composition of territory. Within a nomadic tribal group land or space is frequently treated as a "free good" while the ownership of a certain quality of livestock becomes an end in itself. Livestock among herders functions similarly to land among agriculturalists; it may be exchanged for other goods, used to pay fines, etc. Acquisition of livestock is a prerequisite for continuance of blood lines, for whether one acquires a wife is dependent upon the amount of livestock one has. He who owns no livestock is essentially "rootless" (Abou-Zeid, 1965). Like land, livestock ownership is equated with power and achievement.

The shift from a livestock-based territory to a land-based territory requires a reorganization of personal and cultural value systems. Among the Sebei (an East African tribe), one's estimated personal achievement and worth has traditionally been indexed by the number of cattle he has acquired. The shift to an agricultural economic style has been accompanied by a dissolution of traditional value systems with concomitant confusion concerning role and status.

To understand territorial behavior it is essential to consider two dimensions; most generally, these are: 1) the "possessor(s)" and 2) the "possessed" (territory). In animal populations, the possessors are usually individuals, families, or bands; the possessed, we assume, is a two- or three-dimensional unit of physical space. Most hunting and food-gathering societies appear to conform to this model. Rather small bands, loosely associated with larger tribal units, typically inhabit, defend, and exploit landscape-based territorial units. The relatively few settled hunting and gathering societies appear to be organized into sedentary villages having somewhat larger populations than the nomadic bands. The accumulation of goods, made possible through a sedentary life-style, enables *both* stronger status differential and the placing of more explicit value upon land, possibly extending to concepts of common "ownership" (usually not involving rights to sale or transfer of land) by the village or a larger group (e.g. a *clan*).

The equation of territory with land appears to break down with horticultural societies, often characterized by so-called "shifting agriculture." "In this form of production, land does not have permanent value as such, but only to the extent that an investment of labor has been made" (Goldschmidt, 1959, p. 194); fields appear to be useful and valued during the period (usually a mean time of about three years) when they are under cultivation and not when returned to bush. Thus, we have a change from the relatively permanent territory of the sedentarized hunter-gatherer to a temporally varying territory. In the progression from horticulture to agriculture to non-industrial urban societies, we find both increasing land based territoriality and a very non-physically based territoriality resulting from *specialization*: the territorialization of knowledge. We are familiar with this in academia, less so in other contexts. It begins with the *shaman*, the only specialized figure in hunting and horticultural societies and progresses to the smith who in Asia and Africa is viewed as possessing mystical powers (Fuchs, 1955). The territorialization of knowledge thus appears to have its root in attitudes toward those who acquire specialized skills not generally shared by all others of the same age and sex. As urbanization progresses, land re-emerges into even greater prominence:

Land is always central to the value system: the distinction between landholders and the landless separates true citizens from something less than citizens, and the size of holdings is closely related to social status. *Associated with the land are its appurtenances such as tools and stock; thus*

the quality of husbandry may also become central in the value system. (Goldschmidt, 1959, pp. 205-206, italics added).

What is merely "associated" with land in an urbanizing agricultural society is in fact dissociated from the land in herding (nomadic pastoral) societies. Within a large tribal or clan group, land is treated as a "free good," while the ownership of a certain quantity of livestock becomes an end in itself. Like land in industrialized societies, livestock among herders may be exchanged for other goods, used to pay fines and indemnities, etc.; it is a form of currency. Livestock purchase sexual gratification and the continuance of blood lines, for whether one acquires multiple wives, or even a single wife, is entirely dependent upon how much livestock one has. He who owns no livestock is essentially "rootless" (Abou-Zeid, 1965). Like territory, livestock ownership is often equated to power achievement; *unlike* the establishment of hierarchies among animals, this power can shift as unforeseen circumstances decimate certain herds and allow others to flourish. Among nomads of North Africa and the Middle East, this yields a considerable degree of social mobility, independence and aggressiveness, contrasted with a social code, perhaps derived from the exigencies of marginal existence in the desert, which values unbridled hospitality above many other virtues.

IMPLICATIONS FOR PLANNING POLICY AND ENVIRONMENTAL DESIGN

We do not regard sedentarization of nomads as "inevitable", but there is no question that it is ubiquitous. Few governments recognize the advantages of nomadism as the only possible exploitation of certain limited geographical opportunities. "...governments tend to regard the nomadic civilization as an inferior community to be civilized as quickly as possible by the imposition of a different way of life, usually agricultural." (Fisher, 1971, p. 120). However, we may feel, as behavioral scientists and environmental designers it is unlikely that we can intervene at the political decision level of policy-making. Moves toward sedentarization are likely to continue. As Chatty has stated: "Few policies directed to the pastoral nomad have been immediately concerned with their social or economic conditions. In general, any conscious direction has been aimed at sedentarization" (Chatty, 1972, p. 69).

Our contribution may be precisely in determining those changes in social conditions and spatial utilization which occur in the process of sedentarization. As most sedentarization involves the construction of "planned environments" for the newly settled nomads, knowledge of such changes could contribute to the development of more humanitarian plans, toward the construction of homes and settlements which enable the nomad who finds, for reasons beyond his control, that his way of life *must* change, to adapt more successfully to a new existence.

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