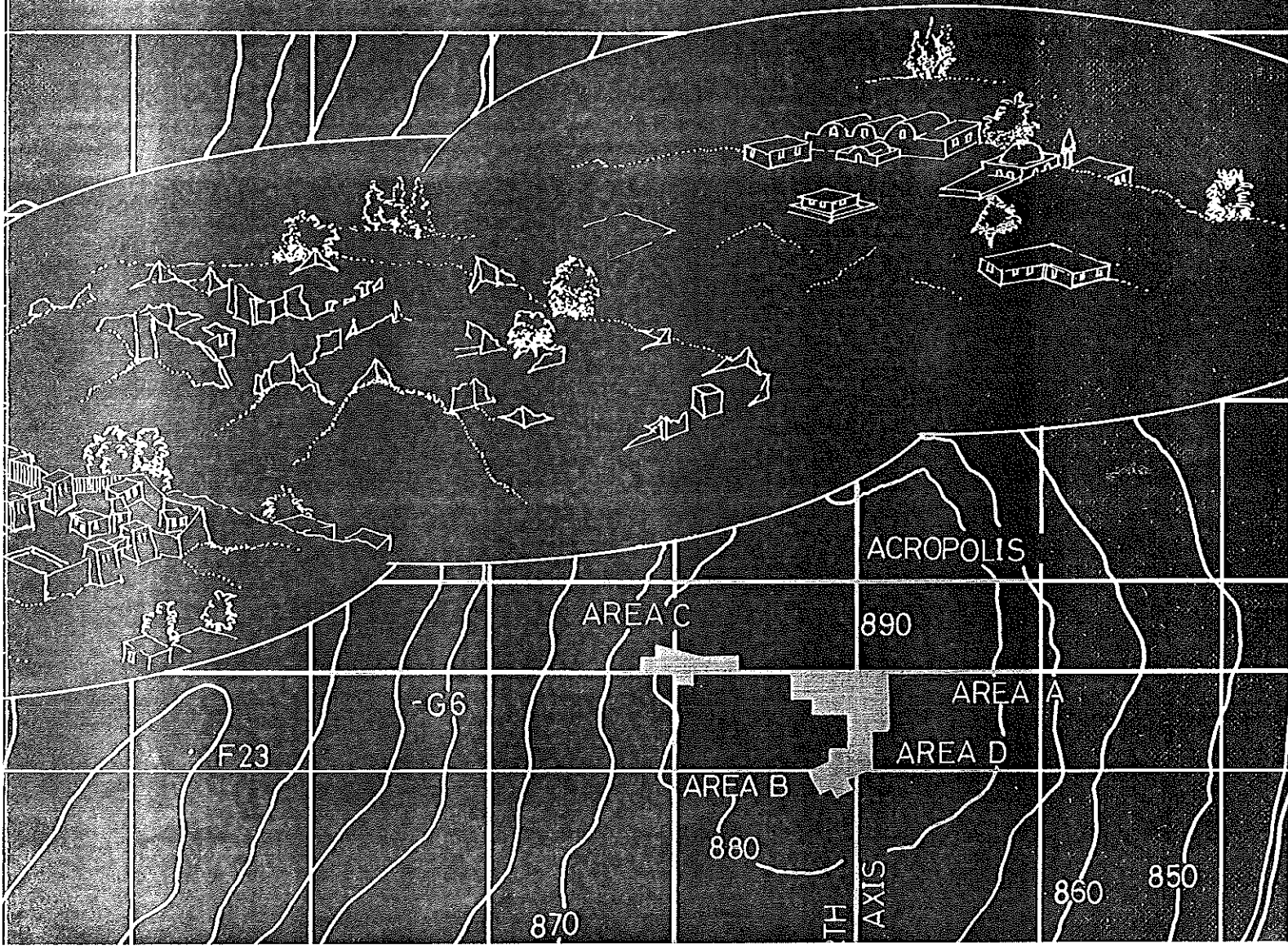


HESBAN 1

Sedentarization and Nomadization

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SEDENTARIZATION AND NOMADIZATION:

FOOD SYSTEM CYCLES AT
HESBAN AND VICINITY
IN TRANSJORDAN

by

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Chapter Two

Sedentarization and Nomadization

Introduction

In this chapter an overview is presented, based on a survey of pertinent secondary sources, of certain of the salient features of Middle Eastern food systems. In particular, this review will be concerned with the temporal dynamics of food systems in this region. Are long-term changes in patterns of human livelihoods such as have been documented in Jordan phenomena which have been documented in other parts of the Middle East? What are the physical features of the Middle Eastern environment which must be reckoned with in accounting for such long-term changes? What are some of the social structural features of Middle Eastern societies which must be reckoned with in accounting for them?

It will be suggested in this chapter that the phenomena of food system intensification and abatement are ubiquitous throughout the Middle East and that they are manifest in the processes of sedentarization and nomadization which have occurred since antiquity in this region. Although a great deal more will be said about these processes further on, it may briefly be stated here that sedentarization is the process whereby a group of people gradually adopts a sedentary mode of existence. And nomadization is the process whereby a group of people gradually adopts a nomadic mode of existence. Whereas sedentarization usually involves food system intensification, nomadization usually involves food system abatement. In order to explain how these processes operate, this chapter begins by examining the influence of various physical factors on the quest for food in the Middle East. This is followed by a discussion of certain structural mechanisms whereby people in this region have adapted to continuously changing config-

urations of settlement and livelihood. Finally, particular regions of the Middle East are examined where long-term shifts in food system intensities have been documented.

As indicated, the geopolitical region with which this chapter deals is the Middle East as a whole. Leaving the discussion of precisely how to define this region to others (Coon 1958: 1-3; Fisher 1971: 1-3; Beaumont, Blake, and Wagstaff 1976: 1-3; English 1977: 164-173; Eickelman 1981: 1-6), the concern here is primarily with the territory which traditionally has been referred to as the Ancient Near East and which today is sometimes called the Central Middle East. Today, this territory includes the countries of Egypt, Cyprus, Israel, Lebanon, Syria, Jordan, Iraq, Saudi Arabia, the two Yemens, Bahrain, Qatar, Oman, the United Arab Emirates, Kuwait, Iran, and Turkey (see fig. 2.1).

Sedentarization: adopting a sedentary mode of existence usually involving food system *intensification*.

Nomadization: adopting a nomadic mode of existence usually involving food system *abatement*.

The Central Middle East has coherence as a unit of analysis for several reasons noted by Bates and Rassam (1983: x). First, this is the *cradle of civilization* where urban life and state forms of political organization arose along the great river banks of the Nile in Egypt, and the Tigris and Euphrates in Mesopotamia. Second, for at least 4,000 years, the peoples and cultures of this region have been politically and economically integrated in

constantly changing configurations of power, influence, and economic exchange. Third, this is where the three great monotheistic faiths of Judaism, Christianity, and Islam were born. And fourth, more recently, it is within this region that the great cities and centers of power of the Islamic empires were located (Bates and Rassam 1983: xi).

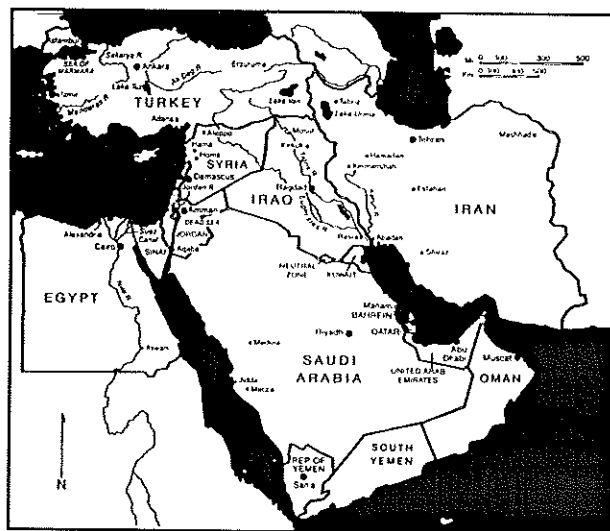


Fig. 2.1 The Central Middle East (after Bates and Rassam 1983)

Physical Influences on Middle East Food Systems

The Influence of Climate and Geology

According to Fisher (1971: 3), the single most characteristic feature of the Middle East as a natural region is its summer droughts. Not only does this feature set it apart from its neighbors, it also "induces highly distinctive and particular human responses and activities." Because the Middle East is located between two of the hottest regions in the world, namely the Sahara and northwest India, yet at the same time it is a part of the continent of Asia where some of the coldest temperatures on earth may develop, it is a region which experiences extremes in climatic conditions. Thus, while westerly winds originating in Siberia and Europe bring rain between October and May and sometimes freezing temperatures in January and February, winds originating on the African continent and in India bring hot, dry weather and water loss through evaporation in the summer months of June through September. Furthermore, since the winter westerlies are extremely capricious, annual rainfall

varies greatly from year to year. If low amounts of rainfall are brought in two or more successive years, water shortages may continue through the winter months. In most rain-fed regions of the Middle East, such successive years of drought occur at least once in a period of ten years.

Coping with the annual summer droughts and with periodic successive years of water shortages is the fundamental challenge to which Middle Eastern food systems have had to respond. To a great extent, this challenge is modified by topography and proximity to rivers and coastal areas. To begin with, the geology of the Middle East consists of two contrasting landform systems (Bates and Rassam 1983: 4). On the one hand, there are the vast, arid, lowland areas of Mesopotamia, the Arabian Peninsula, and Egypt which are geologically stable. On the other hand, there are the geologically active mountain regions of Anatolia, Iran, Lebanon, and Palestine which receive and are capable of storing, by means of subterranean reservoirs and stream flows, comparatively greater quantities of rainfall. Except for along the well-watered banks of the Tigris and Euphrates in Mesopotamia and the Nile in Egypt, both of which are located in arid, lowland areas, human settlement and cultivation of food crops in the Middle East has been concentrated on the coastal plains, along the piedmonts, and in the valleys of these geologically active mountain and coastal regions. In the arid, desert regions, such as the Arabian Peninsula, human livelihood has traditionally been very sparse and tied to the husbandry of animals adapted to dry regions, such as the camel and to a lesser extent sheep, goats, and donkeys.

Another important characteristic of the Middle East is that the desert and the sown are usually not far apart. This is particularly true in the Fertile Crescent, the famous grassland steppe which includes the Mesopotamian lowland, mountains, valleys, and plains of the eastern Mediterranean, and Egypt. An important consequence of this situation is that food procurement strategies which emphasize mobility by means of drought-resistant herds of animals have traditionally existed side-by-side in this region with those emphasizing varying degrees of stationary existence by means of either irrigation or dryland cultivation techniques (Kates, Johnson, and Haring 1977). Particularly prone to oscillations due to alternating movements in the direction of either stationary cultivation or migratory herding of

animals are the fringes of the cultivated areas which border on the desert. In regions where the risk of droughts is less severe, such oscillations tend to be less pronounced (Gulick 1971: 99).

The Influence of Topography and Hydrology

To account for the location and nature of methods of food procurement in the Middle East, close attention must be paid to the influence of topographical and hydrological factors. In this regard, an examination of the relationship between these factors and the occurrence of irrigation agriculture, dry-farming techniques, and pastoralism is useful.

Irrigation along Riverine Lowlands and Piedmonts

Irrigation agriculture which relies on annual flooding cycles of rivers can be found in the major riverine lowlands of the Middle East (Beaumont *et al.* 1976: 168-171; Kates *et al.* 1977: 273). Reference has already been made to the famous hydraulic civilizations of Egypt and Mesopotamia. While both of these stream regimes relied on the annual flooding of their rivers for water and silt-rich alluvium, in the Mesopotamian case an elaborate system of canals was maintained to smooth out flooding irregularities and to bring water to outlying areas beyond the streams' normal flooding area. Because of the regularity of the flooding cycle of the Nile in both time and quantity, such canal networks were much less important in Egyptian agriculture. In the case of the Orontes River in Syria, which has cut its course deep below the plain, containers set in enormous wooden wheels which are turned by the force of the stream have been in use since Roman times for lifting water to the surface. Horizontal transportation of the water to outlying fields is provided for by canals (Gulick 1971: 90).

In many locations throughout the Middle East the sloping water table which exists in piedmont regions has been intersected by gently sloping tunnels which transport groundwater to the arid alluvial plains below (Beaumont *et al.* 1976: 170; English 1977: 177). Such *horizontal well* systems are particularly well known in Iran where nearly half of the irrigated land is watered by this method. The Arabic term for this type of irrigation is *qanat*. Qanats can also be found along the dry, alluvial plains of the piedmont regions of Mesopotamia, the Levant, and Saudi Arabia (English 1977: 177).

Dry Farming in Mountain Valleys and Highlands

The most prevalent method of food production in the Middle East is dry farming, a technique well suited to the high degree of rainfall variability in the mountains and highlands (Beaumont *et al.* 1976: 165-167). Kates *et al.* (1977: 271-272) distinguish between two principal types of dry-farming techniques: *moisture maximization* within field systems and *mixed agropastoralism*. In the case of moisture-maximizing dry farming, an array of diverse techniques are used, including careful seasonal plantings of fast-maturing varieties, scattered plantings of drought-resistant crops, careful weeding and mulching practices, the use of moist bottomlands, and the construction of terraces, bunds, and dams to impound run-off water.

Such techniques were particularly highly developed among the Nabataean Arabs of southern Palestine (Glueck 1959; Morris 1961; Mayerson 1962; Evenari, Shanan, and Tadmor 1971; Beaumont *et al.* 1976: 168-169). A succinct account of their moisture maximizing methods has been offered by Morris (1961: 51-52):

Nabatean constructions started on the slopes of the hills where rainwater flowed down by way of tributary wadis (dry stream beds) into the broad main wadi in the valley. The watercourses of those of the feeder wadis which were not too narrow or steep were terraced by the construction of a series of stone shelves. Instead of rushing violently down, the floodwater became rainwater gently cascading down the step-like shelves, part of it sinking into the ground at each shelf, depositing in the process some of its soil and organic debris. Shrubs were often left to grow on these shelves to help slow the rush of water and hold plant debris to enrich the soil. The shrubs were of inedible varieties, so that cattle would not eat them. Each of these terraces in the tributary wadis, accumulating soil year after year, became a farming plot, primarily for growing field crops.

And what of the broad wadi in the valley below? It was converted into a series of terraces, but in a more elaborate manner. Its area was divided into level plots by stone walls and the walls of the central plots served to divert some water to higher plots along the sides. During a rainstorm, all of them became small ponds, so that the water was distributed uniformly. In wadis where erosion had cut channels so deep that control of water flow by these means was too difficult, the Nabatean engineer-farmers built a series of stout dams to raise its flow so that part of the water would spill over to terraces along the sides.

To divert water to still higher ground, they built stone conduits upstream from the dams.

Realizing that the slightest change in the dimensions or direction of the watercourse would throw the entire system out of gear, they built strong masonry walls along its entire length to fix its boundaries permanently. Among the other refinements in the system was a low stone wall along the higher slopes which acted as an "inclined collector," diverting runoff water from plots already well watered and conducting it to otherwise unreachable plots.

Less labor intensive than moisture-maximizing dry farming is mixed-agropastoral dry farming. Found throughout the semiarid plains and highland regions of the Middle East, this technique involves raising field crops such as wheat, barley, and lentils on the arable plains and raising sheep and goats on the stubble fields and on nearby mountain slopes and desert pastures. Mixed agropastoral farmers may further diversify their production strategy by raising peas, tomatoes, cucumbers, and melons in garden plots in the vicinity of their villages. Sometimes orchards are also found near settlements in which primarily olives and grapes, but also other fruits, such as apricots and figs, are produced. The many different ways in which these various enterprises are combined vary not only in accordance with local topographic and hydrologic conditions, but also in accordance with sociopolitical and economic circumstances (Gulick 1971: 89).

Transhumance

One way to summarize the diversity of animal-based food production strategies which prevail in the Middle East is to distinguish between two principal patterns of migration, namely, *transhumance* or *vertical migration* and *plains* or *horizontal migration* (Beaumont *et al.* 1976: 152-158; Bates and Rassam 1983: 110-112). Transhumance, which involves the seasonal movement of people and animals from lowland to highland environments in search of pasture, is an ancient phenomenon in the mountainous regions of the Middle East. Typically, transhumants specialize in sheep and goats which they move between winter pastures in the lowlands and summer pastures in the cooler highlands. Cattle are also sometimes herded, especially in some parts of the Taurus and Zagros mountains where the supply of water and pastures is more plentiful than in the mountainous regions further to the south. In many cases, transhumants occupy perma-

nent homes and villages in the winter season, moving into tents only in the spring and summer in order to follow their flocks. Transhumants may also engage in the production of wheat and barley on the highlands and in the vicinity of springs and wadis on the mountain slopes. Examples of this kind of agropastoral transhumance existed in Transjordan in the beginning of the present century and throughout certain historical periods (Tristram 1873; Glubb 1938).

Horizontal Nomadism

In comparison with transhumants, pastoralists engaged in horizontal migrations typically have to move longer distances in search of water and pasture for their animals. Because of the longer distances involved, such groups tend to rely more heavily on the dromedary or the single-humped camel. To the camel nomads of the Arabian Peninsula and the Sahara, this animal serves as the principal provider of food, as a means of freight transport, and as a source of leather and wool (English 1977: 181). Because the camel can exist for almost a month in the wintertime without water, and can go for three to four days without food in the summer, it is admirably suited to life in the desert regions traversed by horizontal pastoralists. As in the case of transhumant pastoralists, the migration routes and patterns of livelihood of plains pastoralists vary from place to place depending on the prevailing hydrological and sociopolitical conditions.

Hunting, Gathering, and Fishing

Throughout the Middle East hunting of wild animals and birds and gathering of wild herbs, roots, and fruits is carried out by both cultivators and pastoralists as a complementary activity. Because of their wider movements, which enhance access, and the greater seasonal scarcity with which they have to cope, transhumants and particularly camel nomads have traditionally been more dependent on hunting and gathering as a source of food than have stationary farmers (Musil 1907). The latter, on the other hand, have traditionally been more likely to eat fish caught in nearby streams or along the coasts of the Mediterranean, the Red Sea, the Persian Gulf, or the Indian Ocean. Typically, fishing is a specialty of certain members of otherwise agricultural villages located along the coasts or nearby inland bodies of water such as the Sea of Galilee (Gulick 1971: 89).

Interdependence of Strategies

As will be explained in further detail below, none of these various types of food production strategies are carried out independently of each other. They occur in various associations throughout the region, and various configurations of symbiotic relationships can be found, particularly between pastoralists and cultivators. Furthermore, as a result of the side-by-side occurrence of sedentarization and nomadization, individual households gradually become more nomadic or more sedentary. Thus, as we shall see in Chapter Three, in the course of a century, tribes formerly engaged in horizontal camel pastoralism gradually shifted their emphasis to agropastoral transhumance, then to mixed agropastoralism, and finally, today, to commercial agribusiness. The structural conditions which make possible such transitions in mode of livelihood throughout the Middle East will be examined in closer detail below.

The Influence of Plants and Animals on Human Mobility

The effect which the type of plants and animals produced by a given producer unit has upon the degree of mobility of the people involved has been noted by several researchers concerned with the Middle East. Least free to migrate, for example, are those farmers who specialize in the production of perennial crops such as fruit trees. Not only do such enterprises require year-round protection, they also require a great deal of tending. Furthermore, in order for farmers to even consider making the investment necessary to grow large quantities of fruit trees, they must be able to count on having continuous cultivation rights on the land they desire to develop. Thus, production of perennial crops is possible only when certain prerequisite social and political conditions exist which assure the farmer that continuous rights to a particular plot of land are likely in the foreseeable future.

Because vegetables were difficult to transport over long distances and almost impossible to preserve for any length of time during antiquity, they were grown in small quantities primarily for local consumption in season (Beaumont *et al.* 1976: 160-162). Production of field crops such as wheat and barley, therefore, had, and still have, many advantages over fruits and vegetables. To begin with, grains can readily be transported over long dis-

tances and can last for several years under appropriate conditions of storage. Furthermore, once a field has been sown, it requires very little tending under dry-farming conditions, and a crop usually matures within a period of four to five months. Field crops, therefore, can be grown even when no long-term guarantees of continuous cultivation rights are possible. Once a crop has been harvested, the field can either be planted again in a system of rotation, or the stubble fields may be used for grazing by pasture animals. Indeed, in the Middle East, field crops are usually always linked to livestock production of one kind or another (Gulick 1971: 89; Grigg 1974: 123).

Much less tied to a stationary mode of existence than are cultivators are those households which specialize in the production of pasture animals. Although pigs and cattle are sometimes herded in comparatively well-watered regions, the vast majority of migratory households specialize in either sheep and goats or camels. While sheep need to drink every two days when the vegetation is dry and desiccated, they can sometimes go without drinking for up to ten days when the vegetation is fresh and green (Beaumont *et al.* 1976: 154). Goats are hardier than sheep because of their ability to go without water for longer periods than sheep and because of their omnivorous diets. Goats are also much better climbers, which means that they can graze where other pasture animals cannot go. Also, goats "have a higher rate of reproduction than sheep and a lactation period which is 50 to 100 per cent greater than that of sheep" (Beaumont *et al.* 1976: 154).

The camel's ability to go without water for up to thirty days in the wintertime and for three to four days in the hot summer has already been noted. Able to subsist on parched grass and desiccated shrubs, it is able to survive under the least favorable of watering and pasturage conditions. While the donkey can subsist on a similarly deteriorated pasture, it needs to be watered at least every two days, which makes it much more restricting in terms of migration in desert regions (Beaumont *et al.* 1976: 154). The distance which a common baggage camel can cover in a day is about 15 to 20 miles (English 1977: 181).

In order to provide a minimal supply of food for a household or tent, it is estimated that its members would have to raise "between 25 and 60 sheep and goats and from 10 to 25 dromedaries"

(Beaumont *et al.* 1976: 154). In good years, herders tend to build up the numbers of animals in their herds as a hedge against bad years, when their numbers sometimes reach a critical low. Because the reproduction rate of dromedaries is rather slow, formalized raiding by one tribe of the camels of another was traditionally a widespread practice among the inhabitants of the desert regions of the Middle East (Sweet 1960).

The composition of herds is seldom made up of one single species, but is instead variously constituted, depending on the particular landscape and social conditions to which herding households must adapt. Indeed, herders may over time adjust their numbers of camels, donkeys, sheep, and goats in accordance with whether their migration routes are being expanded or constricted. Glubb (1938) noted, for example, with regards to the Beni Sakhr of Transjordan, that as they became more sedentary, they gradually reduced their numbers of camels in favor of more sheep and goats. Furthermore, as they became more stationary, they began to grow limited quantities of cereals on the grasslands which formerly had served as pastures for their camels. This led eventually to the addition of cattle to their livestock in order to provide traction power for their plows.

The Structural Foundations of Sedentarization and Nomadization

The Fluidity of Social Units in the Middle East

We have seen in the previous section that the annual summer drought is an environmental hazard in the countries of the Middle East to which a range of different adaptive responses have traditionally been possible, depending, in part, on regional variation in topographical and hydrological conditions. Despite the range of methods by which food has been produced in different regions, a certain underlying unity should be noted, however. To begin with, the quest for food—whether by means of raising crops or livestock or both, or whether by means of stationary or migratory patterns or both—has furnished a common goal and has structured the daily and yearly routines of the vast majority of the rural population since ancient times. To a considerable degree, the end result of this quest has been the production of certain widely consumed foodstuffs, the most important of

which are cereals, specifically wheat or barley, the staple items grown or acquired by nearly every household in the Middle East (May 1961: 345). The preference for sheep and goats' meat is also widespread throughout the region, although the supply in different regions varies to a greater extent than does the supply of cereals.

It was also suggested in the previous section that a certain amount of flexibility in regards to how these staple items are acquired by a particular household or community is not only possible, but often necessary. It was noted, for example, that producers may adjust their strategies of production either in the direction of increased cultivation or increased pastoralism. Thus, despite the frequently stated conception of the Middle East as a region occupied by distinct groups of nomadic, seminomadic or transhumant, and settled peoples, the point which needs to be emphasized is that when the livelihood patterns of the various groups in this region are considered over time, they will be found to be much more fluid than has been generally acknowledged by investigators whose temporal frame of reference has primarily been the present (Patai 1951; Awad 1970). In other words, rather than viewing these groups, who because of their different modes of production at a given point in time appear to be somehow distinct from each other, as having always been either nomads, seminomads, or settled villagers, the view advanced here is that nomad, seminomad, and settled are stations on a temporal continuum along which successive generations of households have moved back and forth over the centuries.

While the rate at which shifts along this continuum occurred in the past probably involved periods extending over several centuries (Glubb 1938), during the past one hundred years shifts in the direction of stationary existence in either villages, towns, or cities have been greatly accelerated throughout the Middle East. To a large degree, this is due to the rise of modern national states, which have encouraged, and in some cases forced, the process of sedentarization of nomadic and seminomadic groups (Marx 1967; Awad 1970; Bates and Rassam 1983).

In the following paragraphs several proposals are advanced regarding the structural foundations of Middle Eastern society. Specifically, attention will be focused on the mechanisms whereby the fluidity of social groups in this region is facilitated,

namely tribal organization, political allegiance, and shared ideals.

Tribal Organization

Perhaps one of the best examples of mechanisms which make possible the fluidity of social units in the Middle East is that of tribal organization. Over the past two decades research has been accumulating which shows that tribal identity in the Middle East is a complex phenomenon involving ethnopolitical ideologies such as notions of patrilineal descent and segmentary lineage; administrative assumptions regarding corporate identity and fixed territorial boundaries; practical notions invoked in the settlement of disputes over pastures and other political claims, marriage strategies, and patronage; and finally, analytical conceptions held by anthropologists (Eickelman 1981: 88).

As a mechanism facilitative of social fluidity, native notions of tribal identity are important to consider. First, the notion of common descent through patrilineal blood lines must be understood for what it is, namely a metaphor for signifying notions of *closeness* (Bates and Rassam 1983: 261). Closeness "can develop through cooperation with nearby households, mutual herding arrangements, kinship and patronage relations, and other bonds of mutual interest" (Eickelman 1981: 93). In other words, while blood lines may be involved in many cases of tribal identity and closeness, they are by no means always involved. Thus, considerable flexibility exists when it comes to who may belong to a given tribe. "What counts," wrote Eickelman (1981: 93) "is who acts together in a sustained way on various ritual and political occasions."

The linkage between notions of tribal identity and the quest for food has been emphasized by Marx (1977). Given the ecology of the nomad's habitat, it is necessary for the survival of individuals and households that they maintain networks of institutionalized relationships. To belong to a particular tribe, therefore, is to belong to a social entity which has control over particular natural resources or *areas of subsistence*. These areas may or may not be used exclusively by members of the tribe, and certain parts of their territory may even be controlled by other tribes. By means of "multiple close-knit networks of relationships that are coextensive with the territory controlled by the tribesmen," households of a given tribe are pro-

vided with access to watering places and pastures and afforded security in the face of natural hazards and dangers presented by outsiders (Marx 1977: 343-344).

It is in their relationship with outsiders that members of a tribe tend to emphasize their corporateness as a single political unit. It is in such contexts, as well, that the role and function of the tribal chief or headman comes into focus (Barth 1961; Marx 1967, 1977; Eickelman 1981; Bates and Rassam 1983). Indeed, as Bates and Rassam (1983: 258) have emphasized, "what most distinguishes the Middle East politically is the persistence of tribalism coexisting with the state." One major reason for this coexistence is that the tribal form of political organization has traditionally represented more closely the local and regional interests of rural subsistence units against the exploitative designs and undertakings of urban populations and city elites (Bates and Rassam 1983: 266). Thus, by claiming common descent and rallying behind a paramount chief, tribesmen are able to enter into negotiations with representatives of the state as a singular corporate entity. Alternatively, they may join together in alliances structured by means of the principle of segmentary lineage, and go to war against the state. Such alliances are impermanent and ever-shifting, however, depending on the purposes to be achieved at a given point in time and space. Whether for purposes of negotiations with outside powers or outright war, tribal entities are, as Bates and Rassam (1983: 267) have noted, "almost naturally competitive with the state form of political organization."

Given the importance of tribes as, among other things, a type of lobbying group representing the interests of various rural subsistence units throughout the Middle East, it stands to reason that tribal forms of organization may be found among settled villagers as well as among transhumants and more nomadic groups. In other words, the presence of this form of organization among settled villagers may not necessarily be taken as a sign of their nomadic descent, as has been suggested by Patai (1970: 191). Instead, as Gulick (1971) has emphasized, farming and herding are symbiotically related *ecologies* between whom exist certain common forms of organization and beliefs, such as adherence to the practice of patrilineal descent. With specific reference to the *Arab Levant* Gulick (1971: 99-100) writes as follows:

Farming and herding are both very ancient in the area. They appear to have developed together symbiotically. In the well-watered hills, farming has tended always to predominate, with herding as a technical adjunct; whereas east of the Arab Levant, where farming is impossible because of the aridity, herding predominates. In the very irregularly bordered intermediate zone, social groups specializing in one or the other ecology have always interpenetrated each other, and, in addition, there has always been a tendency for individuals or groups to be "converted" from one ecology to the other. This conversion has been made possible by the fact that despite the negative stereotypes in terms of which farmers and herders view each other at any given time, their techniques are symbiotically related and furthermore they share certain non-ecological patterns, such as patrilineal kinship. Owing to the latter, farmers and erstwhile herders settling together in a new village—as has happened very frequently since 1800 in the desert fringe area—have few conceptual problems to overcome, at least in the matter of basic kinship organization and related phenomena. Knowing that given a unilineal principle of kinship organization a people can relatively easily organize kinship groups which range greatly in extensiveness depending on their needs, we do not need to rely on imputed nomadic origins to account for the presence of widely ramified kin groups or on imputed sedentary origins to account for more restricted ones. In the desert fringe area there are groups of villages, each of which is inhabited by a section of a recently nomadic tribe, so that the whole can indeed be regarded as a "tribal" group consisting of localized sedentary sections. But not all herders become sedentarized in this fashion, and similar "tribal" localizations occur in other areas, the Jabal Ansariyah, for example, whose people have been farmers for a very long time.

The flexibility of the unilineal principle of kinship organization in facilitating the conversion from herder to cultivator or vice versa has been noted by other investigators as well. For example, Swidler has noted that the conversion of nomads into cultivators gives rise to the localized descent group and the extended family in order to "provide stabilized access to cultivatable tracts through tenancy contracts." Such agnatic lineages do not arise to the same extent in the nomad camp structure because, as was noted above, greater flexibility is required in order to extend the network of relationships necessary to survive as a migratory subsistence unit. The stationary villager, by contrast, does not require, to the same extent, the "structural capacity to expand

and contract in response to nomadic requirements" (Swidler 1973: 36).

The importance of tribal organizations among settled cultivators as a means to organize access to tracts of land and protect against predation by hostile villagers or nomads has been reported in several accounts of village life in the Middle East in the previous century. For example, Antoun (1972) discusses the existence, in the Ajlun district of Transjordan, of cooperative arrangements between several villages for the purposes of mutual defense against predation. Under the leadership of a headman or sheikh from the largest village a local army could be constituted which was made up of males drawn from the various agnatic lineages living in the region. Reports of the existence of similarly organized villages and district sheikhs elsewhere in Palestine during the Late Ottoman Period have also been discussed by Reilly (1981) and Zenner (1972).

In a study dealing with the rural population of Saudi Arabia, Cole (1973) has proposed that, rather than thinking of the nomadic groups of this region being somehow discrete and well-bounded units, they should be thought of as being *enmeshed* in a single system with the sedentary population. This enmeshment or integration is evident at three levels: at the village level where villagers interact mainly with nomads at the subtribal grouping of the lineage; at the tribal level where a nomadic tribe, as a grouping in itself, is involved in dealings with regional urban centers; and at the national level where the nomadic tribes provide the major military support of the nation-state.

Finally, Barth's (1961) observations concerning the conversion of certain nomadic members of the Basseri tribe to settled villagers and vice versa offers a further example of the fluidity of social units in the rural regions of the Middle East. On the one hand, when the wealth accumulated by a nomadic household through the sale of animals and other enterprises reaches a certain level, it becomes economically advantageous for them to settle and invest in other resources, such as land, rather than risk sudden loss and impoverishment by continuing to migrate. But when drought or other adverse conditions result in the failure of a herd to grow, certain of the nomadic households are sometimes forced out of necessity to settle. In either case, when it becomes economically feasible for them to do so, such households may again elect

to convert back into being nomads. Indeed, in the case of some Basseri households this process of sedentarization and nomadization may be repeated several times in the course of a century.

Political Allegiance

While tribalism furnishes an organizational context for the conversion of nomads into sedentaries and vice versa, patterns of political allegiance structure obligations between various social units and the flow of material exchanges between them. To the extent that such patterns of political allegiance structure the options available to individual households with regard to opportunities and incentives for becoming more sedentary or more nomadic in their quest for food, they can be regarded as mechanisms which make possible the fluidity of social units in the Middle East.

Differing views have been offered regarding the extent to which nomadic populations have traditionally dominated sedentary agriculturalists in the Middle East. One side of this debate is advanced by Barth (1973) who has argued that the inherent tendency of pastoral production systems to grow at a greater natural rate than agricultural ones has given the nomad the advantage. Because saving and investment are "necessary under all circumstances," given the nature of the pastoralist enterprise, and furthermore, given that such investment is possible without the benefit of economic institutions that facilitate the conversion of herd capital into food, *pure* pastoral systems lead more quickly to the accumulation of surpluses and give rise faster to military superiority. According to Barth, then, the basic pattern of nomad-sedentary relations in the Middle East is the result of the *seesaw of power* between pastoralists on the one side, and urban elites on the other, in their competition over cultivators' loyalties and surpluses. Writes Barth:

On the domestic level, within local areas, an income flow tends to be set up from agricultural units to pastoral units, sustaining a local dominance by the pastoralists. However, cities with their urban elites, controlling the state apparatus, also prey on the cultivating households, and they do so by very effective and stable force and control, making peasants of the cultivators and drawing a substantial tax flow from them. Through this there is a tendency for the peasant households to be ground down even further by debt burdens to middleman entrepreneurs.

In rural households the process of . . .

sedentarization tends to be directly promoted by the policies and actions of the state apparatus

nomadization is a form of resistance, a sort of natural response by the rural population to the exploitative undertakings of urban elites

These state systems, however, have great difficulties controlling and dominating nomadic pastoralists, who may choose among several strategies in their accommodation to the state: submitting to it in return for peace, withdrawing and defending themselves from it to avoid the tax drain, or seeking control by attempting conquest of the whole state apparatus. But any rising local elite of pastoralists, no matter what policy they choose vis-a-vis the state, tends to be drawn into the wider system of stratification obtaining in the region as a whole, and therefore to embroil themselves in competition with urban elites—perhaps reversing income flows and dissipating advantages that have been won (1973: 17-18).

On the other side of the debate over the nature of patterns of domination and allegiance in the Middle East is Asad (1973), who argues, on the basis of historical material, that the pastoralists' advantages are not what they are purported to be by Barth, and that, in fact, sedentary domination of pastoralists is more the rule than the exception historically in the Middle East. Like Barth (1973), Cole (1973), and Swidler (1973), Asad starts with the assumption that in the Middle East, pastoralists and cultivators belong to a single economic system, but rather than isolating conceptually systems of production from systems of power, as does Barth (1973), Asad notes "the intrinsic connection between the exercise of coercive power and modes of generating surpluses" (Asad 1973: 72).

The important distinction to note in this regard is that between exploiters and exploited. Since, in general, agricultural populations are more easily exploitable than are pastoralists, the point which historical materials dealing with nomad-sedentary relations bear out, according to Asad, is that first, "pastoralists have been more successful at resisting than imposing structures of domination," and sec-

ond, that whenever pastoralists have actually succeeded in capturing the state apparatus by means of which cultivators have been controlled, they did so by abandoning their power base in pastoralism, becoming instead town-based rulers themselves with their own regular armies. In other words, over the millennia of competition between urban elites and pastoralists for the surpluses produced by cultivators, power has been shifted back and forth between sedentary urban elites and sedentary tribesmen. Never, according to Asad, has the power base shifted from cultivators to migratory pastoralist tribesmen (Asad 1973: 72). This is because migratory tribesmen "cannot constitute a regular state army and remain pastoralists." Thus, he concludes, "it makes little sense to generalize about the military advantage of nomadic mobility over sedentary immobility as such" (Asad 1973: 71).

The difference between Barth's and Asad's views on patterns of political allegiance is clearly one of emphasis. While Barth emphasizes the opportunities for domination which come to pastoralists because of the inherent tendency of their enterprises to expand more rapidly than those of cultivators, Asad is more concerned about the capacities for exploitation and the exercise of coercive power of nomadic pastoralists *vis-a-vis* sedentary elites (cf. Rosenfeld 1965). By keeping in mind Asad's point, we are helped to see that the relations between nomadic and sedentary populations are generally less antagonistic and oppressive than is often suggested. However, there is no fundamental difference between these two views over the basic fact that cultivators are generally more easily exploited than are pastoralists.

Given the greater capacity of state systems for the exercise of coercive power, it stands to reason that the process of sedentarization of rural households is one which tends to be directly promoted by the policies and actions of the state apparatus. In order to feed the growing numbers of bureaucrats, craftsmen, and other specialists tending to congregate in towns and at the urban centers of power, policies are formulated and actions are taken by members of the ruling elite which gradually induce cultivators to produce and turn over greater quantities of food surpluses. In contrast to this, the process of nomadization of rural households is best understood as a form of resistance, a sort of natural response by the rural population to the exploitative undertakings of urban elites.

Rather than being a process that is deliberately instituted by pastoralists, it represents instead a form of escape, a return to greater independence, and a distancing on the part of some members of the rural population from the cultural and economic domination of urban elites.

Shared Ideals

To the mechanisms of tribal organization and political allegiance may be added a third mechanism facilitative of social fluidity in the Middle East, namely shared ideals. To begin with, it was noted already that the ideal of tribal or kin-based social organization is one which is shared by cultivators and pastoralists alike throughout the Middle East. Related to this ideal are a number of others, including, as Patai (1970: 192) has noted, "the principle of collective responsibility, which is expressed in such institutions as the blood feud and raiding, the inviolate laws of hospitality and sanctuary, and the concepts of honor, name, and nobility." Significantly, while all of these ideals appear in their most intensive form among the true nomads . . . they successively lose their significance as one proceeds across the range from the true nomads, through the seminomads, to the semisedentary and the completely sedentary cultivators.

In light of what was stated above regarding patterns of political domination in the Middle East, it is significant that the tendency to idealize the nomadic way of life is one which can be found among cultivators and nomads alike throughout the Middle East. This tendency stems not only from the fact that among nomads, the ideals of egalitarianism, collective responsibility, hospitality, honor, and nobility are more intense, as noted above, but also from the traditional perception of the nomadic way of life as being independent of and less affected by the cultural and economic domination of urban elites. Thus, despite their collection of tribute and their raiding of agricultural villagers, a perception of them as *brothers* has traditionally prevailed in the rural regions of the Middle East (Eickelman 1981: 68).

Finally, the extent to which shared religious beliefs and practices may have facilitated social fluidity in the Middle East is a matter that should be further investigated. While it is beyond the scope of this research to do so, it might be noted that after the rise of Islam, a "commonality of practice

and ritual" emerged throughout the Middle East which served to integrate and bind together the peoples of this region in a manner which may have previously never existed (Eickelman 1981: 204). Whether a similar integrative influence was exerted by earlier monotheisms of the region, Judaism and Christianity, is a question which no doubt others have asked, although perhaps not specifically with reference to the role of these religions in facilitating social fluidity as discussed here.

Documented Cases of Sedentarization and Nomadization

Rationale Behind Selection of Cases

Given what has been said above about the existence of mechanisms in Middle Eastern societies which facilitate, over the course of successive generations of households, transitions between nomadic and sedentary modes of livelihood, is there any evidence that such long-term shifts have actually occurred? In reply to this question, we shall focus attention on two well-documented accounts of long-term changes in settlement and landuse from two separate regions in the Middle East, namely the Mesopotamian floodplain (Adams 1978) and Cyrenaica in eastern Libya (Johnson 1973). The selection of these two cases provides us with examples of the processes of sedentarization and nomadization in a riverine lowland environment and a mountainous environment (Cyrenaica). In each instance, a variety of literary, environmental, and archaeological data have been utilized in order to provide a reconstruction of food system transitions which have occurred since prehistoric times in these respective regions. The disciplinary backgrounds of the authors are anthropology (Adams) and geography (Johnson).

While other works have been published which include examples of long-term transitions in Middle Eastern food systems, such as for example Huntington (1907), Reifenberg (1955), Sweet (1960), McNeill (1963), Hole, Flannery, and Neely (1969), Butzer (1976), Redman (1978), and Naveh and Dan (1973), the two works examined here are of particular interest because both regard the processes of sedentarization and nomadization as being central to understanding the cyclic rise and fall of high-intensity food systems within their respective regional contexts. Furthermore, the tempo-

ral frame of reference of both overlaps with that of the present study, namely the period of time between 1200 B.C. and the present.

The Mesopotamian Floodplain, Iraq

On the basis of archaeological surface reconnaissance along a section of the Euphrates floodplain in Iraq more than 175 km in length and more than 75 km in width, Robert Adams and colleagues (Adams 1965, 1974, 1978, 1981; Adams and Nissen 1972) have sought to document and understand the relationship between changing configurations of canal irrigation and social institutions. Their surveys have enabled them to conclude that floodwater management along the banks of the Euphrates became increasingly intensive after 4000 B.C. This gradual process of intensification was repeatedly interrupted by periods of abatement, however. To understand why this occurred, it is first necessary to take a closer look at the hydrological and topographical conditions which existed along this floodplain in antiquity.

Unlike the Tigris River, which flows with great force to the east of the Euphrates in a single entrenched bed, the Euphrates River is a slow-moving stream which flows in a meandering pattern forming multiple channels that separate and rejoin. As these streams overtop their banks during flooding season, sediments are deposited on the back slope of the banks, thus forming natural levees which are used for cultivation. To these natural canals, the ancients gradually added artificial ones which also overtopped their banks, thus producing additional levees and extending the cultivatable area. Between these levees, and in the back swamps which are formed as the floodwaters find their way to depressions located along both sides of the parent stream, are lands providing pasturage for large herds of sheep and goats in the spring.

Sedentarization and urbanization along the Euphrates during the 4th and 3rd millennia B.C. (the Uruk through Early Dynastic periods) began with the gradual establishment of farmsteads and villages along the Euphrates floodplain. As the number of such rural settlements increased, regionally differentiated hierarchies of towns, urban centers, and cities began to appear which gradually began to assume importance as centers of economic, political, and religious administration and control (Adams 1981: 60, 90). Toward the end of the 4th

millennium (during the Early Dynastic I Period), however, a process of progressive abandonment of rural settlements occurred which involved drastic reductions in the number of farmsteads, villages, and towns, and a concentration of the population in an increasing number of larger urban centers. Along with this shift came increased concentration of settlements along a small number of major Euphrates channels at the expense of the earlier pattern which had involved cultivation along multiple, often meandering and isolated channels not clearly related to one another in a continuous network (Adams and Nissen 1972: 12).

This pattern of sedentarization, whereby "isolated pockets of landuse coalesced into larger agglomerations" around cities and military strong points is contrary to "the entire historic record of Mesopotamian settlement" which "makes clear that stable, centralized regimes promote dispersion of the agricultural population into the countryside, closer to the fields" (Adams 1981: 88). Why, then, did it happen in this manner in this period of urban origins? In Adams' (1981: 88) view, this pattern is attributable to the existence during this period of a "discontinuous fabric of administration." Instead of a centralized, region-wide, political regime having been established, and "in spite of considerable intercommunication and cultural homogeneity," the political structure "remained a patchwork of constituencies" (Adams 1981: 90). Not explicitly discussed with reference to this period of urban beginnings is the process of nomadization which undoubtedly occurred simultaneously with the flight of rural farmers to the cities during the Late Uruk through Early Dynastic I periods. That such a process occurred during these millennia can safely be assumed, for as Adams has pointed out, "pastoralism was intimately linked in many ways with sedentary and even urban pursuits" throughout "all periods" along the Mesopotamian floodplain. Indeed, "it repeatedly served as the indispensable source of ecological flexibility and resilience in the aftermath of natural or socially induced disasters" (Adams 1981: 11).

In contrast to the Uruk through Early Dynastic I periods, which had been an epoch of steady growth leading to an urban climax, the next two millennia, namely the 2nd and 1st which included the Early Dynastic II through Middle Babylonian periods, experienced no similar accumulative trends. Instead, what is revealed by the settlement

pattern maps is an "ebb and flow of population into and away from outlying regions, expanding and contracting the nuclei of settlement and cultivation in response to fairly transitory political stimuli" (Adams 1981: 130). The political corollary of this situation was a cyclic process involving alternating tendencies in the direction of political centralization and fragmentation (Adams 1981: 133).

During this same period, the inhabitants of the floodplain undertook to dike, straighten, and deepen the major watercourses in order to "assure the passage into the cities of barges with bulk foodstuffs and other riverine commerce" (Adams 1981: 245). Widened was the area under cultivation along each of the major channels, especially in the vicinity of the major cities, while the smaller channels located in more outlying areas decreased in number. In harmony with the impressions provided by the settlement data and the political picture, the watercourse configuration which emerged during these millennia "was not for the most part a product of planned, systematic construction, but was instead an outgrowth of small-scale modifications and improvements" (Adams 1981: 245).

To account for the expanding and contracting of settlements during these millennia, Adams (1981: 136) draws attention, among other factors, to Rowton's (1976: 24-27) research which has posited the existence of a pastoral corridor to the north and east of the Mesopotamian floodplain. This corridor is believed to have served "repeatedly to channel new groupings of nomads and seminomads into close proximity and hostile interaction with the great urban centers." Given the "structural and ethnic continuum" which Adams (1981: 136) believes existed across the frontiers of cultivation, a process occurred during these millennia involving the "acculturation of particular groups proceeding backward and forward between nomadization and sedentarization according to circumstances" (Adams 1981: 136).

The process of nomadization which occurred during these millennia is further illuminated when attention is focused on the textile trade. Since textiles enabled "commercial relations with regions whose natural resources Mesopotamia altogether lacked," the pastoral sector of the regional economy may at certain times have been encouraged by urban elites connected with the central state leadership. But as the powers of the ruling dynasties would erode,

the attachment of outlying semisedentary elements would have been the first to loosen. Their largely pastoral basis conferred mobility, and mobility in turn conferred a greater opportunity either to shift loyalties to rival powers or to withhold support and tend toward greater degrees of independence and autarchy.

Thus, the formation of "impressive royal herds carried within it the seeds of a far-reaching dissolution of the web of political and economic interrelationships, once the initial organizing impulse had run its course" (Adams 1981: 149).

Beginning in the latter half of the 1st millennium B.C., in the Neo-Babylonian Period, the cyclic pattern of ebb and flow which had prevailed for over two millennia gave way to a millennium of steady intensification of the food system and a *pumping up* of the urban superstructure to an unprecedented climax during the Sassanian Period in the middle of the 1st millennium A.D. (ca. A.D. 226-637). During this period of growth, "the peoples of the lower Mesopotamian plain were more or less firmly incorporated in larger, longer-lived, more heterogeneous empires than had existed previously" (Adams 1981: 175). Simultaneously, an "immense expansion of the cultivated area" took place "so that the total population of the alluvium was significantly larger." Indeed, at its peak, the Sassanian intensification effort led to "three to four times as large an area" being devoted to irrigation agriculture as during the earlier agrarian climax during the Third Dynasty of Ur in the 3rd millennium B.C. (Adams 1978: 332).

To support this build-up of population and urban superstructure, dramatic advances in flood-water management were required and successfully carried out. Not only was the network of artificial canals greatly expanded, but more effective water-lifting machinery to supplement gravity-flow canals was introduced on a large scale so that cultivation could be extended to the outermost limits of the floodplain (Adams 1981: 246). Furthermore, for the first time in history, the turbulent and deep-flowing waters of the Tigris were harnessed so that its flow could be channeled into the network of canals which by this time had expanded southward to its banks. Unlike, therefore, the small-scale modifications implemented during the earlier millennia, the "ambitiousness and complexity" of the Sassanian scheme "strongly suggests that components of the irrigation system were planned and constructed according to uniform standards by full-

time specialized, technically very competent cadres" (Adams 1981: 246).

The collapse of the Sassanian maximization drive appears to have been caused by "an array of political, economic, and ecological factors." To begin with, the system of intersecting grids of canal levees tended to disrupt the natural surface drainage channels, thus hastening the rise of saline water. Additionally, the high degree of managerial competency and bureaucracy, which was needed in order to manage the flooding cycles of both the Tigris and the Euphrates rivers, served to increase the vulnerability of the entire system to potential destabilization due to managerial incompetence and power rivalries. This vulnerability was further heightened by the emphasis given to cereal cultivation at the expense of a more diversified, mixed agropastoral economy. Not only did this lead to an increased sense of futility and frustration for the peasants who were forced to cultivate lands which were at best marginally productive, it also led to diminished supplies of meat and dairy products due to insufficient quantities of pasture animals being produced. The culmination of these general conditions led to malnourishment of the peasant producers, weakened resistance to disease, and eventually, to massive die-offs from famine and plague at the end of the Sassanian Period (Adams 1978: 333; 1981: 200-214).

That nomadization remained an option for many of the rural households during this millennium of build-up and collapse is certain, although Adams is short on specifics. This he implicitly acknowledges, noting that the two-way street between nomads and sedentaries is one which has been "systematically underrepresented," not only by his own methods, but also generally by most other "spokesmen for urban institutions" (Adams 1978: 334). The picture which emerges from his discussion, nevertheless, is one of a gradual process of accumulative failures on the part of urban elites resulting in a continual loosing of the web of interdependencies whereupon the Sassanian urban superstructure had come to rest. Rather than having actively contributed to this failure, the process of nomadization must have occurred as a natural survival response by the tribally organized elements of the rural population to the increasingly intolerable conditions which accumulated in the hinterlands of the once powerful urban centers. Over the following centuries, this response became the prevailing

one in the Mesopotamian floodplain until the advent of the modern era (Adams 1981: 175-228).

The popular tendency in the literature about the Middle East to represent the relationship between nomads and sedentaries as inevitably antagonistic does not receive support in Adams' work. Instead, throughout his analysis, Adams repeatedly reminds of the fluidity of social life in the rural hinterlands, emphasizing the back-and-forth movement of individuals and households between nomadic and sedentary pursuits. Indeed, as was noted earlier, during certain periods of agricultural intensification, the pastoral sector of the economy was actually encouraged because of what it could offer in the way of long-distance transportation and animal products.

The Green Mountain of Cyrenaica, Libya

From Adams' research, which, as we have seen, dealt with food system alterations in a lowland, riverine environment, we shall next turn to another investigation which also offers evidence for long-term shifts in patterns of settlement and land use involving the processes of sedentarization and nomadization. In this case, however, a mountainous highland region furnishes the ecological backdrop. Specifically, the region dealt with in this piece of historical geographic research is to be found along the North African shoreline of the Mediterranean in eastern Libya. It is known locally as Jabal al-Akhdar, the Green Mountain of Cyrenaica. According to Johnson (1973: iii), the purpose of his inquiries in this region was to accomplish two goals: first, to study the changes which have occurred over the past two centuries in the livelihoods of the Bedouin of Cyrenaica; and second, to analyze the settlement history of the same area in the light of insights gained from learning about the contemporary population's experience.

Jutting northward into the Mediterranean, the Jabal al-Akhdar region consists of a series of ascending platforms or terraces running from the western coastline toward the east and rising to about 800 m above sea level. As a natural resource, this mountainous landscape stands out as being relatively well endowed for the purposes of both pastoral and agricultural pursuits when compared with the marginality of areas to the east, west and south. This is because, although rainfall is both seasonal and extremely variable from year to

year, a variety of different ecological zones exists along the ascending platforms and escarpments, which provide a wide range of options when it comes to alternative strategies for obtaining food and managing the risks of drought and famine.

Traditionally, that for which every tribal group has striven in Jabal al-Akhdar is control over a north-south strip of territory assuring access to the full range of ecological zones available between the coast and "across the agricultural areas of the high plateau into the steppe and semi-desert grazing areas on the Saharan fringes" (Johnson 1973: 34). Because control over this entire range of resources is beyond what is possible for any one family or lineage segment, attachment to one of nine noble tribes is claimed by all families in order to justify "the practical realities of ownership of land and water resources." In the case of each of these tribal entities, common descent is claimed by its members from a fictitious legendary ancestor said to be the progenitor of each tribe. Furthermore, to each of these nine noble lineages belongs a genealogically inferior tribe whose members stand in a client relationship to their noble lineage masters.

Until about four decades ago, nearly all Cyrenaicans were nomads in the sense that

they derived most of their livelihood from animals, shifted their animals about in response to seasonal variations in the location of pasture and water, and participated in a shared value system, myths, and tribal social structure (Johnson 1973: 40).

Yet, "with few exceptions," all practiced agriculture as well. The extent is a function of the types of animals they herded. For example, along the coast, where plant life is unsuitable for large herds of cattle, sheep, and camels, goats were raised in large numbers by the genealogically inferior client tribesmen. In the alluvial fans of wadis and in wadi bottoms where the soil was sufficiently moist and fertile, these tribesmen also planted barley after the first rains in the fall. A few cattle were also kept for milk and plowing purposes, thanks to the spring water available at the foot of the mountains. Further inland, along the terraces, sheep, goats, and cattle were raised by members of both inferior and noble tribes. The better soils and rainfall conditions which are in this region permitted cultivation of relatively large quantities of wheat and barley, especially on the upper terraces. In December, following the planting of cereals on the mountain terraces, households would typically split up,

with some of the young men migrating southward into the desert fringes with their flocks of sheep and goats after the winter rains had brought fresh supplies of water and pasture. In the wadi beds along the border of the desert, many of these herders would engage in speculative sowing in hopes that they might reap a rich harvest of grains. Such speculative sowing was deemed worthy of the risk, for if rainfall was sufficient, a harvest five times more plentiful than on the terraces was sometimes obtained. In late spring, when the desert fringe became too dry, the herds would be brought back to the mountain terraces where, as summer progressed, they would become concentrated around the springs and cisterns upon which they depended for water. Following the harvest of grains on the terraces, the stubble fields became pastures for flocks (Johnson 1973: 50-59).

To the south of the mountain slopes, along the dip-slope which leads into the southern desert, households specializing in camel breeding could be found. Unlike their northern kinsmen, who produced camels mainly for the sake of baggage transport, these tribesmen raised them in order to live by their milk on their seasonal treks into the desert oasis in the interior of the desert. Sheep and goats were also produced by these households, but these animals were herded separately from the camels. While the goats were kept close by the tents so that they could furnish milk to the family households, the sheep were herded to wherever sufficient pasture and water could be found. Near the principal watering points, in the broad flat wadi beds, these same herders would sow grain in limited quantities as well. Thus, a rather complex pattern of oscillating movements out from and back to the family households was the typical pattern in this more arid region at the edge of the desert.

Finally, a small number of tribesmen lived exclusively by the camel and raised no grain of their own. With these nomads, while their families would camp near desert oases and other watering places, their camels, herded by young men, would migrate out into the arid steppe and desert fringes during the rainy season. In the dry season, the animals were herded on pastures closer to the wells and the family tents.

Despite this range of different herding lifestyles among the nomads of Jabal al-Akhdar, a great degree of sameness existed as well. No "absolute separation between the man who herds and the man

who farms" prevailed. Instead, the combination of herding practices "blended imperceptibly into one another" and differences were "of degree rather than of kind" (Johnson 1973: 39). Unlike nomadic groups in other regions of the Middle East, dependence on a sedentary population was minimal in Cyrenaica, because nearly all families engaged in both cultivation and pastoralism, albeit the relative importance of one over the other varied considerably as we have seen.

In order to obtain access to certain specialized goods required by their lifestyle, such as teapots, sugar, salt, tea, weapons, etc., the nomads of Jabal al-Akhdar would rely on periodic markets which appeared in the nearby larger villages and towns in the summer months, when the nomads were prevented from making their desert excursions. These markets were invariably controlled by urban merchants or rural shopkeepers (Johnson 1973: 78). Operating outside the network of periodic markets, furthermore, were complex patterns of trade and debt relationships between tribesmen living in different ecological zones, who were tied to each other by means of kinship or tribal affiliation.

The fluctuating frontiers of settled agriculture, which historically have characterized Cyrenaica, are understandable in light of the preceding ecological model. Since the upland terraces are resources capable of supporting either sedentary farming or pastoralism, farmers and herders have, over the centuries, lived in varying degrees of competition with each other. Periodically, hostile interactions between these two competing elements have occurred. This has been due largely to the fact that during certain centuries, the areas of high agricultural potential, which the pastoralists need access to in order for their economies to function smoothly, have been denied them by sedentary rulers bent on intensifying sedentary exploitation of the land.

In his monograph, Johnson (1973) has utilized historical and archaeological sources in order to reconstruct the repetitive pattern of advance and retreat of the agricultural frontier since pre-Roman times. The process he describes begins with the gradual alienation by colonizers of the fertile agricultural areas of Cyrenaica from its native nomadic population, namely the Libyan Berbers, who practiced a type of mixed agropastoral way of life involving cereals and herds of sheep and goats. This process was set in motion first, by the colonization of Cyrenaica by Hellenistic and Greek settlers (be-

tween ca. 639 and 96 B.C.), then later by the Romans and the Byzantines (between ca. 96 B.C. and A.D. 642). The process reached its climax during the Roman Imperial Period, when large numbers of military veterans were settled in fortified farmsteads and villages; when an extensive road network was built which facilitated the movement of soldiers to rural destinations and foodstuffs to urban areas; and when a series of forts and garrisons (the Cyrenaican *Limes*) were constructed along the borders of the cultivatable land to protect it from nomadic incursions. Along with these protective measures, the Imperial Romans also greatly improved the supply of water by digging cisterns, wells, and aqueducts throughout the rural areas, as well as by their construction of agricultural terraces and check dams to capture more effectively the limited wadi run-off.

As efforts to tighten the frontier *limes* intensified throughout the 3rd century A.D., "the level of nomadic raids rose correspondingly and reached a crescendo of violence" around A.D. 400 (Johnson 1973: 135). These nomadic reactions coincided with internal decay of administrative and military powers in the sedentary areas, resulting in the growth throughout the 4th century of "a quasi-feudal system of illegal patrons for villages," who in return for village support assisted the local inhabitants in escaping the payment of taxes and in protecting against the depredations of the nomads (Johnson 1973: 136). Throughout the remainder of the Byzantine Period, arrangements such as these prevailed, resulting in the decline of the large imperial cities, and a flourishing of castles and fortified churches in the countryside (Johnson 1973: 141).

Crucial to the turn of fortune in favor of the nomads was the camel, which in this region appears first to have been introduced by the sedentary population for transportation purposes. Its gradual adoption by the nomads was inevitable, however, and immensely strengthened their efforts to regain control over the vital agricultural areas, which the Imperial Romans had succeeded in alienating from them almost completely. As the centralized government apparatus continued to weaken throughout the 5th and 6th centuries, the rate of nomadic incursions, aided by the camel, became more sustained. Gradually, the settled population was forced to come to terms with "their now militarily more powerful bedouin neighbors."

Writes Johnson (1973: 160-161) about the resulting process of nomadization:

The relative richness of the Jabal al-Akhdar for a pastoral people, coupled with the mixed agricultural-animal economy of the local bedouin, made them relatively independent of sedentary and urban products. Finding little of profit to be derived from the settled population, the bedouin went their own way, gradually incorporating the rural farmers and the vast majority of the urban population into the nomadic tribal structure either as outright genealogical equals or as marabtin client lineages. For the sedentary population the change was not an impossible one; animals always had held an important place in their economic system, now it increasingly superseded agriculture as the focus of attention . . . An alteration of style as much as of substance, this process of gradual acculturation culminated in a nearly complete bedouinization of al-Jabal al-Akhdar and a return to the same pattern of land use in vogue when Battus led the first party of Greek colonists to Cyrene in 631 B.C.

The period which intervened between the decline of the Byzantine Empire and the Italian colonization of Libya in 1911 were centuries during which the nomadic lifestyle prevailed, despite attempts by the Ottoman Turks to assert control over the region. Because of the low pressure which they exerted on the agricultural lands during these intervening years, the Bedouin helped to preserve and, in some places, actually contributed to the restoration of the arboreal vegetation of the Green Mountain of Jabal al-Akhdar (Johnson 1973: 194). In their own way, they also contributed to the continuity between the Greco-Roman civilization by "retaining regularities that related intimately to the pre-existing settlement scheme" (Johnson 1973: 194). Thus, agricultural fields, though reduced in extent, continued to be utilized; classical road beds continued to function as footpaths and donkey trails; Roman cisterns and wells continued to be used as sources of water; and tombs were turned into sites for human habitation, animal shelters, or storage depots. Continuity with the past, therefore,

was inescapable, but found its expression through the medium of a different culture. Shaped and adapted to fit the predilections of a pastoral mystique, firm ties to the area's classical heritage were nonetheless maintained (Johnson 1973: 197).

In the present century, large-scale nomadic settlement has progressed at an unprecedented rate. This process has involved several different

configurations, including the spontaneous settlement of nomads in small genealogical clusters in the vicinity of water resources close to their traditional agricultural fields; settlement within their traditional tribal territories in abandoned farmhouses left by the Italian colonizers; planned government housing projects and rural-urban migration. With these changes have come a rapid decline in the dependence on camels, increased production of cereals and cash crops, and nonagricultural employment in local government agencies or industries. Because of their traditional value as a source of capital investment and formation in the nomadic community, "sheep continue today as the primary symbol of continuity and stability in a society undergoing massive change" (Johnson 1973: 212).

The Levant

That the processes of sedentarization and nomadization, which have contributed to the repeti-

tive advance and retreat of the frontier of agricultural settlements in Mesopotamia and Cyrenaica, have also contributed to the rise and fall of agricultural settlements in the countries of Israel, Jordan, Lebanon, and Syria is certain. Indeed, numerous scholars have noted the oscillating pattern of on-again off-again sedentary life in many localities throughout the Levant, especially along the eastern desert borders. Among them are Rostovtzeff (1932), Glueck (1939), Kirk (1944), Lewis (1954), Reifenberg (1955), Parr (1975), Bowersock (1983), Cohen and Dever (1981), and many others. For various reasons, however, systematic research—conceived in a diachronic frame—concerned with the comparative study of the processes of sedentarization and nomadization in the Levant, has barely been begun. Focusing on the country of Jordan, the research which is reported in the subsequent chapters is offered as a beginning contribution to this neglected anthropological problem.