

Chapter 5. PASTORAL SOCIETIES

Some outstanding traits in Nuer character may be said to be consistent with their low technology and scanty food supply. I emphasize again the crudity and discomfort of their lives. All who have lived with Nuer would, I believe, agree that though they are very poor in goods they are very proud in spirit. Schooled in hardship and hunger—for both they express contempt—they accept the direst calamities with resignation and endure them with courage. Content with few goods they despise all that lies outside them; their derisive pride amazes a stranger.

E. E. Evans-Pritchard (1940: 90)¹

I. Introduction

A. Pastoralism Defined

Pastoral societies are those that have a disproportionate subsistence emphasis on herding domesticated livestock. Many horticultural, agrarian, and industrial production systems incorporate livestock. The most important defining criterion perhaps is the organization of community life around the needs of the herds. Typical herding societies are “nomadic.” People live in portable tents or temporary structures and move considerable distances from pasture to pasture according to the dictates of ecological circumstances and the needs of the beasts. Nomadism is a technological adaptation to scarce and ephemeral pasturage that has major ramifying effects on culture core features that are absent if animals are managed from a fixed home base, as in European dairying or Mexican/Anglo-American ranching.

B. Pastoralists Confound Progressivism

Pastoral societies are theoretically important because they exhibit non-progressive evolution. Although it is possible to portray pastoral societies as an “evolutionary bypath”, (e.g. Lenski and Lenski, 1982), this is a mistake. Pastoral societies played an important role during the agrarian era and illustrate some important ecological/evolutionary processes.

Evolutionists of the progressivist (orthogenetic) type, who believe that evolution has some inevitable tendency in the direction of more complex and probably morally superior societies, are inclined to downplay pastoral societies because they tend to contradict with the inevitability-of-progress flavor of this “theory.” Pastoralists developed relatively late in history, but have the air of primitive throwbacks and destroyers of “advanced” civilizations.

1. The Nuer are cattle pastoralists in the southern Sudan.

C. Environmentally Specialized Societies

Pastoralism was for a long time a very successful adaptation to grassland and desert. The existence of extensive tracts of temperate grassland (steppe), subtropical desert, or tropical savanna, combined with the technology of animal husbandry, lead to the development of pastoral societies that compete and very effectively with more “advanced” agrarian societies for these open country environments, despite being considerably more “primitive” in terms of complexity of social and political organization. For example, pastoral peoples routinely prevented farmers from occupying the rich steppes of South-eastern Europe that are now the main grain producing regions of Hungary, Russia and the Ukraine. The politics of the Old World agrarian civilizations was heavily influenced by pastoral raiding and conquest, as pastoral peoples used the mobility afforded by a wealth of riding animals to plunder civilized states and to impose themselves as elites upon conquered agrarian societies.

Imagine how the history of the Old World might have differed if the ratio of the grasslands favorable to pastoralism to those where the farmers could dominate had been, say, twice as great as it was. Given the trouble Central Asian nomads caused civilized states in the period from about 3,000 to 750 years ago, if the ratio of prime pastoral to farming environment were much more in favor of the pastoral adaptation, the Eurasian development of sophisticated states would have been severely retarded. Imagine if the Goths, Huns or Mongols had had a little more grassy country to work with! The “civilized” agrarian Eurasians, whose technical evolution gave them such great dominance in the last 5000 years, could easily still be the terrified, benighted clients of pastoral conquerors, much as the Russians were for a couple of centuries after the Mongol conquest. The south-eastern region of Europe became an agricultural frontier from the 16th to the 18th century (McNeill, 1964), as firearms finally tipped the balance of power in favor of agrarian states.

Trade and war are both favored by the efficient transportation technology that is in the hands of pastoralists. Pastoralists tend to engage quite freely in commercial trade and war. Carts, and caravans derive directly from the basic subsistence adaptations of pastoralists, and are easily adapted to commercial trade and/or raiding and conquest.

II. Pastoral Technology

A. Pastoralism as Horticulture/Agriculture Without Plants

The technology of pastoralism is largely just the animal husbandry component of the prevailing horticultural and agrarian technology, more or less thoroughly shorn of its plant cultivation component. On the level of subsistence, pastoralists are merely farmers

who specialize in herding animals like sheep, goats, cattle, horses, llamas, yaks, and so forth. Normally, this specialization includes a good deal of specialized knowledge about animal husbandry, pasture, and land transportation technology, exceeding that of their farming neighbors, but not dramatically. Contrariwise, although many pastoralists also farm, they are generally not the experts their neighbors are.

Few pastoral people subsist entirely on animal products. Most probably derive half or more of their calories from plant products. These may derive from growing crops, from trade in animal products with settled agricultural foreigners, by extending services such as caravan operation for pay, by having agricultural slaves or clients, and by raid or threat of raids. The human diet is greatly enriched by eating relatively small amounts of meat and animal fats. Leather, horn, wool, and animals for traction are also valuable. Thus animal specialists are often motivated to trade much of their valuable animal production for grains, crafts and manufactures, luxuries and so forth. Settled peoples often pay tribute to pastoralists to avoid raids, or pay some pastoralists to protect them from other pastoralists. The role of pastoralists as traders best developed in those places and periods when caravan routes were important. The Silk Road to and from Europe and Western Asia to China is a famous example. It was open in the Roman period and again under the Mongol Khans. This route was only open when a dominating power controlled Central Asia sufficiently to keep it reasonably policed.

The key to the culture core of pastoralism is the mobility made possible by herders. In agriculturally productive areas, farmers may keep many animals, and sometimes even specialize in dairy or meat production. However, as long as these animal farmers maintain a settled residence they generally remain part of the surrounding agrarian society. In poorer environments, the reason for mobility is much the same as in the case of hunting and gathering. By emphasizing animal products, the focus of subsistence is moved up the food chain a step, and several animals must be kept to support a family. Typically, any given area is grazed out in a few days to weeks and herds must be moved. In dry tropical and subtropical areas, such as Arabia and much of Africa, herds are moved in response to water availability. In temperate Eurasia, seasonal migrations are common. For example, groups may move animals quite some distance from lowland winter pastures to highland summer pastures. This pattern is common in the American West even today. As we will see, in richer environments, mobility is as much a socio-political as an environmental adaptation to exploit scattered pastures.

B. Culture core consequences

Once a whole society is committed to living in tents and temporary huts as they fol-

low their herds, social organization can change dramatically. As we discuss in more detail section IV, mobile herders are highly independent. They can move to avoid trouble, and move to make it by raiding their neighbors for livestock if they are other pastoralists and for other forms of booty if they are settled peoples. Quite small groups, usually a patrilineal extended family that collaborates to manage one herd, is the basic social unit. It can operate as a nearly autonomous social system with tenuous ties to other families. However, mobility means that many such units can potentially assemble in one place. Thus tribes and confederations of tribes can also arise. Historically, the scale of pastoral societies tended to fluctuate unpredictably. More often than not, pastoral societies were small and independent, with much conflict between tribal segments within ethnic groups. In the great waves of conquest in the Old World, multi-ethnic confederations arose. The Mongols organized an imperial state on the basis of nomad conquest.

C. Is it adaptive to maximize standing stock?

Wealth and status in pastoral societies are typically dependent on the size of one's herd. Attempts are made to maximize herd size in the face of a rather uncertain environment. Dairying is also especially well developed among pastoralists, because it allows them to exploit animals without killing them and thus reducing herds. Some specialized animal product technologies are virtually unique to pastoralists, for example the widespread use of blood extracted from living animals, which has a similar motivation as dairying.

The stress on large herd *size* rather than *productivity* has itself been interpreted as a kind of “bank account” adaptation to uncertainty in rainfall, disease, and raid losses (Mace and Houston, 1989). Productivity is reduced at high herd size because ranges tend to be “overstocked,” reducing milk yields, increasing calf mortality, etc. However, maximizing the standing biomass of livestock rather than the short-term yield provides a substantial reserve in case of problems. Semi-arid and arid areas are notoriously variable in terms of rainfall, even without the political uncertainties of pastoral life, and the maximum-standing-stock technique perhaps makes sense as an adaptation to highly variable environments, although it has seemed irrational to range management experts schooled in maximizing the flow of meat, milk, and fiber production into a market economy. This difference in outlook has caused much misunderstanding over the years when international aid experts recommend reducing livestock populations in traditionally pastoral areas. Due to the ideological importance of livestock to many pastoralists, they seem to the experts to be merely irrational cow lovers. Only quite recently have they come grasp the risk management function of large herds.

C. Variability--Plains Indians, Eurasians and Africans:

Pastoral societies are tremendously variable in terms of the details of their technology. Perhaps the most important distinctions are those based on sophistication of transport methods. The pastoralists of the Eurasian Steppe, including Indo-Europeans in the early days, Turks and Mongols later, made extensive use of wheeled transportation, as well as riding horses. The Camel nomads of the Eurasian and North African deserts rode but seldom used cartage. The late, specialized North and South American equestrian hunters were similar to the Arab Bedouin in this respect. Finally, the Eastern and Southern African cattle herding pastoralists used neither carts nor riding animals. Their toolkit and social organization is more horticultural than agrarian, as is developed in Section VI. Carts allowed Eurasians to carry a larger fraction of the agrarian toolkit around with them, and to assemble and supply larger collections of people in one place without having a very complex political system. As Johnson and Earle (1987, cite in Chapter 1) point out, social complexity among pastoralists ranges from societies like the Nuer to Eurasian examples of Kahnates with many economic, religious, and political specialists, and a strong, though commonly achieved, status hierarchy. Still, even Eurasian pastoralists were generally very unsophisticated by the standards of their “civilized” neighbors. For example, even the Mongols at the height of their power were an illiterate society, in spite of having literate neighbors for millennia. As we saw with the Andean ecological gradient, the grassland—farmland technical gradient remained sharp over long periods of intimate contact. Section VI elaborates on the reasons for the variability in pastoral systems.

III. Origins: Several Centers

In the Old World, the main region of pastoralism was the broad band of steppe (semi-arid temperate grassland), mountainous country, and temperate desert stretching from the Hungarian Plain eastward to Manchuria, bounded on the north by the forest belt and on the south by the line running from Black Sea through the Caucasus Mountains, through Tibet and the skirting around the headwaters of the great river systems of China (Figure 5-1). Here pastoralism was first developed, probably in the Western part of the region about 5,000 years ago, just as the first agrarian states were emerging to the south in Mesopotamia. These people were Indo-European in speech. We all speak a tongue (English) derived from Indo-European, a result of the far reaching impact of the first waves of pastoral conquest (Mallory, 1989). The terms for horse gear are among those that the Indo-European languages have in common and are among the Proto-Indo-European terms that can confidently be reconstructed. (PIE was the ancestral language, spoken in the Caspian region about 7,000 BP. Linguists believe they have a fair reconstruction of the language from the commonal-

ities of all the derived tongues.) The steppe and desert pastoralists of Eurasia herded cattle, sheep, and horses for the most part (yaks in Tibet, bactrian camels in the drier parts). This zone was extensively occupied by pastoral societies until the late 19th and early 20th centuries. *The second important locus developed about 3,000 BP in Arabia*, based on the domestication of the one-humped camel to exploit the hotter, drier pastures of the subtropical deserts, supplemented by sheep, goats, and horses in the better areas. These people were Semitic language family speakers (includes Arabic and Hebrew among others), and the wide distribution of Arabic speakers from Mesopotamia to Northern Africa (and the even wider distribution of the Moslem religion) testifies to their activities. Camel pastoralists are still an important part of the Middle Eastern scene; Saudi Arabia is ruled by a dynasty with direct pastoral ancestry.

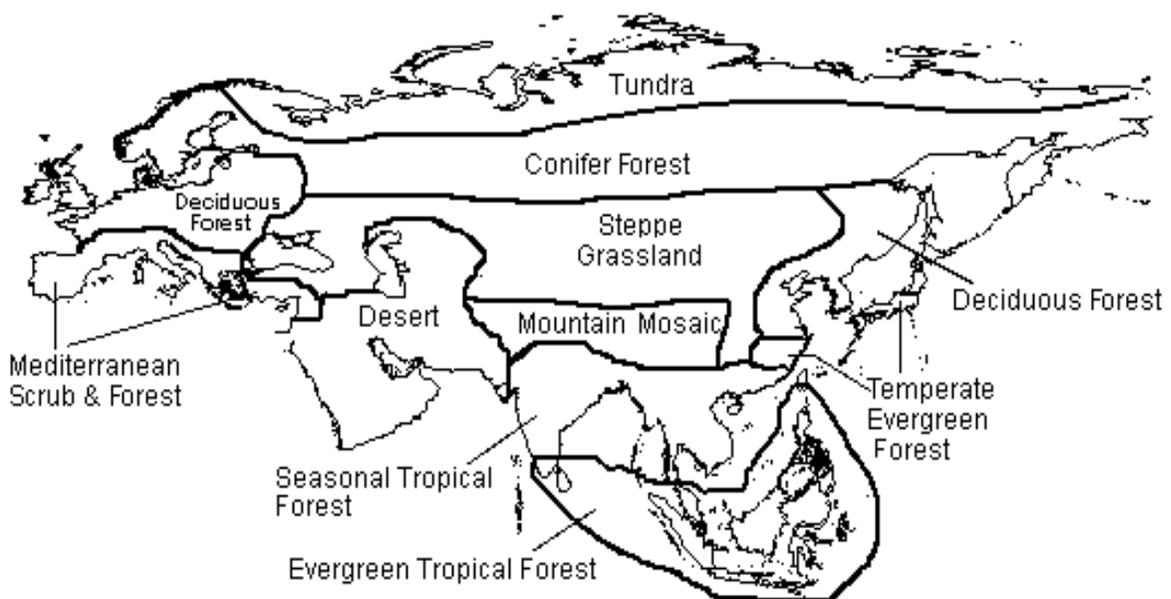


Figure 5-1. The main ecological zones of Eurasia. Pastoral peoples dominated the steppe, and desert zones, and were important in the dry parts of the mountain regions.

The third important locus of Old-World pastoralism is the belt of African societies that sweep across the Sahel south of the Sahara, down through the drier parts of East Africa, and back across to the Atlantic south of the tropical forests. These peoples herd cattle in tropical savanna areas arid enough to be fairly free of tsetse (which transmit a series of trypanosome diseases to which most cattle are not resistant). This development was fairly late-3,000 BP. People speaking Nilotic and Bantu languages expanded substantially after the development of cattle pastoralism in Africa. Goats are a relatively important secondary animal in this region. Sheep, horses, and camels are herded by many pastoralists from Soma-

lia west to the Atlantic and north to the Mediterranean, but not in Eastern or Southern Africa for reasons discussed in Section VI.

There was a fourth minor locus of pastoralism in the northern forest and tundra in the Old World beyond the limits of farming, diffused to the Canadian Arctic in this century, based on reindeer herding (e.g., the Chukchi of Siberia and the Lapps of Norway and Finland).

Pastoral societies were absent in the New World. Although Andean peoples herded camelids extensively in conjunction with agriculture, but it is doubtful if independent societies were involved. Small foci of pastoralism exist in many places where farming is difficult, for example in India (Gadgil and Melhotra, 1982), and something on that scale could have occurred in the Andes. The American peoples domesticated few animals compared to the Old World, and the opportunities for pastoralism were correspondingly reduced. In Chapter 22 we discuss a possible reason for this difference.

However, when Europeans introduced horses back into the New World, a sort of pastoral society developed very rapidly in the Great Plains of North America, and on the Patagonian steppe in South America. These people were horse mounted hunters rather than pastoralists in the usual sense, but the parallels in terms of ecological zone and trading and raiding activities are striking (Ingold 1980). It is also striking that the Plains and Patagonian quasi-pastoralist societies evolved very rapidly once the key innovations (horses, guns, and trade) were acquired by diffusion, a testimony to potent evolutionary potential in pastoralism. It seems likely that full-scale pastoralism would have rapidly developed, had not Generals Sherman (USA), and Rosas (Argentina), and the other European Indian fighters brought overwhelming modern military force to bear. The firearms, cannon, improved wagons, riverboats, and similar industrial products that 19th Century states could deploy in abundance, were too much for the Indians in the end. The Russians and Chinese used the same technology to pacify pastoral societies in steppe belt Eurasia in the same period.

IV. Social Organization

A. The Importance of Patrilineal Kin Groups

Virtually all pastoral societies are built around patrilineal kinship groups. Typically, the genealogy of each patrilineage is reckoned, either actually or fictitiously, back many generations. The minimal functional unit of such societies is usually a co-residential patrilineal unit of varying dimensions dependent on ecological variables and political history. Large segments are generally favored for defense, but sparse pasturage causes fairly minimal units to be the rule. Thus, typically a unit of 50-200 persons organized around a few

fairly closely related males is the unit that herds and lives together. These units are usually webbed together by patrilineal kinship ties that gradually weaken with genealogical distance to a tribal section, to the whole tribe, and on up to a supra-tribal ethnic group. In the case of the Bedouin, Turkomen, and African groups that are fairly well known from the ethnographic record, the whole society for some purposes can number in the tens of thousands in some cases, though normally these links would be thought quite remote and mobilized to accomplish something only under extraordinary circumstances. As the famous study of the Nuer, an African pastoral group, by E.E. Evans-Pritchard (1940) showed, this “segmentary” principle can be fairly effective in organizing collective action among pastoralists. The Nuer lack chiefs and other complex political institutions, but can cooperate very effectively on an ad hoc and informal basis, reinforced by a lively ethnocentric sense, to raid or resist domination by non-Nuer. Kelly (1985) describes how the Nuer were able to conquer their neighbors, the Dinka without a sophisticated political system.

B. Sexual Division of Labor

The sexual division of labor is sharply marked in pastoralist societies. First of all, men are often largely responsible for herding larger stock such as cattle, whereas women engage in handicrafts, food production and processing, small-stock herding (goats, sheep) and the milking of livestock at camps. The division of labor is underlined by the grossly disproportionate emphasis on masculinity in these societies. Herding large animals is rough, dangerous, and uncomfortable and a cult of masculinity is perhaps functional even without considering warfare. The Maasai herders of Kenya and Datoga of Tanzania are good examples of the type (Borgerhoff Mulder, 1991). A man ought to have killed a lion with a spear as one of the many stressful tests of his manhood. He exhibits a good deal of contempt for anyone who is not an owner of cattle and a warrior, anyone who is not a true human being in other words. Even today, these people are quite contemptuous, not only of their farming neighbors, but also of Europeans. (As our epigraph shows, the Nuer have the same attitude.) They might have some respect for hard-bitten old fashioned American cowboys, but otherwise they are unimpressed by anybody else. Real humans own cattle, others are just low-grade farming scum.

This is not to say that the status of women is particularly low in such societies; it often seems to be fairly reasonable by comparison with some agrarian societies. For example, Mongol women played an important political role, often acting as regents for sons too young to directly rule as tribal chiefs after the death of their fathers. Some pastoral societies have a socially sanctioned role for males that desire to opt out of the hypermasculine system (e.g., the berdache transvestite role among the Plains Indians). The Chukchi reindeer herd-

ers of Siberia had a special role for women inclined and tough enough to perform as men. Both of these institutions included homosexual (biologically but not socially speaking) marriage (Leeds, 1965).

C. Significant Occupational Specialization

The more complex pastoral societies support a certain variety of specialized roles besides the basic male herdsman and female craft/food processing ones. Despite the emphasis on animals, most herders are dependent on crop staples for much of their caloric intake, as noted above. In the more complex herding societies, where the core families do not farm, client agricultural families are often part of the society. If not, or in addition, specialized tradesmen organize the exchange of agricultural products for animal products. Specialized craftsmen, such as blacksmiths were common. Political specialists (chiefs and their retinue) were often important, especially in the great conquest bands, religious men (especially after the spread of Islam and Buddhism), and slaves were present in the more “advanced” groups.

The Mongols created the most complex pastoral societies based on a long Eurasian tradition of pastoral near-states (Allsen, 1987). Even when in their most bloodthirsty moods, the great khans spared useful specialists among defeated city-dwellers and incorporated them into the mobile bands in great numbers. Military specialists (e.g., engineers to construct fortifications and manage their destruction) were especially favored, but literate administrators and the like were included as well. The ruthless rationalism of the Mongols impressed everyone, and was undoubtedly the reason for their unprecedented political and military successes (Saunders, 1971).

V. Political Origin and Consequences of Pastoralism

A. Lattimore's Hypothesis

The most famous hypothesis about the origin of pastoralism focuses on the political-military consequences of pastoralism combined with nomadic movement. Owen Lattimore argued in 1940, on the basis of the history of Chinese relations with the Eastern nomads, that pastoralism grew out of mixed farming on the margins of the main centers of agrarian states (see also classics by Grousset, 1970, and Khazanov, 1983). As the size and power of early states developed, their rulers came to heavily exploit peasants. In most habitats, the state fastened an almost unbreakable yoke on the rural producer. A revolt *might* displace the existing elite, but seldom get rid of them altogether. In the next chapter, we'll see that in mountainous country tribal independence could sometimes be defended from states. In the grassland belt, pastoralism turned out to be an even more effective strategy for resisting

state domination. By abandoning or deemphasizing crops, pastoralists could move with their animals when the prince's army marched, use the mobility of chariots and later riding animals to harass the army, and move back when the army got tired. By discovering the fundamental tactical advantages of movement, concentration, surprise, and offensive violence, pastoralists could defend themselves from numerically and technically superior armies of states. William Irons (1975) has given good evidence that the Turkomen of the Eastern shores of the Caspian used just such a mechanism to resist Persian and Russian domination down into the early years of this century.

Custer discovered just how effective these tactics could be at the Battle of the Little Big Horn as the Sioux and the Cheyenne tried to resist Euro-American domination². The Americans were not exactly surprised by this band of Indians; they had gone looking for them. What was a surprise was how many warriors were concentrated on the Little Big Horn so distant from their reservations. The US Army's intelligence failed to take into account how quickly—and how far—horse nomads could move. Custer's 200 odd cavalrymen rashly tried to attack an encampment containing perhaps 2,000 warriors, who made short work of them (Connell, 1984).

B. Positive Feedback and the Evolution of Culture

The evolution of pastoral military institutions tends to snowball. In the first place, herd animals are relatively easy to rustle, and pastoralists everywhere are in the habit of stealing from each other. Rustling keeps fighting skills tuned to a high pitch. Furthermore, the pastoralists' skills are quite suited to general banditry and raiding on the agricultural fringe. The Plains Indians of North America were essentially forced to adopt pure pastoralism or be driven from the grasslands. People, like the Apache, who tried to mix maize farming and horse hunting were highly vulnerable to the mounted hunter's surprise attacks because they were tied to their fields. They left the Plains, but certainly not because they soft touches in the fighting line. The horse hunters of the southern Plains sometimes raided deep into Northern Mexico in search of horses and other booty.

The temptations of booty could be supplemented by dreams of conquest; examples of pastoral nomads furnishing ruling elites for states have already been noted. Normally, the main deterrent to pastoral conquest of states is the relatively small size and mutual hostility of the pastoral tribes. However, as the Sioux-Cheyenne confederation at the Battle of the Little Bighorn illustrates, sometimes the tribes can unite, and the inherent power of pastoral

2. "The best light cavalry in the world" said General Crook, Custer's boss, in rueful admiration. His column had been defeated by the same group of Indians on Rosebud Creek a few days before Custer's command was annihilated.

mobility can be increased sharply, both because of less need to protect the grassland rear, and more warriors for the raid or assault. Once a few tribes unite, they are in a position to use the carrot and stick on still other tribes. The choice is: join the confederation for a great raid, or die! What began, according to Lattimore's hypothesis, as a defensive tactic to avoid the state's excessive taxes became an offensive weapon of terrifying potential.

Under normal circumstances, a well organized state can keep all this under reasonable control. Tribute can be paid, punitive expeditions organized, great walls built, and clever diplomacy exercised to keep nomads fighting each other as much as possible. States readily grasped the danger, even if the ruling dynasty hadn't pastoral roots.

Occasionally state defenses collapsed in spectacular fashion in the face of pastoral onslaught. The reasons are not clearly understood. Weakness in the surrounding states, demographic events among the pastoralists, environmental changes on the steppe, and the appearance of charismatic leaders capable of uniting nomad supra-tribal confederations have been suggested as causes. When a good eruption got started, just the refugees seeking to escape could cause havoc with civilized states, as when the Hunnish raiding drove the Germanic tribes into the Roman frontier (ca. 370 AD). In all, civilized Eurasian suffered 4 major invasions, the Indo-Europeans (ca 5,000 BP), the Hun and German invasions just mentioned, the Arabic expansion in the 7th Century, and the Mongol invasions of the 13th Century. The Mongol invasions were the most spectacular example of a pastoral irruption. Ghengis Khan built a supra-ethnic nomad army of tremendous size and sophistication; he had more Turks than Mongols in his armies of conquest (Saunders, 1971, Morgan, 1986, Grousset, 1970). Under his successors the Mongols came to control the whole of the Steppe from Eastern Europe to Manchuria, plus most of the bordering states, including China and Russia. (Figure 5-2). Events in Africa were also dramatic after the advent of pastoralism, if not as well understood. In each of these cases, the nomad wave eventually receded after considerable destruction of civilized states. Often, the nomads remained as the aristocracy of a reconstructed state (frequently in China, the Mogul empire in India, the German Kingdoms in the Middle Ages, African Kingdoms of West Africa, etc.). These new aristocrats more or less rapidly lost their pastoral roots and became civilized or were expelled. In the meantime, attempts to maintain domination from the steppes themselves failed as the great confederacies gradually broke back down to their relatively harmless feuding tribes and sections. The Mongol Khanates of Central Asia were the most sophisticated and durable of these state-like confederacies in the grassland proper. The last of these peoples lost their independence to Russia in the 19th Century. (The Moslem Southerners of what used to be the USSR are lately in the news again as they assert their independence once more.) The

positive contribution of these attacks, if such a judgment is possible, is that the military eruptions of the nomads put stresses on everyone for technical innovations in military hardware and software, improvements in state craft among the civilized folk, the long distance trade they made possible stimulated commercial innovation, and just the movement of peoples was an effective agent of diffusion of new ideas and new diseases (see chapters 20 and 21). The conflicts between nomads and states illustrates the role conflict can play as an evolutionary engine, at least if McNeill's hypothesis is correct.

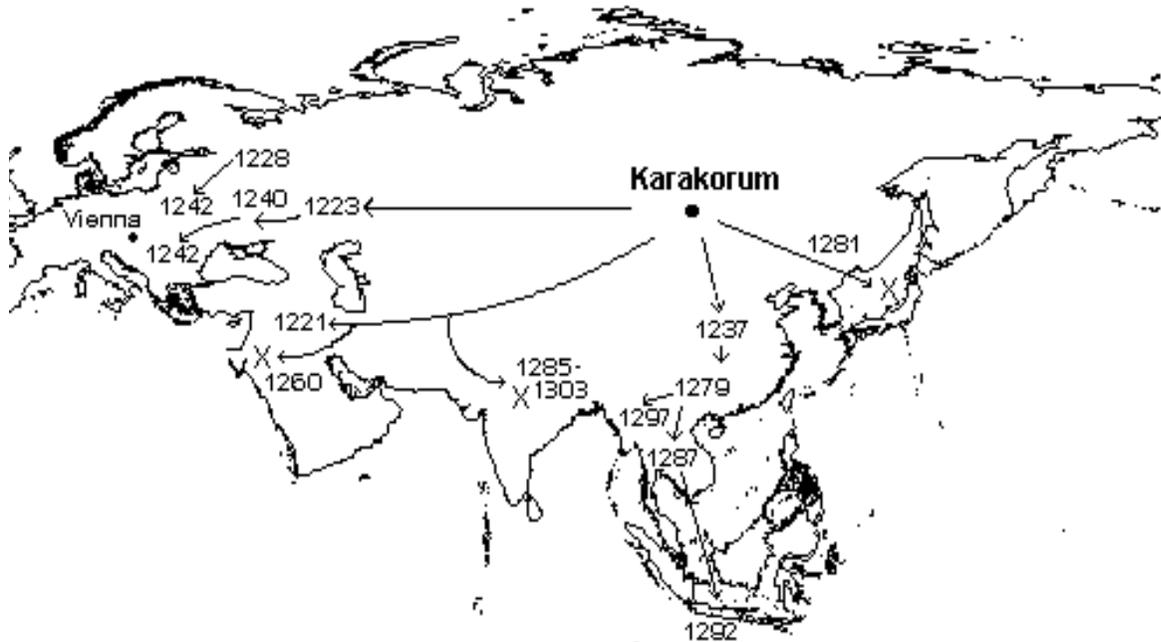


Figure 5-2. The course of Mongol conquest in Eurasia. X's mark major defeats the conquest was stopped. Based on McNeill, 1963, and Dyer, 1985.

VI. Gradients and Core Response

A. Pastoral Diversity in Africa

The broad African pastoral belt that surrounds the human tropical forest of Central Africa has many examples that illustrate Steward's claim that the same technology deployed in different environments can generate far-reaching differences between societies. In West Africa, pastoralists such as the Fulani (Stenning, 1959) much resemble the pastoralists of Central Asia. They maintained caravan routes between the gold fields of tropical West Africa, the date oases of the interior, and the Mediterranean. The West African pastoral tribes had complex relations with a series of powerful states based on advanced horticulture along the forest fringe, Ghana, Mali, Songhai, Hausaland, Kanem-Bornu, etc.

Timbuctu is perhaps the most famous city of this region. Islam became the dominant religion in the region, spreading down the pastoralist's trade routes from North Africa.

In addition to trade, pastoralists raided and often conquered and dominated states on both the tropical and Mediterranean edges of their territories in the style of Central Asian pastoralists. The famous medieval geographer, Ibn Khaldun (d. 1406), described what he saw as a cycle of pastoral conquest and decay in North Africa. In the desert, great warriors arose with a disciplined cadre of followers from the general tumult of pastoral politics, dominated by raiding and warfare. Conquest of an agrarian state enabled such great warriors and their tribe's leading figures to install themselves as the state's elite. Such elites were at first energetic, competent, and often puritanical as a by-product of the rigorous virtues instilled by the demands of a pastoral life-style. Then, inevitably, the decadent pleasures of city life weakened the moral fiber of the elite, and after a few generations the elite's corruption weakened the state, inviting another conquest from the desert.

The pastoral societies of eastern and southern Africa contrast sharply with those of the west. These societies are generally pedestrian herders specializing in cattle. The Nuer, Maasai and Datoga are members of a great group of such pastoralists that reached from the southern Sudan down through Kenya and Tanzania and then spread across the southern part of the African continent. The political organization of these societies, and of the farming societies they interacted with, was generally much simpler than that typical of West Africa. A few marginally state level polities existed in historic times in the vicinity of Lake Victoria and at Zimbabwe, but chiefdoms and acephalous societies were much more common. Trade routes were shorter, although quite sophisticated Arab trading cities existed all along the coast of East Africa for many centuries. Islam did not spread inland here with anything like the success that it spread southward into West Africa from the north.

B. Environmental Gradients

The most important environmental gradients in Africa are those of rainfall (Ellis and Galvin, 1994). In the west, there is a dramatic change in rainfall from the Mediterranean to the Equator. The Mediterranean fringe is well watered in winter, the Sahara itself is virtually rainless, the Sahel south of the desert has about 250 mm (10 in) of rain in the summer, and the Guinea zone (in which the main state-level societies were historically located) has about 750 mm (30 in) in summer. Still further south, the tropical evergreen forest zone has an aseasonal pattern of rainfall ranging up to more than 2,000 mm (80 in.) per year. This relatively simple north-south gradient does not exist in East Africa. Rather, there is a mosaic of high and low rainfall areas dictated by the complex topography of East Africa. In the east, the rainfall seasonality also differs from the west. There are two rainy seasons, one

in spring and the other in fall, rather than one in summer. Finally, the interannual variability is much higher in East Africa than in West Africa.

The rainfall regime is obviously important to crop production, but it produces another important gradient that is important to pastoralists, gradients of diseases. The wetter zones have many more diseases of both humans and livestock than the drier ones. (On human diseases see Chapter 21.) The sheep, goats, cattle, horses, camels and donkeys herded in Africa are all introductions from Western Asia, and have reached the tropical zones relatively recently, about 4,000 years ago. Hence, for the most part, they are ill adapted to the diseases of the wet tropical zone.

The best known diseases affecting domestic livestock and humans are trypanosome (a group of protozoan parasites) transmitted by a group of biting flies, the infamous tsetse. Ford's (1971) account of the relationship between flies, trypanosomes, people, and their livestock is a human ecological classic. In humans, trypanosomes cause sleeping sickness, outbreaks of which sometimes depopulated whole districts. The effects of trypanosome diseases in livestock are similarly devastating. Trypanosomes have reservoirs in the wild animals of Africa, and these species are relatively resistant to their effects. Figures 5.3 a and b show the distribution of tsetse and cattle in relation to vegetation zone (reflective of rainfall patterns in Africa. Notice that there is considerable overlap of cattle and fly distributions, despite the susceptibility of cattle to fly-borne trypanosomes.

C. Technological Adaptations

In West Africa, the main adaptations of nomadic pastoralists involve a close articulation via trade with farming peoples, who sometimes also keep livestock (see Grayzel, 1990, for an example of a typical West African system). The relatively predictable rains and the simple nature of the gradients encourages pastoralists to move north into the Sahel and Desert during the rainy season. Pasture is available, and the herders can move out of the tsetse zone. As the rains diminish the pastoralists move south and pasture their cattle on crop residues in the Guinea zone after farmers there have harvested the fields. Tsetse require relatively cool, moist, and shady conditions to thrive, and their activity is restricted during the dry season. Farmers are willing to pasture the cattle of pastoralists because of the value of dung as fertilizer. Interactions between farmers, pastoralists, other specialists such as smiths and fishermen, and state elites is very well developed. During the dry season period of contact, trade of animal products and caravan goods for grain foods and articles produced by local and even quite distant craft industries is lively. There is considerable economic symbiosis between pastoralists and the wider complex agrarian community. According to Ellis and Galvin, the size of the pastoral sector fluctuates with the comings and

goings of long term droughts, which can last for decades, as the most recent one has. If the brief rains typical of the Sahelian and Desert zones are seriously short great losses of live-stock can occur over large areas.s.

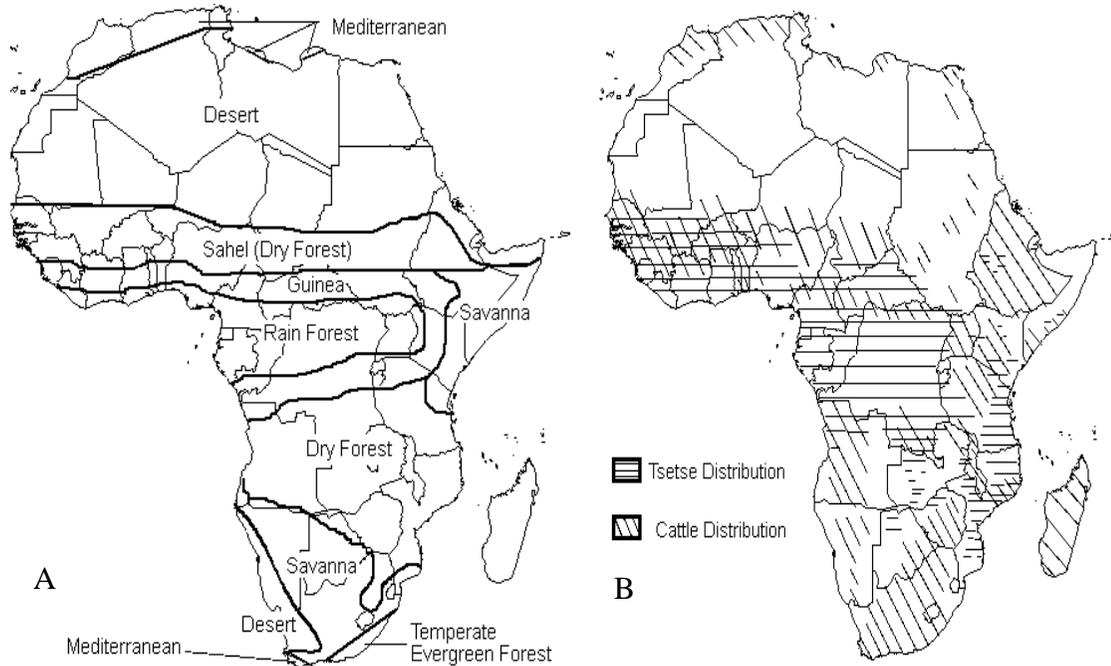


Figure 5.3a. The main ecological zones of Africa.

Figure 5.3b. Cattle and Tsetse distribution in Africa. Note the complex geography of cattle and flies in East Africa.

The East African system is quite different. Galaty (1991) discusses the Maasi in some detail. According to Ellis and Galvin, the crucial role is played by the two-peaked, unreliable rainy seasons. Because of the division of the rainy season, crop production is only possible at considerably higher mean rainfall compared to West Africa. Furthermore, the two-peaked rainy season, by spreading out the rains and favoring perennial rather than annual grasses, actually favors pastoralism relative to farming. The high interannual variability means that pasture and crop failure is common, but so are years of great abundance. Environmental variability forces the farming and herding sectors of East Africa to operate far from equilibrium in a chaotic succession of booms and busts for each. Both sectors will expand and contract drastically in response to climate and climate-induced changes of disease vectors. The East African pastoralists are thus less able to develop large-scale, routine trade relationships with settled farmers and are economically more self-sufficient.

In addition, Ford argued that farming occupation, by clearing brush that shelters tsetse on hot dry days and reducing trypanosome-carrying wild game, creates its own favorable

disease climate for humans and cattle. On the other hand, human depopulation leads to brush encroachment, favor tsetse, requiring a long period of pioneering for recovery. Pastoralists can move away from tsetse, but often at the risk of conflict with other pastoral groups, or farmers. Farmers were less able to move, and depopulation due to disease, warfare or other causes would favor the invasion of tsetse, and keep both farmers and herders out of the area for substantial periods. Substantial portions of East Africa thus remained wilderness, guarded by tsetse, and later by European colonists, who created protected game parks where wildlife was abundant. Contrariwise, a continent wide epidemic of rinderpest in the 1890s, a disastrously virulent epidemic of cattle and the wild game fed upon by tsetse, tipped the balance in favor of horticultural expansion because the flies declined with their game and cattle victims. Former pastoralists took up horticulture during the rinderpest disaster, and had difficulty expanding cattle herds in the aftermath, as game parks were created in some of the most favorable cattle country.

The presence of a complex environmental mosaic with tsetse makes it impossible to maintain riding animals, especially horses and camels in East Africa, except in the Ethiopian highlands and the deserts of Northern Kenya. These animals are more susceptible to trypanosomes, and perhaps other diseases than cattle and goats. Thus the trading specialization common among herders is not well developed in East Africa. The movement of goods out of the interior toward the Arab port towns on the East Coast was much less well developed than the caravan trade across the Sahara, despite the great distances and extreme environment of the latter. Likewise the lack of mounted mobility and suitably wealthy agrarian neighbors limited the role of raiding and conquest.

The pastoralists who reached Southern Africa after traversing the East African fly belt came without horses and camels, so that mounted pastoralism never developed in the otherwise favorable southern sector. European colonists who possessed the advantages of mounts were able to colonize the region up to the tsetse limit where the Dutch Boers were stopped by the death of their draft oxen on the Limpopo, the southern border of present-day Zimbabwe, though Cecil Rhodes was later able to establish a British colony centered on the fly-free highland north of the Limpopo (Southern Rhodesia).

D. Socio-political and Ideological Responses

West Africa exhibits the sociopolitical outcomes of pastoralism that were common in Eurasia in historical times. Pastoral societies of the Western Sahel had a close economic symbiosis with state level polities. Pastoralists were politically important, and often made themselves the elites of such states by right of conquest. The caravan trade across the Sahara was for a long while Western Eurasia's most important source of gold, while salt,

dates, and manufactures came south. Trade became an avenue for ideas, and Islam spread to the West African states. The required pilgrimage expected of pious Muslims could take place by travel along caravan routes to Mecca.

East Africa, by contrast, was largely a complex of tribal societies. Advanced chiefdoms, simple states (Buganda) and even pastoral conquest states (Rwanda, Burundi) did occur in the Lakes Region, but these systems never reached the complexity of the states of West Africa. Trade with the coast was never on a large enough scale or over long enough distances to effectively connect these societies to global currents of thought, such as Islam, despite relatively close proximity to the Arab trade ports on the Indian Ocean coast.

VII. Conclusion

The development of pastoral societies illustrates well the role of environment, even after the advent of "civilization." Climate and tsetse combined to give pedestrian pastoralists of East Africa a distinctively different character from the mounted pastoralists of West Africa. It also illustrates the possibility of "regressive" evolution when the rise of pastoralists in classical times often pushed back the frontiers of agrarian "civilization." This trend lends support to the view that evolution is not fundamentally an onward and upward process. Paradoxically, it also seems that these relatively simple societies can play an important role in long-run technical advance by their stimulus to and competition with the conservative agrarian states. They also illustrate in dramatic form how the prevailing scale of social organization is a complex balance of centrifugal and centripetal forces. Nomad empires arose out of nowhere with the speed and force of the wrath of God Himself (an analogy not lost on the victims) and then almost as swiftly collapsed back to a collection of feuding tribal sections.

"Advanced" maritime societies seldom competed unsuccessfully with agrarian states and empires. Maritime societies are those that specialize in fishing and trade using watercraft. Some such societies become sufficiently specialized variants on the agrarian theme to count as a separate type in some taxonomies, such as that of Lenski and Lenski. Maritime societies have a certain parallel to pastoral societies but tend to be a counterpoint on the issue of the inevitability of progress. Like pastoral societies they are dependent on adapting specialized technology derived from the general agrarian toolkit to a specialized environment, the sea. Like pastoralists the mobility derived from having efficient watercraft is easily turned from subsistence pursuits like fishing to trading and raiding.

It is historian William McNeill's hypothesis that trade and war are most powerful stimuli of evolutionary change (both "progressive" and "regressive" developments) basi-

cally because they are intrinsically competitive, favoring ever more efficient innovations, and ruthlessly weeding out those who fail to adopt the best techniques. Pastoral warriors played an important role in destroying Rome, and Viking pirates limited N. European progress for several centuries. Then, a millennium after the fall of Rome, pastoral traders and Indian Ocean seamen transported crucial Chinese innovations back to Europe that set off the “rise” of the Western peoples (a five-hundred-year-long binge of piracy, conquest, and exploitative commercial activity on the one hand; the most dramatic, sustained, episode of technical advance in the history of the species on the other).

Confounding progressivism again, some maritime societies like the Greeks, were very “advanced” judged by modern standards yet had little staying power against the more “primitive” typical agrarian states. Agrarian states were typically very conservative compared to maritime states on the Greek model, but the maritime state was inevitably very small in an era when both agriculture and maritime transportation were relatively inefficient. In only a few favored circumstances and in small numbers could societies exist in which the mass of citizens escape being peasant producers. As a consequence of small size, the political independence of maritime societies from agrarian ones was tenuous and short-lived. The relative conservatism of the agrarian state was thus punctuated only by brief bursts of creativity by the Phonicians, Greeks, etc. In Chapter 24 we will return to the general question of what regulates the rate of innovation in societies. If the maritime Mediterranean societies had not been overwhelmed by the continental agrarian states and the agrarian states in turn frequently set back by nomad conquests, perhaps the rate of technical advance of the Classical Greek period would have started earlier and been sustained without interruption, and the Industrial Revolution might have occurred 2,000 years ago.

VII. Bibliographic Notes

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