"Pastoralists, Ranchers and the State in Nigeria and North America: A Comparative Analysis"

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A Comparative Analysis

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Introduction

A great deal of attention has been given to the culture and societies of pastoralists the world over, with pastoral groups in less developed areas constituting the bulk of the focus of attention. Of all pastoral studies, the group that has probably attracted the most comment and varied concern is the migratory pastoralist. This may be a result of the different concerns expressed by both antagonists and protagonists of the migratory form of livestock production. The debate has often been between those who appreciate the nomadic adaptation and those who view it as primitive and inefficient. The fundamental premise of positions taken either in support or against the migratory system of livestock production, especially in arid and semi-arid zones, hinges on the controversial issue of natural resource management and control. Another consideration has been the debate as to whether livestock quantity or quality should be the driving force in livestock production thrust in pastoral communities. These two considerations are as relevant and central to African pastoral milieu as they are to many pastoral societies in countries of the West. The bottom line is the regulation by the state of the activities of pastoral producers wherever they exist - be it in primary producing societies of Africa and Asia, or in advanced capitalist societies of the West. Such state regulations have produced both good and bad effects with the result that land tenure and specific production strategies have been forced upon a minority by the society-at-large (Hjort, 1990).

Many of the attributes commonly assigned to migratory pastoralists, such as their contempt for non-pastoral pursuits or their resistance to government promoted innovations, are seen as a result of their migratory habits. The "friends" of nomads demand understanding. They argue that migration is well-suited to local environments and insist on the unique and special roles that animals play in pastoral groups. The "enemies" of nomadism consider nomadic pastoral societies and cultures as being the primary obstacle to progress and resource conservation. Both groups have failed to view the migratory pastoralist in a larger perspective. Many of the characteristics that are traditionally viewed as being part of the nomad culture are actually not related to nomadism at all. Instead, nomads share many characteristics with other extensive pastoralists, many of whom are sedentary and live in advanced capitalist societies.

Many of the "problems" of migratory pastoralists today are unrelated to notions of traditionalism or modernity but are a natural result of the process of pastoral production under extensive range conditions. To explicate our position, we shall first give an overview of some of the expressed concerns about the culture and social organization of transhumant pastoralists and discuss the present pastoral development crisis within that formulation. After giving an overview, we will examine pastoralism in advanced industrial societies, giving particular emphasis to ranching in North America as well as drawing parallels to the Nigerian scenario. We do this because ranching seems to serve as an ideal model for livestock development specialists working

in Africa and Asia. We shall see, however, there is a huge gap between the vision of modern ranching held by international livestock specialists and the way many or most ranchers have conducted their business.[1]

Our main focus will be an overview of important sociocultural aspects of pastoralism that would facilitate our understanding of the changing nature of this form of livestock production.

Pastoralism

More often than not, discussions about the social organization of pastoralism are confined to people belonging to societies which are based upon subsistence herding. While this approach is sanctioned by anthropological tradition and is relevant to the development of African and Asian countries, it provides limited understanding of livestock producers.[2] There have, for instance, been few studies of traditional agro-pastoralists or of pastoral specialists in advanced capitalist societies (Vincze, 1980 and Bennett, 1969 are exceptions). If we do not understand these "other pastoralisms" it is unlikely that we will be able to fully understand and contextualize the changes that pastoral people face today. Happily, a presentation which draws parallels from pastoralism in Europe to those in Africa (see Hjort, 1990) could provide a basis for a critical re-examination of pastoral development options for countries of the Third World.

For our purposes, a pastoralist is any person whose livelihood comes from tending grazing animals. Here we are only interested in those pastoralists who extensively utilize natural-occuring resources. This definition would include pastoral people such as the Ful'be, Maasai and those groups with similar pastoral production organization as well as cattle producers in North America and Australia and the reindeer Saami (the only nomadic herding group in Europe). It, however, excludes intensive dairy farming. Pastoralism, today, is concentrated in areas where the environment is too harsh for the cultivation of crops.[3] Pastoralists and their herds have adjusted to these environments and have, in turn, been influenced by them.

Herding and Animal Husbandry Pastoralism

Today, extensive pastoralism is concentrated in areas which are either too dry or too cold to permit intensive farming operations.[3] Extensive pastoralism is most common in arid, semi-arid or mountainous regions of Africa, Asia and the Americas and Australia. Migratory pastoralism is most common, today, in Africa and Asia but occurs in Europe (Lappland) and the Americas as well.

Generally, pastoralists (and pastoral nomads in particular) depend directly on unimproved natural vegetation. The availability of good pasture and adequate water is a key to success in most pastoral production systems. Without them an extensive pastoralist cannot survive. In those areas where pastoralism is an important activity, these resources are not easily obtained. Drought and/or cold limits the productive capacity of the land so that it takes a large amount of pasture to support a single animal. In pastoral regions, animals cannot be confined to a small pasture and survive. These regions also have a marked seasonality and are often characterized by erratic or highly variable weather conditions. Climatic factors require movement of animals in order to utilize seasonal pastures and water sources. Pastoralists, therefore, have always responded to seasonal as well as periodic changes in the climate. Within the technology available to pastoralists, governments deploy various policy measures and techniques either to solve the problems emanating from seasonality, or to tap the livestock sector for national economic goals (Mohamed Salih, 1989; 1990). Movements may also occur to avoid disease, exploitation or to facilitate trade. Migratory pastoralism occurs when movements are quite large. "Pastoralists adapt nomadically to their environment when their adaptation requires movement beyond their home base or when alternatively there is a greater balance of advantage in maximizing mobility" (Spooner, 1973: 21). Exact patterns of migration are also influenced by seasonal availability of forage, herd size and composition (Swift, 1977; Dyson-Hudson and Dyson-Hudson, 1980; Bonte, 1981).

Extensive pastoral repoduction requires the movement of animals. There is considerable evidence to show that even when movements are very large herds which migrate fare much better than sedentary herds (Gilles and Jamtgaard, 1980; Sall, 1978; Gallais, 1977). Traditional pastoralists understand this fact and use mobility and herd movement as their primary management tool. Decisions about herd movements may be quite complex, but they are usually based on good understanding of ecology and animal behaviour. (See, for example, Spooner, 1973 and Western and Dunne, 1979 for two descriptions of decision-making among herders). Animal movement is an element of extensive pastoralism everywhere. The distance travelled by animals during a given year may vary from 5 to 1000 kilometers depending on ecology, social and technical conditions. Pastoralists have organized themselves, and must continue to do so, in order to facilitate this movement.

Herding, itself, poses organizational problems for extensive pastoralists. There is a limit to the number of animals that can be cared for by one family or assembled in one spot. Large herds are an inefficient means of exploiting rangeland vegetation. Large concentrations of animals may destroy vegetation and inefficiently utilize pastures. Cunnison (1966: 68) notes that:

> *a very large one (herd) becomes unwieldly: the tail end straggles out of sight through the trees; towards the end of the dry season when grazing may be scarce, a large grazing herd is bad because the fast cattle trample over the small patches of good grazing before the slower cattle arrive.*

Optimum herd size for a pastoral family depends on the species herded and local management problems. In parts of Nigeria, for example, 300 cattle may be an optimum size for a Bokoloji transhumant pastoral Ful'be while sheep and goat herds of 350-400 may be optimum for other pastoral groups such as the Udawa of Nigeria. In other parts of Sub-Saharan Africa 200 sheep may be optimum. Among Moroccan Berbers and Navajo pastoralists the optimum sheep herd is around 300 while sheep of over 1000 are common in the western United States. By and large, optimum size for cattle, goat and camel herds are a function of the labour requirements of a management system (Asad, 1964; Horowitz 1979; 1981; Artz, 1983).

Among most pastoralists, the maximum herd that a family can manage greatly exceeds the minimum herd required for subsistence. The result is that pastoralism provides an opportunity under pre-industrial conditions to acquire more wealth and to use labour more productively than in pre-industrial farming systems. On the other hand, pastoral activities do not absorb labour as readily as do agricultural ones. Additional labour in agriculture can usually be transformed into additional food or income, but the productivity of a cattle herd that is below optimum size is not appreciably increased unless herd size is increased substantially. This is not easy to accomplish in the short run. Under extensive conditions it may take eight years to double one's herd of cattle and considerably longer to double the number of one's camel herd (Dahl and Hjort, 1976). Once the maximum herd is reached, it is necessary to divide family herds into autonomous herding units and establish separate households during part of the year. Unless there are cooperative ways of dispersing one's herds by combining them with animals belonging to others, optimum herd size does place limits on the amount of animals one person can own - in the absence of salaried herders.

The extensive pastoralist depends directly on a highly variable natural environment. The productivity of one's herd depends in large part on the availability of forage which in turn depends on weather. Rainfall patterns vary considerably in the semi-arid and arid areas. Not only does rainfall vary considerably from year to year, but within any given year rain is unevenly distributed. Severe periods of drought and especially humid periods of several years in length are not uncommon. With flunctuations in weather come flunctuations in the carrying capacity of rangelands. Since little forage can be stored in extensive pastoral production systems, herds expand in good years and decline in poor ones. In addition to the potential losses due to drought, pastoral herds are threatened by diseases, pre-

dators and theft. Where the first two problems are kept under reasonable control through different programmes of animal health intervention, the problem of theft continues to assume serious dimensions. Pastoralists interviewed in Borno State, Nigeria frequently mentioned theft as the number one problem they have faced for many years (Gefu, 1987). Since animals function as a source of subsistence, a minimum number of breeding animals must be preserved if a pastoralist is to survive. Because it is difficult to predict losses, it is advantageous for pastoralists to accumulate as many animals as possible. Animal reproduction cycles do not permit a rapid rebuilding of herds after disasters. Breeding animals are difficult if not impossible to acquire after a catastrophe, so animal accumulation beyond susbsistence needs is a natural response to risks of a variable environment.

Herding and Social Organization

There have been many attempts to link the technical requirements of extensive herding, the need for mobility, the labour requirements of herding and the risks of a hostile environment to the culture and social organization of pastoral peoples. These "attempts... to characterize nomadic pastoralism in a general way have met with little success" (Dyson-Hudson and Dyson-Hudson, 1980). The inability to make ecologically based generalizations about pastoral societies is the result of the large influence of social and historical factors.

The requirements of animal management under extensive conditions still, however, influence the nature of pastoral societies. Although there are exceptions to any generalization, most pastoralists share a number of traits. For example, herds tend to be "owned" or controlled by individuals. Animals are usually "privately and individually owned... and the acquisition and husbanding of livestock is a measure of the individual's economic and social competence" (Goldschmidt, 1981:103). There are a number of factors which may contribute to this pattern. First, individuals can care for large numbers of animals, more than are usually required to meet basic subsistence needs. More importantly, there is also an important advantage in dispersing animals. Not only do animals graze more efficiently in this manner but it is likely that incidence of disease and parasitism is reduced. Pastoral production is thus normally an individualistic activity.[5]

Counter-balancing individual interests is the collective control of pastoral resources. Pastures used by pastoralists are normally collectively owned or controlled. Collective control of pasture resources is an excellent way of assuring herd mobility. The importance of collective ownership and management has been discussed in great length by Gilles and Jamtgaard (1981; 1988). In environments where the productivity of pastures is highly variable, a herder must have access to a very large territory to reduce the risks of drought and inclement weather. For example, even though in any one year a herd may only utilize the forage produced on a few hundred hectares, to insure the survival of livestock over time requires access to much larger territory. In some parts of the semi-arid and arid zones where there is extreme variance in rainfall, a herder may need to have access to 100,000-300,000 hectares to be assured survival. Maintaining mobility is so important that notions of territory are often very fluid. Even where wells or certain pastures clearly "belong" to an individual or a group, use of them is not likely to be refused to others as long as there is sufficient water or grass for all (Swift, 1977).

The optimum territory to be controlled by a group is a function of the quality of pastures, the variability of environment, the species herded and the technologies used. Private or individual ownership is possible, but tends to encourage overgrazing and the inefficient use of pasture resources by unduly restricting the movement of animals. Collective management of pasture resources is the norm in the traditional pastoral areas of Africa, Asia and the Americas. Collective control of pastures is rarer in North America, Europe, Australia and New Zealand because of the strong commitment of these societies to private property, but is common in regions where pastures have low and highly variable levels of productivity.

There is a contradiction between the individual pastoralist who is interested in expanding and protecting family herds and the collective interests of the group, lineage or community. The fact that expansion of herds leads to unequal accumulation within pastoral communities, threatens group unity and can threaten pastures. The individual, however, does need access to communal grazing lands and does need the aid of fellow pastoralists to help protect himself from outsiders. In addition, there are some herding activities that require more labour than a single family can provide, so groups of herds may associate with one another to maintain resources such as water wells, to water animals, or to preserve forage. Such groups tend to be smaller than the groups that normally control access to pasture.

There are a number of mechanisms among traditional pastoralists which help manage the conflict between individual herds and the collective. The needs of the community are reinforced by a system of ideology, "livestock fetishism" (Bonte, 1981: 43). As a result, there are a variety of institutions and beliefs that reduce inequality and promote group unity. Sacrifices, the giving of bridewealth, hospitality rules and the lending of animals are often sanctified by these beliefs. These traditions not only reduce inequality, but also they reduce risk by permitting a wider dispersal of animals and by resolving labour bottlenecks.

The discussion thus far does not exhaust those generalizations that writers have made about pastoral nomadism. Hospitality is often mentioned as an important aspect of pastoral life because it, too, facilitates mobility and helps isolated herds gather needed information. Because production often cannot be rapidly increased with the addition of labour, some, like Stiles, 1983, argue that population growth is slower among pastoralists than among farmers. There is also the popular stereotype of the highly independent pastoralist as a proud, self-sufficient individual convinced of the superiority of his way of life (Dyson-Hudson and Dyson-Hudson, 1980: 15-61). Segementary lineages and similar forms of social organization also are well adapted to the needs of nomadic pastoralists (Salzman, 1978).

Ecological explanations of pastoral social organization have often been criticized as being functionalist or as ignoring the other factors which influence the organization of pastoral societies. The Dyson-Hudsons' (1980) review of the anthropology of pastoral nomadism summarizes these critiques by saying that:

> *The assumption that specific qualities of pastoral people inevitably derived from the nature of pastoral existence tended to obscure the complexities of many anthropologists and contributed to the failure of many anthropologists to study variations in both these parameters within and among groups... and that "attempts" during the 1970s to characterize pastoral nomadism in a particular way have met with little success.*

This is particularly true when aspects of pastoral societies not directly tied to animal production are treated. The issues we have raised represent constraints that exist for all extensive livestock producers regardless of their culture. There are a variety of ways to resolve these problems, but the number of possible solutions is limited. In addition, it is likely that the expansion of market relationships has reduced the differences between the social environments faced by pastoral specialists and has, thus, increased the significance of ecological variables. Lastly, it is the potential economic value of livestock production which has encouraged (or at least justified) state intervention in the traditional pastoral sector. Since these factors are common to many pastoral societies, and since they are the focus of present attempts to change pastoral societies, we feel that their examination is most critical and in that respect this workshop is most timely.

Pastoral Crisis and Management

The severe droughts that hit the Sahel and East Africa in the late 1960s and those that ravaged many arid and semi arid lands of Africa in the early 1980s coincided with increased worldwide interest in environmental preservation. The spectre of dead cattle,

malnutrition, dying children and advancing deserts encouraged large investments in pastoral development projects and in related research. These investments were the result of humanitarian concerns about the welfare of pastoralists, concerns about the environment and the desires of governments to increase commercial meat production to meet rising urban demands.

Pastoral development schemes usually included the introduction of improved veterinary and range techniques. The acceptance of the latter was crucial for the success of the projects, and pastoralists were organized into associations, ranches and cooperatives in order to better control stocking rates. Attempts to control stocking rates and to organize pastoralists into cooperatives or ranches have been largely unsuccessful. The difficulties encountered by technical pastoral development programmes have encouraged further socio-economic research on the logic of subsistence pastoralism. As a result of this research we have a much better idea of the present pastoral crisis and the reasons behind declines in animal productivity in Africa and the Near East.

One of the most important factors has been a radical change in the mobility of nomads. Except in those areas where increased oil wealth has given nomads trucks to increase the mobility of animals, there has been a general restriction of nomadic movements. The establishment and legitimation of present national boundaries frequently split the grazing areas of pastoral groups between two or more nations. In many parts of the world there has been a steady shrinking of the land area available to pastoralists. In Africa and Asia pastoral territories have been reduced by the expansion of cultivation and urbanization/industrilization. This expansion is often the result of population pressures that force sedentary people into extremely marginal areas in order to survive, and force poor pastoralists to supplement livestock production with cereal production. The increased pressure put on the land has gradually resulted in the pastoral land squeeze in Nigeria (Table 1). With a consistent increase in the area of new land that is brought under farm and tree crops cultivation as well as the the use of land for other non-agricultural purposes, the land available for pastoral activities has rapidly declined in the last ten decades. As a contrast to about 67% of Nigeria's land being available for grazing livestock extensively in 1951, only about 39% was available to sustain a greater number of livestock in 1986. The situation is getting worse despite attempts to introduce land reforms and the establishment of grazing reserves in certain parts of the country.

Lands suited for crop production are often among the best pastures available to pastoralists and provide critical forage resources during the dry season, or in winter, as the case may be. Occupation of land by farmers not only forces pastoralists to remain in fragile ecological zones longer than previously, but also increases conflicts between farmers and graziers.[6] Conflict between pastoral groups and farming populations are a frequent phenomenon, especially around grazing reserves in Northern Nigeria. In some instances, conflicts are prompted or compounded by a lack of complete understanding of the tenets of government action on the part of farming and/or pastoral communities. A variant of pastoralist/farmer conflict was observed recently on the Kachia grazing reserve, Nigeria (Gefu, 1987). Discussions held with the farming population (who were the agitated group) revealed that a major riot was in the offing if concrete and immediate steps were not taken by the authorities concerned. The almost 31,000 hectares grazing reserve was acquired (never gazetted) some thirteen years ago. At that time, no formal or official documentation and agreement seemed to have been made with the local inhabitants, whose land fell within the earmarked grazing reserve. The acquisition of the reserve seemed to have been (mis)construed by the local inhabitants as an act by government which would attract adequate compemsation to be paid the community. However, years went by without gazetting or/and the payment of any form of compensation which the local inhabitants had anticipated. Central to the demand for or expectation of compensation was the thinking among the farming population that the establishment of the grazing reserve was not meant to serve their needs rather those of other

Table 1. *Proportion of land put into various uses in Nigeria between 1951 and 1986 (%)**

Land use category TLU+	1951 (12 m)	1976 (14.6 m)	1986 (21.2 m)
A. Uncultivated bush (rangeland) primarily used for livestock grazing	67.0	50.0	39.0
B. Fallow farmland, 40% of which is usable for grazing livestock	13.8	17.0	20.0
C. Non-agricultural land, including towns, roads and airports, etc.	1.0	5.0	7.0
D.Land under farm crops	9.4	15.0	20.0
E.Land under tres crops	1.2	3.0	4.0
F. Land under forest reserve 33% of which is usable for grazing animals mainly in the Northern States	7.6	10.0	10.0
Total	**100**	**100**	**100**

*Adapted from the 11th Meeting of National Council of Agriculture (NCA), February 1980, pp.5-7; Memo number (NCA 11)9.
+Estimated livestock population in million Tropical Livestock Unit (TLU) for cattle, sheep and goats (1 cattle = 1 TLU; 5 sheep

groups (pastoralists). This widely conceived notion of a development project aimed to promote the welfare of an outside group at their expense was publicly rejected and demand for compensation or the baring of pastoralists from utilizing the grazing reserve rented the air everywhere. Furthermore, the aquisition of patches of land in an adjoining area to the grazing reserve for government development purposes with compensations fully paid the inhabitants fueled the agitation of the inhabitants of the grazing reserve. In their words, they saw no reason why they should not be paid adequate compensation just as their neighbours for aquiring their land for similar government "project". But for the timely intervention of grazing reserve authorities the situation would have resulted in serious civil disorder.

Government programmes have also reduced pastoral mobility. Sedentarization of nomads has been a top priority of many governments in Africa and Asia (Salzman, 1980). The reasons for settling them are mixed. They come both from a desire to bring prosperity, education and health care to pastoralists and from a desire to exert more political control over nomads and to assimilate them. Many believe that migratory pastoralism is no longer viable today because population pressures limit their mobility and because the pressing shortages of animal proteins require a more productive livestock sector. They feel that only sedentary ranches of some sort can efficiently produce meat, fiber and wool while protecting the environment. Such policies persist even though there is little evidence to show that sedentarization does enhance livestock production or the commercialization of animal products (Haaland, 1977; Sall, 1978).

The trends have put considerable stress on pastoral production systems and have greatly increased the likelihood of overstocking and pasture destruction. Increased grazing pressure is, however, only one part of the danger that traditional pastoralists face today. There has been an equally

important decline in the ability of pastoral groups to manage their own resources under conditions that have been forced on them by the operators of the state apparatus. The equilibrium between the collective survival and the individual drive for wealth has often been an unstable one, but the preservation of pastoral resources has depended on collective management. Unfortunately over the past five decades, the individual pastoralist's drive toward accumulation has been significantly strengthened at the expense of the collective.

The decline in collective power has occured in a number of ways. In some cases the state deliberately undermined the control of pastoral groups over their pastures. Among the Berbers of Morocco, for example, the position of "Chief of the Grass" was abolished by colonial admistrators in direct contrast to their stated respect for "droit coutumier" because those who were in charge of pastures were also chiefs. In Saudi Arabia, ethnic control over pastures was restricted by government policies intended to reduce pastoral conflicts and to expand the power of the state (Cole, 1981). In West Africa, governments have tended to assert state ownership of all land and have failed to recognize claims that pastoral groups have to territory. The Land Use Act of 1978 in Nigeria which vested ownership of all land in the country in the state is a concrete instance of muscle flexing by the state. By this new land regulation, land for any purpose can only be acquired after meeting a host of requirements some of which involve a detailed project feasibility report and the acquisition of a certificate of occupancy. These proceedures can certainly not be undertaken by the numerous, non-literate pastoralists who need the land more than the land speculators who have the political clout and economic resources to acquire large patches of land for speculative purposes.

Other government policies and projects have affected pastoralists in varying ways. Government financed water point development in most African pastoral communities often discouraged the territories of pastoral peoples. This effectively created common pastures in areas previously under the control of on ethnic group or lineage. Throughout the Sahel such investments have aided pastoral Ful'be expansion into areas previously used exclusively by other pastoralists and have permitted increased investment in livestock by non-pastoralists. The continued government support of the sedentary claims on land used by migratory herders is further evidence of the declining power of pastoral groups.[7] Support of non-pastoral land claims has also destabilized pastoral production systems and put more pressure on pasture and water resorces.

Direct government attempts to weaken the collective life of pastoralists have complemented changes in the social and political environment in which pastoralists live. Government pacification programmes and the overwhelming military superiority of national governments has reduced the military importance of the ethnic group or lineage. The rich no longer need the arms of their fellow tribesmen to protect their herds. Cole (1981) argues that today in Saudi Arabia the tribe itself ceases to have much importance. What is important is whether or not one is a pastoralist. Similarly in places like Nigeria, Morocco or Kenya, tribal and lineage sub-units appear to be the center of pastoral life. These smaller units still are involved in labour changes and in other reciprocal relationships and remain viable social units. The declining strength of pastoral collectivities makes the self-management of pastoral resources increasingly difficult.

The inclusion of pastoralists in national economies also weakens the power of the group over the individual. Even though most pastoral societies have always maintainted exchange relationships with agricultural groups, the expansion of livestock markets has profoundly changed the nature of livestock production. Livestock ownership is no longer limited to pastoralists. Large numbers of non-pastoral people have invested in animals and have entrusted them to pastoralists. In addition, pastoral people who have sought urban employment continue to invest in livestock. Outside capital and cash available from animal sales permit some to reduce their dependence on the natural environment and upon their fellow pastoralists. The rich can use water tankers and feed concentrates to reduce the risks that usually accompany

periods of severe natural disasters such as droughts. They can also hire herders instead of relying on traditional animal sharing arrangements. This undermines redistributive mechanisms and leads to increased economic differentiation. The rich can use their cash (economic) resources as well as political clout to acquire and expand their herds far beyond the size that they could have maintained in traditional pastoral societies.

The poor, on the other hand, can increase their herds without entering into reciprocal relationships with their fellow pastoralists. They can seek urban employment and invest in cattle and small ruminants until they have built up a viable herd. They can also enter into partnership with a non-pastoralist employed in the formal sector. In these cases, the importance of livestock as a capital reserve dominates, so that the productivity of the ranges and the protection of collective resources may be of secondary importance to the herd owner. Commercialization, market penetration, differentiation and the decline of pastoral group autonomy all reduce the role that the collective plays in the survival and reproduction of pastoral enterprises. This reduces the ability of the group (lineage or community) to curb individual goals in the interest of preserving the collectivity and its resources. The conflict between individual and community has tilted strongly in favour of the the individual.

As a result of all these changes, the ecological viability of traditional pastoralism has been threatened. Governments have, of course, attempted to increase the number of animals marketed by pastoralists while safeguarding the environment. Programmes have been designed to improve the viability of the pastoral economy by introducing range management techniques, improved animal health facilities where possible and by encouraging the sale of animals. Pastoralists in Africa and Asia have selectively adopted certain modern animal husbandry practices where such practices are compatible with pastoral value systems, readily available and affordable. Some veterinary practices such as vaccinations against infectious diseases have been widely adopted. In this regard, riderpest campaigns have recorded great measures of achievement in many pastoral societies. Few pastoralists have shown interest in regulating stocking rates and season of use. Their resistance to range management innovations have generally sabotaged all attempts to improve or to protect pastoral production systems in Africa and the Near East. Without better range management it is difficult, if not impossible, to improve animal productivity.

What then are the reasons for this failure? Generally, two explanations are put forward. A technical one and a cultural one. In the first instance, it is clear that development planners have underestimated the importance of mobility for extensive livestock production. The initial group ranches in Kenya, for example, were much too small to permit viable livestock operations, so pastoralists wisely ignored their boundaries (Galaty, 1980; Haldeman, 1972). A situation similar to the Kenyan experience can be cited in the current grazing reserve programmes being executed in Nigeria. Under the settlement and re-settlement programme with grazing reserve enclaves, pastoral families are allocated patches of land on an individual basis. The patches of land allocated are frequently inadequate to support the present stock owned by these sedentarized pastoralists. Yet these pastoralists are often very reluctant to destock. At best, they would split their herd during the dry season when fodder shortage becomes acute on and around the grazing reserve. There is a limited number of pastoral households that can be accommodated legally on the present reserves. This excludes the transhumant pastoralists that periodically utilize the reserves. This group would put more pressure on the resources available for sedentarized pastoral herds on the reserves. The end result is either severe overgrazing or forced outmigration from grazing reserve enclaves or both. Whichever way, the effects are clear. The purposes and aims of projects and programmes such as the grazing reserve are not being met, plus they are producing adverse, unintended consequences detrimental to environmental conservation. Serious cases of range degradation are common on most of the existing grazing reserves in Nigeria. The technical explanation suggests that pastoralists resist range management innova-

tions because they reduce the efficiency of pastoral production. The technical reasoning does not explain why pastoralists have resisted range management efforts that would help them re-establish a viable production system on the ranges that they still utilize. As a result, discussions of the failure of range management schemes quickly turn "social" questions. The range managers and their kin in the various livestock development agencies, are frustrated over the refusal of pastoralists to sell their animals and to control livestock numbers and movements. Anthropologists and their brethren endeavour to explain why animals are so important to pastoralists that they will not sell them under normal circumstances and will continue to expand herds in the face of disaster. These explanations may hinge around the social and sacred significance of animals, the importance of risk reduction and the role of animals as a store of value.

The "defense" of traditional pastoralists by social scientists is becoming more complete and sophisticated with each passing month. Interestingly enough, it has not, however, changed the thrust of most livestock and pastoral development programmes. At best, anthropological research seems to play a damage control role function. It is used to minimize the negative impact of development schemes on livestock production and to avoid policies that would mobilize widespread pastoralist opposition to development objectives. At worst, social science research has taught planners that the logic of traditional pastoralism is so strong that it is extremely difficult, if not impossible, to modernize them. Thus, in spite of our better understanding of pastoral production, most governments and a large number of researchers feel that traditional pastoralism is no longer suited to present environmental and social conditions. These people argue that there are other systems of extensive animal production that present less of a threat to the environment and provide more animal products for urban consumers. These are the "ranching" systems of the Americas and Australia or the herding collectives of Mongolia, China and the USSR. These systems, or rather culturally and ecologically appropriate versions of them, remain the future of pastoralism.

A better understanding of pastoralism does not necessarily alter the objectives of livestock and/or pastoral development programmes. Understanding the reasons for opposition to livestock development schemes may reaffirm the notion that economic progress requires the elimination of traditional pastoral societies. Regardless of our new understanding of pastoral societies, it is still easy to view the pastoralist and his culture as the principal obstacle to rangeland improvement. It is the "culture" of the pastoral producer or subsistence herder that makes it difficult for them to change. Or does it? Is the major obstacle to acceptance of rangeland development programmes the values and beliefs of traditional pastoralists? Or is this resistance due to the ecology of livestock production itself? It is our belief that there is nothing particularly recalcitrant about a pastoral herder (even the nomadic one) and that the uniqueness of his culture has been overrated. To support this contention we shall look at specific and relevant instances of ranchers in North America and their relatives.

Ranching and Pastoral Development

The ranches of North America appear to represent an ideal type of livestock production for many livestock development personnel. These ranches are found in dry and cold regions similar to those in which traditional pastoral people live. They have much higher levels of productivity than do traditionally managed herds and use many of the husbandry practices advocated by experts. These ranches are sedentary operations which exist on legally defined pieces of land. Private ownership of leaseholds are the most common forms of land tenure, but grazing cooperatives also exist. Even in cooperatives, however, animals are usually individually, rather than collectively owned.[8]

Mobility of animals is just as crucial to successful livestock production for North American ranchers as it is for the pastoral Ful'be, the Maasai or the Bedouin. Animals continue to make seasonal migrations even though ranch families may not. At one extreme are sheep ranchers in Nevada as well

as the Udawa sheep and goat herding pastoralists of Nigeria whose flocks travel over 800 kilometers, at the other are small ranchers where animals travel only a few kilometers. Fencing, predator control and motorized transport reduce labour requirements for cattle producers so that they do not constantly need to be with their animals.[9] Hired herdsmen do accompany flocks of sheep and family members may occupy a camp in distant pastures to ensure the security of animals.

Private ownership of land is an important "right" in North America just as it is becoming in Nigeria and many other pastoral societies. The existence of highly productive livestock enterprises in capitalist societies would seem to refute our earlier argument that common ownership of grazing lands is extremely important for efficient livestock production. The settled ranches of industrialized countries suggest that pastoral nomadism is an over-rated adaptation. Closer examination of these ranches suggests otherwise. In North America and Australia, for example, a large proportion of the non-arable pastureland is still owned and managed by the state or local governments. The state then leases grazing rights to individuals, or in the case of the owners of small herds to groups of individuals in a grazing cooperative or district. Goverment management of pastureland is most common in areas only grazed for a short period because of its inherent low productivity, or because it is accessible to grazing animals for only a short period of time. The lands that are government-managed in capitalist countries are ecologically quite similar to much of the area where pastoral societies are often found.

Private ownership of rangeland is not the reason behind the high productivity of western ranches; it is indeed an obstacle to it. The degree to which private property interferes with livestock production depends on the ecology of the pastoral zone. The more variable a region's weather patterns and the less varied its ecology, the more territory is required to safely manage livestock. It has been observed that small ranches may be ecologically unviable and are characterized by overgrazing and high risks of bankruptcy. The definition of a "small" enterprise varies from place to place, but it is clear that in many cases private land ownership may be a threat to efficient animal production.

The solid ranch houses that one sees in the American West, for example, give the casual observer an illusion of a stable sedentary life that really does not exist. The lack of mobility of American herds does threaten the livestock industry itself, so a variety of mechanisms have been developed to compensate for this. In time of drought, government subsidies help ranchers to purchase feed for their animals so they will not have to destock. If a rancher can find pasture in a region untouched by drought, government subsidies may help him to ship animals to distant pastures--or a rancher may do so on his own initiative. For instance, during severe droughts in Texas, as many as 3.5 million animals are pastured temporarily in other states which are untouched by drought. Animal movement is clearly an important part of ranching systems. Private ownership of rangelands does not appear to be an asset to livestock production and may be a severe liability. To a large degree, government production, an inexpensive credit system and a well developed marketing and transportation system, compensate for the difficulties posed by private ownership of pastures.

Similarities between ranchers and the pastoralists of Nigeria as well as those of the Near East and other parts of Africa do not end with their relationship to land. The image of the cowboy in America as proud, independent and free is not very different from the popular stereotype of the pastoral Ful'be of Nigeria, for instance. So similar are the stereotypes, in fact, that one wonders whether Western anthropologists have merely projected their image of the rancher onto such pastoral groups as the Ful'be or Bedouin. The rancher, like many pastoralists, views his way of life as vastly superior to that of the farmer, or city dweller. His country is "God's country", while the zone occupied by the latter two groups is tainted, immoral and often hypocritical. According to research by Smith and Martin (1972), being a rancher leads to a high state of personal welfare than an alternative mode of making a living and a way of life could provide. The rancher avoids contact with his world to a degree.

The rancher does not seem to be motivated by economic concerns. Returns to ranching tend to be extremely low and investment cannot be justified as a profit making activity. Pastoralism is, in western North America as in Asia and Australia, both a high status occupation and a means of avoiding taxation, at least up to the point of marketing. Ranching can only be viewed as a way of life which provides non-economic compensation to make up for low returns. The level of productivity and technology are higher among ranchers than among African and Asian pastoralists, but this may be due to the historical circumstances experienced by each group than to the logic of their production systems. Jarvis (1979) points out that offtake rates of commercial ranches using unimproved technology in Uruguay and Argentina are quite similar to the offtake rates observed among many African pastoral groups. The data produced by Jarvis also suggests that however important the symbolic and social role of livestock may be in pastoral societies, pastoralists are not abnormally reluctant livestock marketers.

Ranchers in North America appear to be more like pastoralists of Africa than most expatriate experts and livestock specialists would like to admit. There is a tendency for planners of African and Asian livestock schemes to assume that ranchers in Western countries have gladly accepted the advice of range scientists and other technicians. In reality, the situation is very complex. Overgrazing is still extremely common in North America, just as it is in many of the recently established grazing reserves in Nigeria. In North America, for example, as much as 60% of the public rangelands and 40% of the private lands may be threatened by overgrazing.[10] After 40 years of scientific management of public lands it was still possible for some to conclude that

> *The nation's public rangelands have been deteriorating for years. These vast lands need to be protected through better management by the Bureau of Land Management. Deterioration can be largely attributed to poorly managed grazing by livestock... Livestock have been permitted to graze on public rangelands year after year without adequate regard to the detrimental effect on range vegetation... (USGAO, 1977, reported in Libcap, 1981: 70).*

Given such problems in the homeland of range management it is not surprising that range managers in Africa and the Near East are experiencing a variety of problems.

The history of range management in the U.S. has been fraught with conflict. Early range managers were not even interested in livestock producers. The U.S. Forest Service, the first U.S. agency to apply range science concepts, imposed its ideas of stocking rates and grazing permits with little or no care for the rancher. The goal of the Forest Service range management programme was to protect forest resources rather than to develop the livestock industry. It was not until World War II that livestock production became an important goal of range managers.[11] The success of the U.S. Forest Service programmes depended heavily on the heavy use of police power rather than upon extension.

An important step in the history of North American range management was the creation of a government grazing service in 1934 under the Taylor Grazing Act. Government technicians were to apply principles of range science to the management of public lands. Grazing permits were issued to ranchers, and through the permit system both stocking rates and season of use were to be regulated. A sizable proportion of ranchers supported the Taylor Act, but it was a qualified support. Like many of the Maasai herders who joined group ranches in the 1960s, American ranchers wished to protect their pastures from encroachment by dryland farmers and new competition. They also wanted government assistance in developing water and building fences. These interests coincided with an interest on the part of the government in resource conservation and protection. The establishment of the Grazing Service was not a peaceful one, however (Foss, 1961a; 1961b). Even though local ranchers rather than government technicians played an important role in establishing rights, there was a considerable conflict. In some areas livestock producers lost grazing rights or were forced to reduce herd sizes. Those who

owned little or no land and depended solely upon grazing on public lands lost most (Foss, 1960; Voeght, 1976).

Ranchers resistance to the Taylor Act was not great because they were in most cases more powerful than the range management technicians. The Grazing Service was politically weak and was forced to seek the political support of ranchers. Local advisory boards made up of ranchers were given considerable powers.

> *Local advisory boards importantly determined the assignment of the initial grazing permits. They documented the informal claims of farmers for federal lands, verified base property requirements, set individual stocking levels based on their estimates of the carrying capacity of the range and suggested season of use. The recommendations of the advisory groups were almost always followed (emphasis added) (Libecap, 1981: 49).*

Ranchers accepted the Taylor Grazing Act because it secured them land tenure rights and because in general range management principles were not rigorously applied where ranchers objected vehemently. Low grazing fees and rangeland improvements also helped gain acceptance of the Act. Ranchers still objected to mandated destocking, but advisory boards usually prevented drastic managers. If one had to characterize the relationship between ranchers and the Grazing Service or its successor, the BLM, one would have to say that it is one filled with tension. Conflict has been as frequent as good cooperation, and there has always been a healthy tension between economic interests of producers and those of professional range managers. In recent years, conflict has increased. In the 1970s the Bureau of Land Management became less production oriented and developed management programmes with bigger conservation objectives. This change in policy helped spark the so-called "Sagebrush Rebellion" where state governments such as that of Nevada ceased to recognize U.S. government title to the public domain.

Pastoral Development and Pastoral Culture

Our discussion of ranching, thus far, suggests that pastoralists and especially the nomadic groups are no more reluctant to accept range management schemes than their brethren in North America. The establishment of grazing reserves in different parts of Nigeria has been made use of by different pastoral groups to meet their herding activities. These grazing reserves could provide a lasting solution to the seasonal long distance migration of nomadic pastoralists if secured grazing land is made available to such interested pastoralists.

In addition, it is not clear that pastoral nomads are significantly more perverse in their response to economic incentives than their colleagues. Differences are numerous, but there do not seem to be significant differences in their response to technician initiated range management schemes. The conflict between technician and pastoralist persists as a global one. Range science has recently prevailed in North America. It's success is largely due to the tremendous resources of the state and the political weakness of pastoralists themselves. Literate ranchers like non-literate nomads have not eagerly accepted the advice of government technicians.

The conflict between pastoralists and technicians appears to have a technical rather than a "cultural" basis. The job of the range manager is to develop a grazing system which will keep the number of animals utilizing a pasture in equilibrium with its carrying capacity. This seemingly simple ecological concept is difficult to operationalize. Not only is there some disagreement over how grazing capacity should be calculated, but it is difficult to determine once a method has been chosen.[12] As we pointed out earlier, most regions where extensive pastoralism is practiced are characterized by a highly variable environment; so the productivity of pastures varies considerably from year to year. If stocking rates are limited to an "average" grazing capacity, there will be years when overgrazing occurs. Another alterna-

tive available to managers is to limit stock to the number of animals that can survive on the land in a particularly bad year. This system has the disadvantage of "wasting" considerable amounts of forage in normal or good years. If wet and dry years come in cycles, the result of such policies may still be overgrazing during droughts as wildlife numbers might expand during good years and destroy pastures in bad ones. Another alternative would be to vary the permitted stocking rates depending on weather conditions. Though logical, this system is very difficult to administrate because of the greater difficulty in forecasting grazing capacity and the strong resistance of pastoralists to any destocking attempts. Administratively, it is easier to establish a fixed stocking rate. Generally, some variation on the second solution is applied because it is easier to administrate and offers the best assurance that pastures will not be overgrazed.

This leads us back to the issue of why pastoralists resist the attempts of professional range managers to reduce animal numbers even when such reductions should benefit pastoralists in the long run. The primary reason lies in the reproductive rates of herds. After a drought it is extremely difficult to reconstitute one's herds. Normally, one will not have sufficient markets and transportation systems like the U.S. and Canada. Producers in drought prone areas only receive 60-70% of the "normal" market value of their animals when they are forced to destock. When the drought ends, it is nearly impossible to buy breeding stock even at infalted prices because everyone else is trying to rebuild his herd, and all are unwilling to sell heifers. The stockman cannot rebuild as quickly as the farmer after a drought, regardless of credit availability. This is one of the reasons that drought relief in the U.S. attempts to allow a person to maintain breeding stock by subsidizing feed purchases and transportation costs. The difficulty of rebuilding one's herds after a drought or natural disaster is even greater for the traditional pastoralists because their herds tend to have a lower reproductive rate and are subject to more risk. The resistance to destocking is just a natural result of herd management. The risk of destocking is, of course, greatest for ranchers or herds with small numbers of livestock because they are always in danger of reducing their herds to a level below minimum acceptable standards of living.[13] The poor, unless they have an outside source of income, may resist destocking because it threatens their survival.

Viewed in this light, the resistance of pastoralists to the scheme of experts stems from the nature of pastoral production where pastoralists could deposit excess animals in dry years. Goldschmidt (1975) recognized this when he called for a national livestock bank. Though his proposal was not a practical one, it is one of the few that directly addresses the origins of pastoralist refusal to destock. Only by accepting the fact that there is an inherent contradiction between the survival of individual pastoralists and the long term interests of range scientists and other animal production specialists can we ever hope to begin resolving the "pastoral crisis".

Conclusions

Although this paper has not proferred a concrete solution to the pastoral development question as well as the debates over the relationship between pastoral specialization and culture, we have nevertheless suggested an approach that will help to resolve the two problems. Over-emphasis on the "unique" social and cultural aspects of nomadic life has done a great disservice to both traditional pastoralists and to those who are interested in improving livestock production and in protecting rangelands.

Knowledge of pastoral societies is, of course, crucial for the implementation of pastoral development programmes, but to view the failure of pastoral development schemes as a social and cultural problem is extremely dangerous. It is easy for those of us who study pastoral peoples to argue that migratory pastoralism represents an optimal use of rangeland resources. We then argue that planners must have a better understanding of the "wisdom" of traditional pastoralists. We assume that a technician armed with this understanding will encounter few difficulties in dealing and working with pastoralists. In assuming this, we are promising something that cannot be delivered. The conflict between

pastoralists and society is fundamental. It is an inevitable outgrowth of the pastoral production process. Our knowledge of indigenous production systems cannot eliminate this conflict, but can only help us to avoid destroying the productivity of migratory pastoralism. Such destruction is neither in the interests of traditional pastoralists nor in those of livestock ministries. The failure of most livestock development programmes, to date, has been precisely because the viability of production was threatened by them; but we must remember that conflict will not disappear even when we truly understand pastoralists, or when we modernize pastoral production.

To naively assume that the elimination of traditional pastoralism will resolve the pastoral development crisis is even more dangerous. The conflict between the state and the pastoralist is equally severe in societies where people are literate, technologically informed and well integrated into the market economy. It is easy to blame failure of programmes on the ignorance of pastoralists, especially nomads. In doing so, one is absolved from responsibility for failure. The task of destroying a traditional way of life is a straight forward process, but it takes a considerable time; so that the technician is blameless in the short run. Concentration on the nomads' "way of life" obscures any understanding of the logic of pastoral production and prevents the development of institutions that can compensate for the destabilizing influences of the growth of national and international economic systems.

Notes

1. Most discussions of ranching and traditional pastoralism emphasize differences between the two systems of production. In this paper we emphasize (perhaps over-emphasize) similarities in order to help give a more balanced perception of all forms of pastoralism and especially the nomadic type.
2. Anthropology has concentrated on the study of small scale subsistence societies, and pastoral groups with their isolation and unique ways have been extremely interesting research topics. Studies of pastoral societies, such as Evan-Pritchard's study of the Nuer, have influenced anthropology as a whole.
3. Bonte (1981) points out that pastoral specialization has not been limited to areas unsuitable for cultural cultivation. In the past, pastoral groups such as the Maasai of East Africa and the Beni M'Guild of Morocco also occupied land with excellent agricultural potential. This situation, though common in the past, seems to be increasingly rare today as government policies and demographic pressures have led to the expansion of cultivation even into areas with low agricultural potentials.
4. Other important factors are salt, minerals, shelter, health care and labour. The importance of all these factors varies according to the ecological and historical setting within which pastoralism is practiced and upon the species of domesticated animals exploited.
5. Individual rights to animals may exist within a framework in which a larger group has claims on animals. In these cases, the "owner is technically a steward of the herd with the right to dispose of animals and the duty to care for them" (Goldschmidt, 1981: 103).
6. Although pastoralists are often blamed for the expansion of deserts, the expansion of cultivation into dry areas and the destruction of trees and shrubs for use as fuel cannot be blamed on pastoralists.
7. There are, of course, many countries that have tried to adjudicate pastoral territories. In North Africa, for example, the French tried to do so early in this century. The idea of grazing blocks and group ranches represents an attempt to establish the land rights of pastoralists. Such land rights form a part of the intentions of the establishment of grazing reserves in Nigeria. It is important to point out, however, that these are state inspired programmes which have attempted to avoid conflict with traditional social formations. They are not created by the pastoral collectivities themselves. In some countries such as Morocco or Peru, where communal territories have been adjudicated, it is technically illegal for non-members/residents to pasture animals on a group's pastures. These laws are often ignored or loosely interpreted and enforced.
8. Livestock production cooperatives with collective ownership of animals does occur in capitalist countries such as Peru as well as in socialist countries such as China, Mongolia and Soviet Union. These systems may, in some cases, be more adaptable to traditional pastoral settings than the ranch. We will use the ranch as a point of reference because in ranching systems, as in traditional pastoral societies, animals are individually owned/controlled.
9. In parts of New Zealand and Australia where no predators exist, sheep are raised in a similar manner. In the U.S. where sheep are threatened by coyotes and other predators, herders must be employed. These herders were often, in the past, Spanish Basques, but today large numbers are imported from Peru and Mexico.
10. These figures should not be interpreted as supporting or rejecting the idea that private ownership of land reduce overgrazing. In the U.S. high potential, well watered range lands

tend to be privately owned, while public lands tend to be marginal and more fragile.

11. The increased interest of range scientists in livestock production helped precipitate the creation of a Society for Range Management in 1947 that was separated from the professional forestry society.
12. Some may argue, for instance, that overgrazing occurs when animals significantly alter the composition of the vegetation even if average production of livestock is not altered; others including most ranchers would not accept this definition.
13. This minimum may be a cultural/societal definition as is the case in most ranching societies, or it may be the absolute minimum for survival as it is in some parts of Africa.

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