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THE ADOPTION OF CAMELS BY SAMBURU CATTLE HERDERS

by Louise Sperling

The Samburu of northern Kenya have had a long and close association with several camel-keeping neighbors yet only recently have begun to adopt camels for use in their own home settlements. This spread seems to be related to a twenty-five year decline in their cattle economy; since 1960, five droughts, raiding, and several epizootics have halved their aggregate cattle holdings. While this acquisition of camels has been initially described (Stiles 1983 a,b,c), the reasons for this particular adoption and the roles camels play in the Samburu economy regime remain unclear. This essay examines the relationship of Samburu herders to camel-keeping peoples, and reconstructs the history of camels actually managed by Samburu. Several facets of the current phenomenon are considered: who owns camels? how large are their herds? what might be the concerns of the new camel owner? Conclusions suggest some of the ramifications of camel-keeping--for the Samburu, their land, and their cattle.

The Setting

Human and Cattle Populations

The Samburu are a Maa-speaking ethnic group of about 67,000 (ROK 1984). They are semi-nomadic herders who have generally tended cattle, sheep, goats, and donkeys. Cash income, for such necessities as maize meal, is still largely derived by selling live animals (often males) or hides, skins, and milk. Wage work is also becoming a prevalent means of supplementing family revenues (Sperling 1987a).

Until the early 1960s, the Samburu were among the more specialized and more successful cattle-keepers in East Africa. They had been an important supplier of immature animals to the Kenyan market (Perlov 1981) and had had a relatively high cattle-to-people ratio of between 8:1 and 15:1 (Table 1). Within the last twenty-five years, however, the Samburu have experienced a series of crises which have depleted the cattle herds of all and left many completely stockless.¹ Widespread raiding in the period 1964-1980 resulted in losses of men and livestock, and outbreaks of Foot and Mouth disease in 1970 and 1976 and East Coast Fever (starting in 1976) have swept through cattle herds.² But the major misfortunes have occurred in the form of drought. In the past twenty-five years, the Samburu have experienced five extensive dry periods: 1959-61, 1965, 1971, 1979-80, and 1983-84. Table 1 includes available data on human and cattle populations for the period 1915-84 to indicate the magnitude of livestock decline. Note that the present aggregate numbers of cattle (c.120,000) parallel those of the late teens, despite a six-fold increase in human population. Between 1960 and 1984 alone, the per capita cattle holdings fell from about 8 to less than 2 (see Table 1).

¹ In 1980, the Samburu District Development Plan estimated that 50% of the population should be candidates for famine relief, with 10% being virtually destitute (GOK 1980).

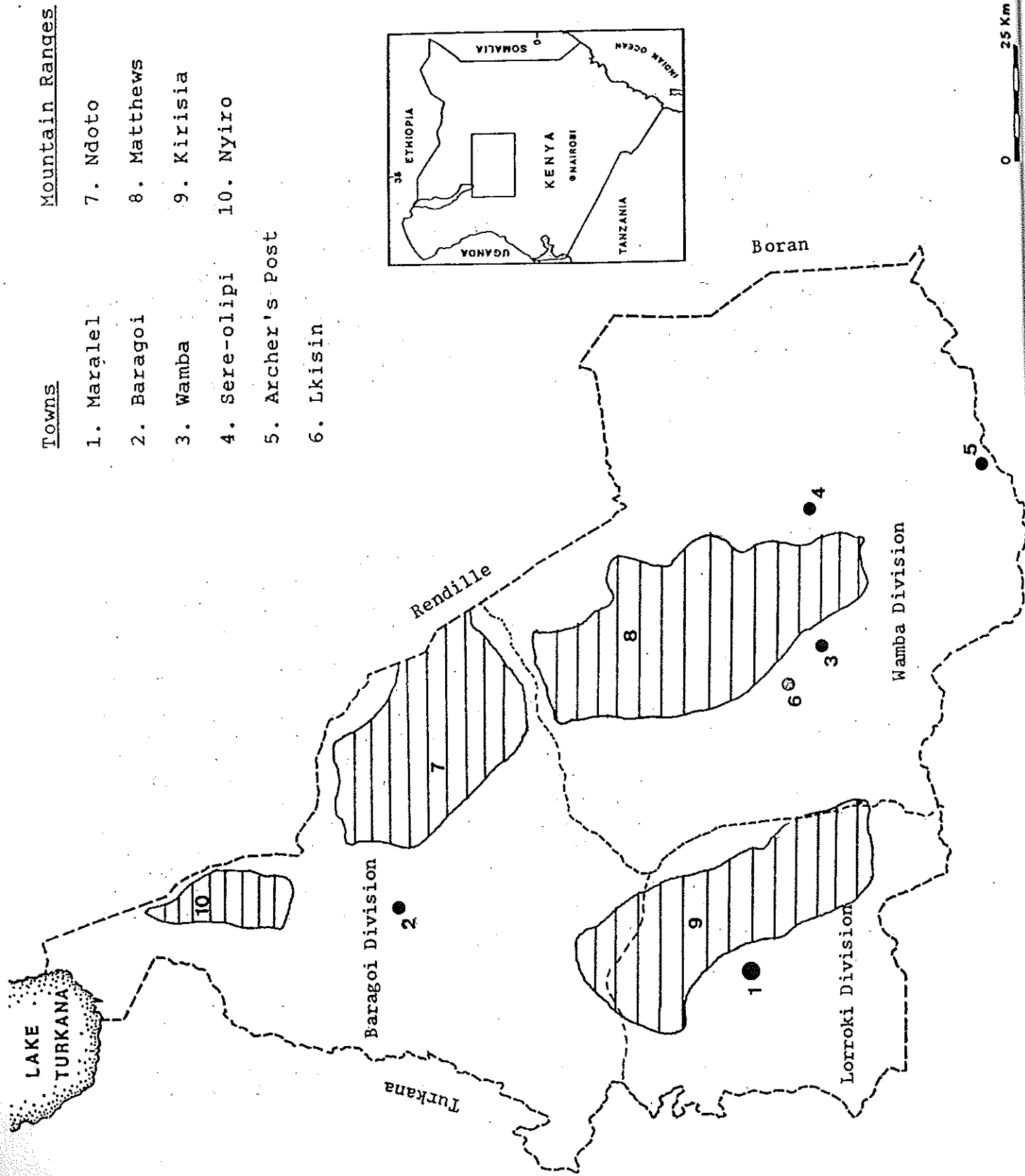
² There are no official estimates of the magnitude of these losses. A prominent trader in Maralel estimates that, in the late 1970s, East Coast Fever reduced the highland cattle herds by 60% (Perlov 1982).

Figure 1

Mountain Ranges

Towns

- | | |
|------------------|-------------|
| 1. Maralele | 7. Ndoto |
| 2. Baragoi | 8. Matthews |
| 3. Wamba | 9. Kirisia |
| 4. Sere-olipi | 10. Nyiro |
| 5. Archer's Post | |
| 6. Lkisin | |



Physical Geography

Samburu District is located at the southern end of Lake Turkana at the interface of Kenya's highlands (2000-2500 m) and lowlands (150-750 m) (Figure 1). The District, equated with the current limits of Samburu territory, contains the home settlements of approximately 95% of the Samburu people. The area is characteristic of many of those used by pastoralists today; lands are arid and semi-arid, and dwarf shrub, bush, and wooded grassland stand as the predominant vegetation. Rainfall is erratic, highly localized, and unpredictable. Most of the District, 84% of the land, has been classified as "low potential" (ROK 1984), implying that it is suitable for pastoralism only.

Distinctions among the divisions of the District (Lorroki, Baragoi, and Wamba) are important for this discussion of camels. Lorroki encompasses highland plateau, grasslands and an extensive forest reserve. It has one long, reliable rainy season (versus bimodal rainfall in the other two divisions) and receives between 500 and 700 mm of annual precipitation. The relative lushness and cooler temperatures of Lorroki suggest that it poorly supports camel herding. Baragoi, in contrast, is primarily a division of lowland plains; its densely wooded mountain ranges stand as oases in a rocky desert, and annual rainfall remains a low 300 to 500 mm. Baragoi, hot and dry, hosts camels, and has for many years--Turkana camels; most of the District's 14,000 Turkana live and herd here. Wamba is both the largest division and the site of the largest herds. Cut by the Matthews Range, Wamba's western basin contains the heart of Samburu lowlands (annual precipitation 600 to 800 mm) and its eastern plains are now used as dry season reserves (200 to 500 mm annual rainfall). Wamba Division is an appropriate area for examining the Samburu acquisition of camels as it has always been known as prime cattle country, with an admixture of sheep and goats.

Grazing Pressures

Until recently, Wamba Division sported extensive savannah rangeland, and the introduction of camels may be a response to a gradual deterioration in range resources (Stiles 1983 a,b,c). Large areas of central lowland are grassless and deeply gullied, but apparently were not so in the recent past. In 1980, ecologists working in Wamba Division estimated that the area was 60% overstocked, that is, livestock exceed by this amount the numbers that the pastures could sustain on a permanent basis (G.E.S.P 1980). Samburu elders themselves recognize a secular, rather than seasonal, deterioration in rangeland productivity. Several factors which have contributed to the land degeneration include land loss and population increase.

1. Within the last twenty-five years, the boundaries of Samburu have been significantly reduced. Due to security problems, most of the area east of the Matthews Range has not been settled since the mid 1960s, and the western edge of Baragoi Division has been neither settled nor grazed since the early 1970s.
2. Within these bounds, much of the higher potential land has been usurped for more restricted users. These areas include the Samburu Game Reserve, the group ranches, and the highland agricultural plots.
3. Circa 1976, East Coast Fever swept through cattle herds of the Lorroki highlands. To prevent spread of the disease, the lowland pastoralists no longer use much of the plateau. They not only lose grazing land, but the grass of an entire rainy season as showers of July and August are usually confined to the highlands.

Table 1

Human and cattle population in Samburu District, 1915-1984*

Year	Human Population			Cattle Population	Cattle per Samburu Person
	Samburu	Others	Total		
1915	5,000				
1917	10,000			100,000	10
1922	10,000			150,000	15
1925				102,569	
1933	12,000			119,403	10
1938	18,816				
1948	18,797				
1950				253,850	
1954	35,000	5,000	40,000	300,000	8.6
1955	36,000			350,000	9.7
1962	43,000	13,935	56,935	320,000	7.4
1969	51,503	18,016	69,519	420,000	8.2
1971	52,320			300,000	5.7
1977				241,120	
1978				221,205	
1979	57,653	19,255	76,908		-55%
1980				127,260	
1982				109,094	
1983	65,697	22,160	87,857	158,674	2.4
1984	67,300			117,483	1.7

* Note that the tallies of both human and cattle populations are subject to inaccuracies. For instance, human population censuses are only made at pastoral settlements, not at grazing camps, and cattle figures represent only those animals brought to the crushes during vaccination campaigns. Some of the figures are only estimates by administrators working within Samburu District. Furthermore, the 1977-83 animal censuses were prematurely halted due to vehicle and fuel shortages. The figures in Table 1 have been amassed from census material, population projections, archival correspondence and official colonial and post-colonial reports. For complete references of sources, see Sperling 1987b.

In practical terms, within the last twenty-five years, Samburu have entirely lost access to about 20% of their rangeland while their use of another 35% is restricted (Sperling 1987a). Much of the land lost represents prime dry season grazing reserves.

4. Simultaneously, Samburu population has steadily grown. Since 1960, the population has increased by some 50%, from c.43,000 to the current projection of about 67,000 (Fumagalli 1977; ROK 1984). Further, the flow of immigrants has been unchecked, and many of the newcomers, especially Turkana, are pastoralists themselves.

Thus, many more people are trying to use less land and less productive land. Pressure on resources increases as per capita holdings decline.

Camels in the Samburu Environment

Camels have never been far from either the Samburu economy or their territory. The District itself is mostly bordered by pastoralists who keep camels: Boran on the south and east; Rendille on the north and east; Turkana on the northwest; and Somali traders who formerly led camels through Samburu centre. In addition, the obvious mobility of herders suggests that Samburu and camel keepers frequently camp side by side. Such interethnic relations are not always amicable, and periodically, for at least seventy years, Rendille, Turkana, and even Gabra have been expelled from the official Samburu domain (See Sobania 1979).

It is the Samburu/Rendille relationship which has been most thoroughly described by anthropologists. Paul Spencer (1973) recounts how years of intermarriage and intermigration have created strong ties of kinship as well as a firm political bond between the two groups. In fact, he suggests the fast-growing cattle economy of Samburu serves as a refuge for Rendille fleeing from their own stagnant camel economy. The closeness of Samburu/Rendille ties can be illustrated in many ways. 1) Several Samburu sections, clans, and lineages have corresponding social units in Rendille. 2) Rendille women frequently marry Samburu men. 3) Rendille and Samburu have formed stock friendships for many years. 4) At various times throughout history, poorer Rendille have come to herd Samburu animals and, similarly, Samburu have gone to Rendille land. 5) Finally, many Samburu speak of their camels being herded at Marsabit (in the Rendille area), and Rendille mention lending their cattle out to Samburu relatives. While all of these relationships have potentially involved the transfer of animals to the Samburu, in practice few camels seem to have moved to their homelands. Samburu claim that when camels are given in stock exchange or as gifts, the Rendille part only with the male animals (or substitute goats as often as possible). Further, Samburu have had difficulty claiming back what are "their" camels once this stock has been sent out to Rendille. Young Samburu men must buy camels to pay bridewealth to their Rendille in-laws.³

The closeness of Turkana and Samburu relations has been noted less frequently. In general culture lore, the two are seen as enemies, having a century-long history of raiding each other's livestock. Further, the Samburu circumcise their men and women, an event which remains central to their achieving adult status. That the Turkana circumcise neither sex affirms, in Samburu code, the former's puerility, wildness, and almost sub-human status. The Turkana's liberal food habits (for example, they even eat fish!) and position as menial laborers in many Samburu towns serve to widen the cultural incompatibility of the two groups.

³ This material has been substantiated from a variety of sources. (See Sobania 1979; Spencer 1965, 1973; Sperling 1987b).

In practice, however, Samburu and Turkana have a series of close relationships. 1) Intermarriage is common; Samburu men frequently marry Turkana women and a few Samburu women are sent to Turkanaland. 2) Many Turkana live within Samburu District. The latest census assesses 17% of the District population as Turkana, making them the largest non-Samburu ethnic group (ROK 1984). 3) Historically, Turkana and Samburu have served each other as wage laborers. However, while Turkana continue to be hired, the hiring of Samburu seems to have been limited to a short period in the 1890s, after outbreaks of rinderpest and smallpox in Samburu areas. 4) Some Samburu families have similarly named lineages in Turkana. As in the case of wage laborers, these are the families which moved northwest during the 1880s crises.

This glance at the relationship of the Samburu with the two neighboring group camel-keepers helps to indicate the means by which this "cattle people" has had a long and varied association with camels. Samburu have directly owned camels and lent them out; they have married into families with camels; some have even helped pasture camels, for example, when hired as wage laborers. In some ways, however, camels have been foreign to Samburu. Historically, there have been few camels grazed within the Samburu territory by Samburu herders.

The Introduction of Camels to Samburu District

Camels seem to have been introduced into Samburu District in the early 1920s. Families obtained one or two (by bartering goats for Rendille camels) and used the animals for transport. Most of the animals were male, although a few elders recall their mothers milking the stock. Not everyone had a camel; one might have seen a single beast in a survey of five to ten home settlements. A 1928 census in the highland area of Lorroki plateau suggests how scarce camels were; administrators tallied 189 camels (all pack animals) in contrast to a cattle population of 62,314 (Sobania 1979). Camels may have been more numerous in the more arid and hotter lowland areas.

Samburu owned and managed few camels until the early to mid 1950s. Elders stress that the period 1925-1955 was one of unparalleled cattle population growth. An invasion of locusts in 1943, and a small drought in 1944 were among the few checks on this boom economy. Demographic statistics demonstrate how expansive holdings were. Although human population more than tripled in the thirty-year period (from about 11,000 to 36,000, an increase of 227%), the cattle population was able to match the pace (from 102,569 to about 350,000; an increase of 240%) (see Table 1). Stockowners comment; "When there are cattle around, we have no need of camels". Those who did have camels most often loaned them out to Rendille stock friends.

Spanning this same period, however (c.1915-55), there were camels in lowland Samburu---subsistence camels owned and managed by the Turkana. The story of Turkana "infiltration" (AR 1957) has been sketched by Samburu elders. From 1915 onwards, a steady stream of Turkana flowed into Samburu District.⁴ Entering through Baragoi, the Turkana first moved along the District's northern fringe, toward Rendille land, and later cut centrally across, straight to the Boranaland at Isiolo.

The Turkana came to Samburu for two central reasons. In the first instance, many were completely stockless, wiped out by British punitive expeditions of 1915-18. Individually, or as complete households, they sought work as hired herders. Many were considered faithful and hardworking and, in return for

⁴ See Sobania (1979:133ff.) for a detailed historical account of Turkana movements within several northern Kenyan Districts. See also Hjort (1981) for an analysis of Turkana economic and social integration with the Samburu in the Isiolo area.

their services, were paid in livestock. Numerous Turkana eventually re-established separate stockowning households. Sometimes Turkana adopted the employer's name, were circumcised, and remained in Samburu. In the second instance, Turkana pushed into Samburu rangelands due to insufficient grazing in their own territory. Whole encampments first crossed into Baragoi (1915-25) and quickly fanned out west and south. By 1931, there were Turkana on Lorroki; by 1934 as far east as Seiya, in the middle of the District (Sobania 1979). Both of these trends resulted in the importation of a limited number of camels to Samburu. Once Turkana hired workers established themselves, they called their relatives back home to join them--along with their few camels. And those setting up permanent encampments, though poor, often trekked in one or two camels. In the late 1950s, Turkana were chased from parts of Samburu District purportedly because they had "overpowered" Samburu (AR 1961 and fieldnotes).

At the turn of the 1960s, the Samburu themselves slowly started adopting camels.⁵ A series of closely-spaced droughts, in 1959-61 and 1965, convinced a small group of cattle-owners to invest in one or two camel heifers. The camel's milk-producing qualities were of paramount interest as camel udders are full when those of cows are dry. While these investors first sought to recall loans from Rendille friends, few were successful. In isolated cases, a male calf or bull camel was returned, but most eventually purchased camels from Turkana at Baragoi.

Extensive raiding in the period of 1964-68 (attributed to Somali bandits) provided the second catalyst for buying camels. Samburu not only lost many animals, but a large part of the area used for base encampments. As all land east of Sere-olipi was no longer secure, the Samburu were relatively confined within the lowland basin west of the Matthews range. At this time, Samburu first recall having to send all their cattle, even milking cows, to dry season pasture for extended periods. Camels were again purchased, in limited number, to supply children with milk during the dry season.

The 1971 drought or "The Terrible Hunger" proved to be a turning point in the history of Samburu camel acquisition. It was a devastating drought, and came at the tail end of other formidable misfortunes (including floods, droughts, and raids). Interest in camels grew, as did their accessibility. Turkana proffered a regular supply of heifers at Baragoi markets. In addition, Somali traders brought camels through Samburu District from two separate directions; along the northern route, Somali sold camels purportedly brought from their homelands; along the central route, they traded Turkana camels.

The 1979-80 drought merely reinforced the Samburu concerns; the life of a cattle pastoralist was no longer a secure one. In efforts to diversify their resources, Samburu systematically started to send one or two of their children to school, and warriors, en masse, sought wage employment. Since the early 1980s, Samburu interest in adopting camels has been widespread, although camel acquisition remains relatively limited. The 1983-84 drought confirmed to stockowners vulnerability of their cattle and the desirability of camels. Men now regularly discuss the pros and cons of purchasing camels.

Samburu Camel Owners

The extent of Samburu camel acquisition and ownership is difficult to assess; stockowners are as reluctant to disclose camel holdings as they are cattle holdings. Further, many of the camel owners within Samburu District are Turkana herders who graze in the same northwest area used by Turkana for

⁵ In the 1950s, a few herdowners, either Rendille or those married to Rendille women, brought their camel herds to the Samburu lowlands. They remain among the wealthier owners in the region and serve as camel consultants to the less knowledgeable Samburu. They came, however, for diverse personal reasons and their arrival did not herald a trend.

over half a century. A livestock census, completed by Samburu District officers in January 1984, suggests aspects of current camel ownership patterns. In the course of a Foot and Mouth vaccination campaign, officials counted the number of cattle brought to the crushes, and queried stockowners about their other holdings: sheep, goats, donkeys and camels. The tallies, presented in Table 2, show that the number of camels pales next to the number of cattle. Second, the distribution of camels is markedly uneven with two-thirds of the camels being in Baragoi Division (the area where most of the Turkana camel-keepers reside). What is surprising is that there are hundreds of camels in the higher potential Lorroki area and that Wamba Division, particularly the area west of the Matthews, contains over 2500 (see Table 2).

Table 2

Livestock census of Samburu District: 1983

Division	Cattle Population	Camel Population
Baragoi	35,795	6,863
Lorroki	54,171	749
Wamba	68,708	2,670
TOTAL	158,674	10,282

In terms of absolute numbers, however, the figures may be misleading in describing the cattle and camel holdings of Samburu pastoralists. Possible sources of error are indicated below.

Cattle Numbers

Only 1,512 stockowners (out of a potential 7,730) brought animals to be vaccinated. Some may have brought the holdings of several men as suggested by the very high average holdings of 105 cattle per stockowner.⁶ However, many stockowners did not bring (or send) their animals to the crushes and government officials estimate they counted between 60-70% of the herds (Gioche and Chebii, personal communication). The vaccination campaign was scheduled to coincide with the November rains, at a time when animals are kept near home settlements. As the rains failed, many animals remained at outlying grazing camps. Further, several administrative chiefs believe the proportion of uncounted herds in their own locations reached over 50% because many stockowners believe inoculations bring on disease and/or decrease milk production.

⁶ Within my own research population, average cattle holdings fell to about 35 head at this time; two other independent assessments set average family holdings in other areas at between 30 and 50 cattle (Dr. Chris Field, personal communication; Perlov 1982).

Camel Numbers

Camels were not directly counted. Stockowners were simply asked to state their camel holdings when they brought their cattle to be vaccinated. The census may misrepresent Samburu camel holdings on several counts. First, there are some unlikely entries. If a Samburu stockowner wants to exaggerate how many camels he has, the number may reach 100; three of those queried in the census claimed they owned 600, 1,000, and 2,000 camels respectively. Second, many of the stockowners listed in the Baragoi census were Turkana, and about 60% of the camel holdings in the Baragoi counts belonged to them (4,278 out of 6,863 camels). Table 3 presents a revised 1983 livestock census, eliminating entries containing the overinflated estimates and the Turkana livestock holdings. As the revised 1983 count stands, Samburu cattle holdings outnumber camel holdings by 28:1 (see Table 3).

Table 3

Livestock census of Samburu District: 1983
Revised to focus on Samburu livestock holdings

Division	Cattle Population	Camel Population
Baragoi	28,636	2,585
Lorroki	54,171	749
Wamba	68,542	2,070
TOTAL	151,349	5,404

My own work has been among the Samburu of Wamba Division, west of the Matthews Range. I conducted extensive investigations within a community at Lkisin (Figure 1), and more extensive interviews with camel owners throughout the division. The community of Lkisin (of the Lewogoso clan) is predisposed to adopting camels as many share close patrilineal links with the Rendille only one or two generations back. In 1983, 2 out of 46 stockowners owned camels (one with 3 head, one with 2), while the total community cattle-to-camel ratio was 270:1. In 1986, two years after Lewogoso men had lost about 70% of their cattle to drought, 7 out of 46 owned camels with the cattle-to-camel ratio dropping to 16:1. The ratio was skewed by the holdings of a single wealthy individual (with 24 camels); without his holdings, the cattle-to-camel ratio stood at 29:1. Many more stockowners express a desire for camels; yet they are also trying to rebuild their cattle herds.

Research conducted across Wamba Division in 1983-84 provides a more comprehensive picture of who owns camels. Livestock statistics were compiled for 66 camel owners and detailed discussions were held with 30 of these, the latter representing 30-40% of those who own camels in the lowland area. The holdings of these men range from a single camel to a herd of 72. Mean camel herd size is 14; the mode is 8. While those with herds greater than 15 head have generally tended camels for fifteen to twenty-five years, the majority are relatively new to this form of pastoralism, having first bought camels in the mid-1970s. With the exception of two Rendille stockowners and a Samburu chief, the men in this sample

identify themselves primarily as cattle keepers. All are wealthy, as assessed by others.⁷ They also encompass a surprising number of "progressive" stockowners; many engage in small-scale livestock trading, hold local administrative posts, or, at some point in their careers, have held salaried posts outside the local Samburu area. While several have strong ties to camel-keeping peoples, they see themselves foremost as Samburu and all eight Samburu sections are represented in the sample. In brief, these camel owners were drawn from a pool of forward-looking, wealthy, Samburu pastoralists; their cattle holdings are secure. They have bought camels to diversify their interests.

Problems of the New Camel Owner

There is nothing easy or natural about cattle pastoralists adopting camels. Stockowners who start to build up herds recount three central problems: they have difficulty obtaining camels, labour problems in pasturing them, and no experience in either preventing disease or treating sick animals. The following discussion will focus on their first two concerns.

Obtaining Camels

Stockowners classify the different breeds by the ethnic groups who use them. Hence they describe the various camels as Somali, Boran, Rendille, and Turkana. The variables stockowners consider of prime importance include 1) the quantity of milk production 2) the quantity of meat 3) the size of the fat hump and 4) the rate at which the camel reproduces, including the total number of reproductive years. While all concur that the Somali camel is the biggest, and the best milk, meat, and fat producer, stockowners disagree as to its relative rate of reproduction, and its ability to survive in Samburu land. Some say the district is "not hot enough", or there are "not enough leaves". On the comparative merits of the other breeds, however, stockowners show little agreement. The Turkana may be the smallest, but this drawback is offset by its unusual ability to resist drought. Further, many potential buyers are unclear about whether the Boran and Rendille are different stock at all. The animals of northern pastoralists may be as intermixed as the ethnic groups themselves and most of the Samburu have never had a chance to compare what may be four more or less distinct camel varieties. In any case, the Somali camel commands too steep a price for most stockowners, and Samburu take what is most immediately available of the other three.

Stockowners have three potential choices for camel markets. They may travel east to Marsabit District (Rendille territory) or south to Isiolo District (Boranaland). However, most buyers head to the northwest of Samburu District itself, to Baragoi, where Turkana sell camels. Occasionally, Samburu also buy Turkana camels from Somali traders who lead them through the district. Samburu claim that, at Marsabit, Rendille rarely sell the female animals; and at Isiolo, the Boran and Somali demand high prices and often insist on being paid in stock--either oxen or goats. The Turkana, in contrast, prove to be willing and relatively cheap sellers. Baragoi is a convenient market for many Samburu and certainly within the realm of foot or bush taxi (matufu) travel for most. The trek from Wamba town to Baragoi would take a capable walker two or three days.

For those interested in camels, Samburu regard prices as the greatest obstacle to their purchasing more. Roughly, a camel is twice as expensive as a cow of a similar age, sex, and health. Samburu

⁷ While I have complete livestock profiles on a dozen of these elders, I have no reliable counts on the cattle and smallstock holdings of the majority. A wealthy herdowner would have about seventy cattle and above. A few still own six to seven hundred cattle. Smallstock holdings may run to several thousand.

often cite the wet season prices of camels to indicate how exorbitant prices are. Buyers, however, usually obtain camels in the dry season when prices are lower and more animals are available for sale. Table 4 shows the approximate 1984 prices for young camels and cows at Baragoi. The older, non-pregnant heifers (ntawo kitok nemeiturukum) and those pregnant for the first time (ntawo naiturukum) are the animals most in demand (see Table 4).

Table 4

Livestock prices at Baragoi, Samburu District: 1984

	Turkana Camels	Cows
WET SEASON		
older heifer	1500-1800	600-800
pregnant heifer	1800-2200	750-900
DRY SEASON		
older heifer	1100-1300	400-500
pregnant heifer	1300-1500	500-600

Prices in shillings. Kshs: 13.5 = \$US 1.00

There are times, however, when Samburu obtain camels by trading one type of livestock for another. Rates for Turkana selling Turkana camels and Somali selling Somali camels are listed in Table 5. Prices are given in terms of ranges as they only partially depend on the attributes of the animals; the skill of each negotiator and the immediate need of the seller help to set the final price. The exchange rates for the Turkana and Somali camels are not comparable. Although a Turkana heifer camel might sell for 17 goats and a Somali heifer camel for the same number, the type of goat is different. The Turkana desires mostly female goats (sipeni); he is interested in flock reproduction. The Somali will take only male goats (castrated and uncastrated, loroi and lkineji); he buys to sell them again for meat (see Table 5).

Table 5

Livestock exchange rates at Baragoi, Samburu District: 1984

	WET SEASON		DRY SEASON	
	older heifer	pregnant heifer	older heifer	pregnant heifer
TURKANA CAMELS				
goat rate*	20-25	25-35	15-20	20-30
cattle rate	1 big ox + 1 male calf	2 big oxen	1 medium ox	1 very big ox
SOMALI CAMELS				
goat rate**	20-25	25-35	15-20	20-35
cattle rate	1 big ox + 4 male goats	1 big ox + 7 male goats	1 medium ox + 1 male calf	2 small oxen
SAMBURU COWS				
goat rate	15 goats		12 goats	

*Turkana mostly trade for female goats.

**Somali only trade for male goats.

The price difference might translate into shillings (with \$US equivalents) as follows:

DRY SEASON

Turkana older camel heifer

12 female goats @ 70 Kshs.	= 840
3 uncastrated male goats @ 100 Kshs.	= 300
2 castrated male goats @ 130 Kshs.	= 260
<hr/>	
17 goats	=1400 Kshs.

Somali older camel heifer

7 uncastrated goats @ 100 Kshs.	= 700
10 castrated male goats @ 130 Kshs.	=1300
<hr/>	
17 goats	=2000 Kshs.

By whatever calculation one uses, camels are expensive. For those who know little about them, the move to purchase a "two-cow" or "seventeen-goat" experiment is a risky one.

Management

From the time of his birth, a Samburu is taught to think about, act with, and love cattle, sheep and goats. He has years to learn about his charges; he can tap into a legacy of herding lore and technical expertise; and he is often guided by those more knowledgeable than he. The new camel owner, in contrast, is relatively alone. Many of his concerns stem from not knowing his choices.

In terms of management, a fundamental problem emerges from fear of the animal itself. While the stockowner usually has rationalized his purchase and has some idea how to keep it, those who actually work with the animal are less consenting participants. Women have to milk the large, ornery beast, and children (usually 8-15 years) spend the day grazing it. The period of adjustment, however, is also fraught with technical concerns. For example, how does one herd one or two camels? Few Samburu can afford an extra laborer to pasture a pair. During the initial phase of care, Samburu owners often try to treat the camels as they do their other species, that is, they pasture camels with cows or with goats.

Camels and cows are said to be complementary feeders. Camels are principally browsers, feeding on tall trees and shrub, and dwarf bush (Field 1979), while cattle are principally grazers, their preference being for fresh pasture, specifically grass. In theory, the two may be herded together without competing for resources but, in practice, tending them as a single unit proves to be a chore. Cows graze slowly and methodically, and together eat their way from one place to another. Camels, in contrast, disperse and feed individually, at a faster pace than cattle. Further, in Samburu, camels are said to carry a certain fly (*Ledein*?) which literally drives cattle away. Samburu say camels can travel greater distance to feed, but, unlike cattle, they cannot climb mountains, and have difficulty navigating gullies and crossing muddy terrain. An acute problem arises when camels have eaten their fill as satiated camels become playful and/or antagonistic; the smaller cattle are likely to be bruised, bitten or kicked.

The combination of camels and goats may be an even more arduous one. Camels and goats are both principally browsers, yet feed at different levels. Like camels, however, goats feed in all directions--thus creating two groups of wandering animals to tend. Goats dislike the camel flies, and, more basically, fear the large animals will step on them.

New camel owners may decide to farm out their one or two animals. A small cluster of more experienced stockowners (usually Rendille) can usually accommodate a few more camels into their large herds. These experienced camel herders provide the additional services of a bull and may oversee the first birth of their new charges. They receive nothing specific in return for their help; however, they often use the milk of the animals they have been loaned and sometimes are given a goat or sheep as a token of friendship. More generally, a bond is established between the veteran and novice herder which allows the former, in particular, to ask for aid in the future. At some point, the Samburu again takes over the management of his camels. This usually happens when he buys more and feels he has enough to manage the animals himself. The camel expert continues to play the role of advisor and, for many years to come, he may receive the camels at crucial times of sickness or birthing.

In brief, the new camel owner has to learn a new repertoire of management skills. Some of his concerns involve reorganizing his work force. Tending camels means that more workers are needed and that many family members must adapt to new roles. Some of his concerns are technical and, particularly

in the realm of health care, stockowners lament that they know neither how to recognize nor treat disease--nor how to maintain the health of a sturdy animal.

Conclusions and Discussion

While the Samburu have had a long association with camel peoples, only recently have they adopted camels for use in their own home settlements. The spread of camels seems to be related to a decline in their cattle economy. In the last twenty-five years, Samburu have steadily lost large numbers of cattle, have only restricted access to much of their grazing lands, and have experienced substantial population increase. The adoption of camels, however, is still very limited. The total number of camels pales next to that of cattle, and most stockowners have no camels at all. Those buying camels are among the wealthy, forward-looking stockowners; their cattle holdings are secure and they can afford to take risks--for camels are expensive and difficult for cattle-keepers to manage.

Samburu think of camels primarily as aids in the dry season. Camels provide milk when cows have been sent to distant pasture; they even provide food when the stores are empty of provisions. Generally, stockowners use camels to complement their cattle holdings. They say that having camels gives them greater leeway in managing their cows. For instance, they can send their cows to dry season grazing earlier, and for longer periods, than others without this alternative and ample milk suppliers. Theoretically, stockowners can also let their cow calves suck until satiated because camel milk can be given to their own children. But in practice, these wealthy stockowners often have enough milking cows to satisfy the needs of all young-children and animals--even without their new camel purchases.

The entrepreneurial stockowners also invest in camels as they would in a durable, multipurpose, profitable commodity. While the initial costs are high, stockowners have seen how camels resist remarkably well even the most severe of droughts. As pack animals, camels can carry heavier loads and travel greater distances than the donkeys which Samburu traditionally use. Further, in the long run, camels can pay handsome returns. Male offspring, abundant in meat and highly-prized fat, fetch twice the market price of a comparable ox.

For now, it is generally the wealthy who own camels, yet it is for the less-endowed that camels could make a significant economic difference. Potentially, camels allow better allocation of scarce milk supplies in households with few cattle holdings. Their persistence under harsh conditions would provide an economic security not given by limited cattle property alone. Further, having camels does permit more opportunistic cattle management, so crucial for those who must maximize the yields of their small herds. Thus, camels offer the hope of filling both immediate consumption gaps, and of encouraging longer-term growth in and increased yields from cattle herds. It is partially through camels that Samburu seek to shore up their faltering cattle economy.

The above conclusions have focused on the potential economic importance of camels, for it is from such a perspective that most Samburu speak of the animal. Recent suggestions that decertification has prompted the spread of camels and that camel adoption helps halt rangeland deterioration (Stiles 1983 a,b,c), but need verification. Reflecting on these ecological propositions, Gilles (1983:15-16) points out the scant evidence for accelerated environmental change in northern Kenya and suggests rather that social and demographic pressures have encouraged camel acquisition. He further indicates the lack of any data showing "that camel producers are less likely to overgraze than cattle, sheep or goat raisers" (1983:16). Thus Gilles rightly questions 1) the process of "decertification" and 2) the link between camel acquisition and better land management.

Within Wamba Division, a German development team (from GTZ-PAS) is now actively promoting the adoption of camels through such measures as the establishment of local camel-for-cattle exchanges, camel workshops, and dissemination of veterinary information. They assert that camels are superior to cattle both in terms of range utilization and food production under conditions of reduced rainfall (UNEP/GTZ-PAS 1986). However, the suitability of camels to the Samburu natural, as well as economic environments, has yet to be fully demonstrated. Many areas of Samburu District are not favorable for camel pastoralism (for example, the highlands and mountain ranges) while others have promise, but also limitations (for example, the areas of gullied lowland, as suggested by Samburu pastoralists themselves).

The acquisition of camels should not simply be seen as "transfer of technology" because it is not clear that a technology suited to both the Samburu people and their domain is available. Current techniques are essentially those of neighboring peoples who inhabit areas markedly drier than that of the Samburu. Breeds better adapted to the conditions of the district will take time to evolve, but, even in the short-term, management practices, including watering and grazing schedules and health care regimes, must be developed in a manner appropriate to local conditions. The acquisition of camels should be regarded as a process whereby Samburu reshape both the materials and use of the materials to more closely fit their physical landscape, subsistence needs, and cultural worldview.

Camels are just beginning to occupy an important role in the Samburu economy, but we should be cautious about assessing their productive worth. They represent an addition, not a replacement, in the livestock repertoire. Stockowners buying camels continue to invest in all other kinds of livestock and, as a complement, camels often fill their role as temporary milk suppliers and relatively durable property. For decades, neighboring peoples have fled into Samburu from their relatively slow-growing camel economies; and camels should not be seen as a panacea for Samburu woes. By adopting camels, Samburu aim to ensure steady milk production, obtain a hedge against drought, and gain some leeway to better manage their other livestock holdings.

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