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SUN Xiaogang^{*}

Abstract Sedentarization has become one of the biggest transformations to occur among nomadic pastoralists of East Africa in the 20th century. Although many researches have been done on the socio-economic changes in pastoral societies under the influence of sedentarization, few have focused on livestock production and management, which remain the centre of pastoral subsistence. Based on a case study of the Rendille pastoralists of Kenya, this paper examines how nomadic pastoralists have challenged sedentarization without reducing the high mobility of livestock herding and livestock based economy. Data collected during 23 months of fieldwork were analyzed and compared with previous studies from ecological and anthropological perspectives. Under the influence of development projects and drought relief efforts in the past three to four decades, most of Rendille's settlements moved into the vicinities of the new towns. However, by maintaining their communal use of rangeland and water resources, reorganizing the dual residential system of settlement and herding camps, continuing high mobility of livestock at herding camps, and continuing the age system and distribution of labour in herding tasks, the Rendille have successfully maintained high mobility in their livestock herding practices. On the other hand, challenging new opportunities, such as developing new wells near permanent settlements and passing animals through settlements for water, have provided people living in the settlements with greater access to livestock products and improved the conditions for raising cattle. Furthermore, in recent years, cattle sales have allowed pastoralists to engage in the growing cash economy. Results from longitudinal and comparative studies show that nomadic pastoralists not only have the ability to remain livestock herding, but also are capable of responding to profitable opportunities brought from outside.

Keywords: Sedentarization; livestock management; mobility; new economic opportunity; Rendille.

1. Introduction

In 2003, a Rendille old man (estimated age of 65 years) told me at an interview, "When I was a warrior, the settlement was always moving. When rain fell in Mt. Kulal region, our settlement moved (to that place). When rain fell in Mt. Marsabit region, we moved again to that region. But now that we have entered the town, only the livestock keeps moving".

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This is a kind of typical answer when interviewing the old generation of the Rendille pastoralists on the difference between his early age and current life. Some even said they used to herd animals near the shore of the Lake Turkana or close to the border between Kenya and Ethiopia (Figure 1), whereas most of them live in the permanent settlements near the new towns today. In the semi-desert of northern Kenya, pastoral Rendille have changed from a highly mobile lifestyle to a relatively settled one in the past three decades.

Sedentarization has become one of the major changes occurred among nomadic and semi-nomadic pastoral societies in the arid and semi-arid areas of East Africa in the 20th century. During the European colonial era, pastoralists had not only lost most of fertile lands to white settlers and neighbouring farmers, but also been limited to move freely under the colonial “grazing controls” policy (Sobania 1988, Sato 2001). After the independence of African nations in 1960s, both the national governments and international agencies such as the World Bank and UNESCO encouraged sedentarization, land privatization and livestock market in order to improve pastoral productivity as well as reduce overgrazing (IPAL 1984; Campbell 1993; Galaty 1994). The distribution of relief foods during droughts also triggered pastoralists to live around relief centres (Itani 1982; Fratkin 1991).

Numerous studies have focused on change in pastoral societies under the influences of sedentarization from political, economic, social and environmental perspective. Some development planners and workers consider such sedentarisation of nomadic pastoralists a departure for pastoralism, by highlighting the benefits of sedentarization, such as increased access to formal education, health care, wage works and other new economic opportunities, whilst scholars consider it to be the end of pastoralism, due to the complicated situation and difficulties that pastoralists now face, including rangeland privatization, environmental degradation, the breakdown of traditional cooperative organizations, and an increase in social and economic differentiation (Baxter & Hogg 1990; Anderson & Broch-Due 1999). Fratkin’s recent book, *As Pastoralists Settle*, has both reviewed the major factors leading to pastoral sedentarization, which include population growth, drought and famine, loss of common property resources, commoditization and urban migration, and insecurity, and added new findings by investigating health, nutrition, and demography, which demonstrated the deterioration of nutrition and the increasing health hazards women and children face after pastoralists become sedentary (Fratkin & Roth, 2005).

Nevertheless, in the arid and semi-arid areas of East Africa today, the majority of pastoralists continue to raise livestock and rely on livestock based economy. Few researches have been done on how pastoralists manage their livestock herding under the

process of sedentarization, and what have remained or changed among their livelihood strategies in response to the sedentarization as well as the complex natural and socio-economic changes. To answer such questions, a comprehensive approach combining field observations with a longitudinal and comparative study was attempted in this paper. The fieldwork studied the Rendille pastoralists of northern Kenya, who Japanese researchers have been studying since the 1970s. The analysis of current pastoral subsistence is based primarily on my 23 months of fieldwork conducted between 1998 and 2007. To improve the precision of the comparison, the same research site (Tupcha clan and Korr town) where Sato (1980) conducted his noted ecological and anthropological research in the 1970s was chosen.

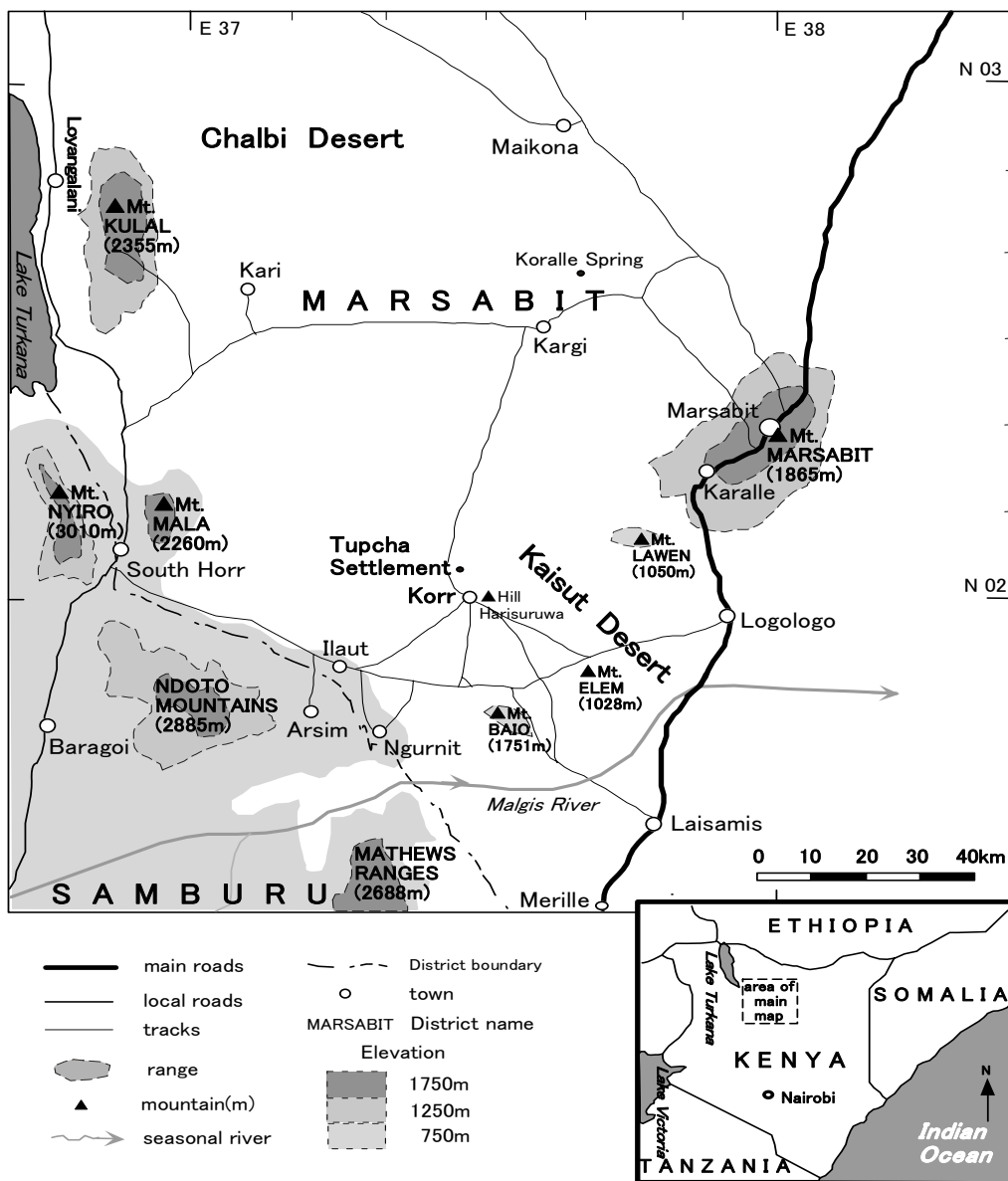


Figure 1. Rendille Land

2. Change in Residential Pattern of the Rendille

The Rendille inhabit one of the driest places in Kenya, an area consisting of bushland and semi-desert grassland, with an annual rainfall of less than 200 mm (Figure 1). The region is characterised as a “non-equilibrium ecosystem”, which plant growth is limited by unpredictable rainfall and frequent droughts, and requires high mobility and flexibility in livestock management (Ellis & Swift 1988). For centuries, by raising multiple species of livestock (mainly camels goats and sheep), and moving frequently in response to both natural and social environmental uncertainty, the Rendille maintained subsistence pastoralism, relying on both livestock products and the exchange of livestock for agricultural products with neighbouring farmers and merchants. Their population numbered approximately 27,000 in 1989 (Spencer 1973, 1998; Sato 1980; Schlee 1989; Republic of Kenya 1994).

Although rainfall is low and unpredictable, the Rendille recognize four seasons: the short dry season (*nabahi-ki-gaaban*) starts in January and ends with the long rainy season (*guu*) from March to May; the long dry season (*nabahi-ki-deele*) commences in June and lasts until November; and the short rainy season (*yeel*) follows from the end of November to the end of December. Their residential and movement patterns are concerned with such seasonality.

The Rendille have traditionally employed a dual residential system, consisting of settlements (*goob*) and herding camps (*foor*). Basically, people from the same clan establish their own settlements, while herding camps are built for each livestock species in accordance with their different biological adaptability to the environment. According to Sato’s 1976 study (Sato, 1980), this dual residential system has been the Rendille’s most important adaptive strategy to changes in the natural environment. He described it as follows:

When dry season advances, married people with young children are left behind in the settlement, while the herders take animals away in search of better pastures. After the rains fall, herding camps and settlement join together into the same area where fresh pastures and waters are available.

However, during my research period, this seasonal fission and fusion of settlement and camps was no longer practiced due to the sedentarization near developing towns.

The political and economic situations in northern Kenya have changed rapidly in the past three to four decades. Following a severe drought from 1982 to 1984, global famine relief efforts triggered development projects by both international development agencies and

national governments (Fratkin 1991). On Rendille land, fast-growing towns materialised inside their range area as centres for relief and development projects. Before these towns began, the Rendille settlements were widespread and moved frequently throughout the region. Under the influence of the development projects and drought-relief efforts, most settlements moved into vicinities of the new towns. The Korr town, located in the centre of Rendille land has grown up from a water point to the biggest population centre, with more than 20 permanent shops in town and more than 50 settlements exist near the town (Figure 2). In 2000, the population of Korr region were approximately 14,500, including about 2500 people inside the town and about 12,000 people in settlements near the town. This change of residential pattern is one of the biggest transformations to occur in Rendille society (Sun 2004b, 2005; Fratkin & Roth 2005).

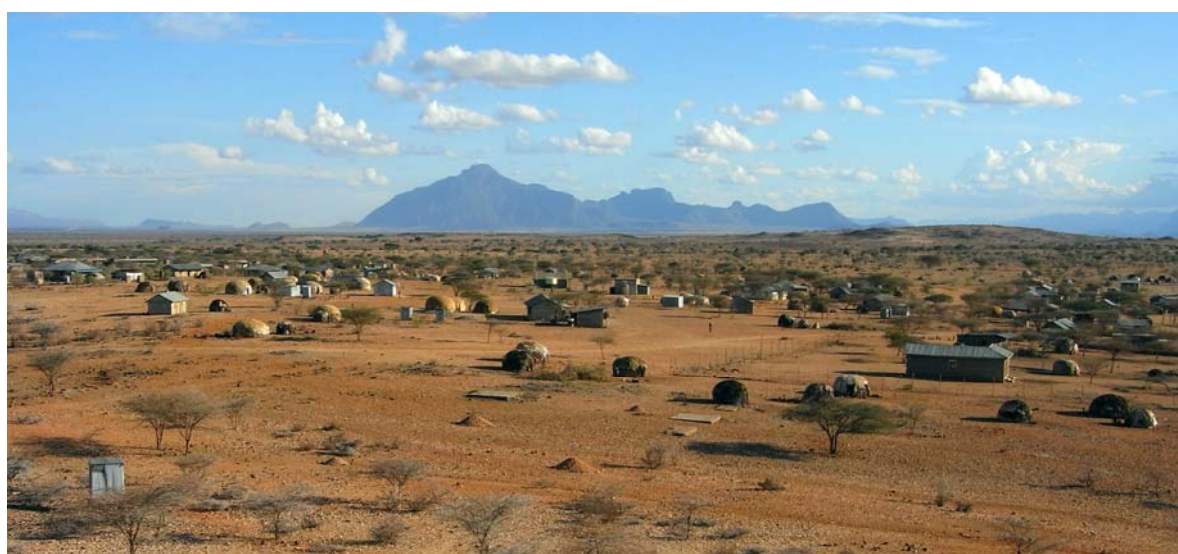


Figure 2. Korr town in 2008.

3. Livestock Management in Response to Sedentarization

When I started research at Tupcha clan settlement in the long dry season of 1999, the settlement was about 8 km north to the Korr town. There were no livestock in the settlement, and people depended on drought-relief foods and debts from shops in the town. It was more like a refugee camp than a pastoral settlement. However, people of settlement spent most of time talking about their animals, and informed me that they would start a *sorio* ceremony if the rain fell, and all animals would come back at that time. I soon realized that current livestock management would be the key to understand how Rendille have responded to the influence of sedentarization and other socio-economic changes. Therefore, I first observed how people had managed livestock herding under the situation of sedentarization and compared the results with studies did in 1970s-80s.

3-1. Dynamics of the Livestock Number

Raising multiple species of livestock and keeping maximum numbers of animals are both important adaptive strategies to the uncertain natural environment of East Africa. Pastoralists take advantage of the biological adaptabilities of different species and adjust their needs and uses to the quantity of livestock products for human consumption that are yielded by different species in different seasons. Large herds of livestock help pastoralists to maintain stable self-sufficiency as well as to absorb damages from unpredictable natural hazards (Dahl & Hjort, 1976; Sato, 1980; McCabe, 1985; Ohta, 1998). The Rendille have traditionally been camel and small stock herders (Spencer, 1973; Sato, 1980), but in recent years they have also begun raising cattle (Sun, 2004a).

In 2000, the Tupcha clan had 32 camel herds; the average number of camels per herd was 50.2, with an average of 22.4 adult and adolescent female camels (44.7%). According to Sato's observation in 1976 (Sato, 1980), the Tupcha clan had 26 camel herds, and the average number per herd was 49.1 camels. Herd sizes were almost the same in these two years, but in 2000 the total number of herds for the clan had increased 1.2 times, from 26 herds to 32 herds. On the other hand, Sato reported that in 1976, the Rendille had an average of 14.9 camels per household, while in 1989, following a severe drought, Fratkin reported only 3.3 camels per household (Fratkin & Roth, 1990). In 2000, I counted the camels to be 9.5 per household. Therefore, camel population had partly recovered from the damage of droughts in 1980s.

In 2003, the Tupcha had 11 herds of cattle; the average number per herd was 73.2, with an average of 35.8 cows and heifers (48.9%). The average number of cattle per household was 10.5. According to Sato's study (1980), the Tupcha had little interest in keeping cattle during the 1970s. In 1989, Fratkin (1993) reported an average of 2.6 cattle per Rendille household. Compared with these data, numbers of cattle have obviously increased. Although raising cattle was a recent innovation, it has attained a degree of success. On the other hand, numbers of small stock have also increased, from 32 animals per household in 1989 to 102 per household in 2000.

Since adult female animals are recognized as the basis of self-sufficiency in the pastoral production system, due to their ability to supply milk as well as their reproductive capabilities, the high average numbers of female camels and cattle within herds show the continuity of a livestock-based livelihood. On the other hand, the continuation of a large animal population demonstrates the Rendille's ability to protect and recover their livestock from damages caused by natural hazards.

3-2. Keeping High Mobility of Livestock Herding Camps

Keeping high mobility has been regarded as the most important livestock management strategy among pastoral societies of East Africa, which presented as a response to both environmental uncertainties such as the scarcity of natural resources and frequent droughts, and social and political uncertainties such as ethnic conflicts and livestock raiding. Since the trend of Rendille settlements settling near the new towns is considered as a major factor affected the mobility of human and livestock, I examined the current movements of livestock.

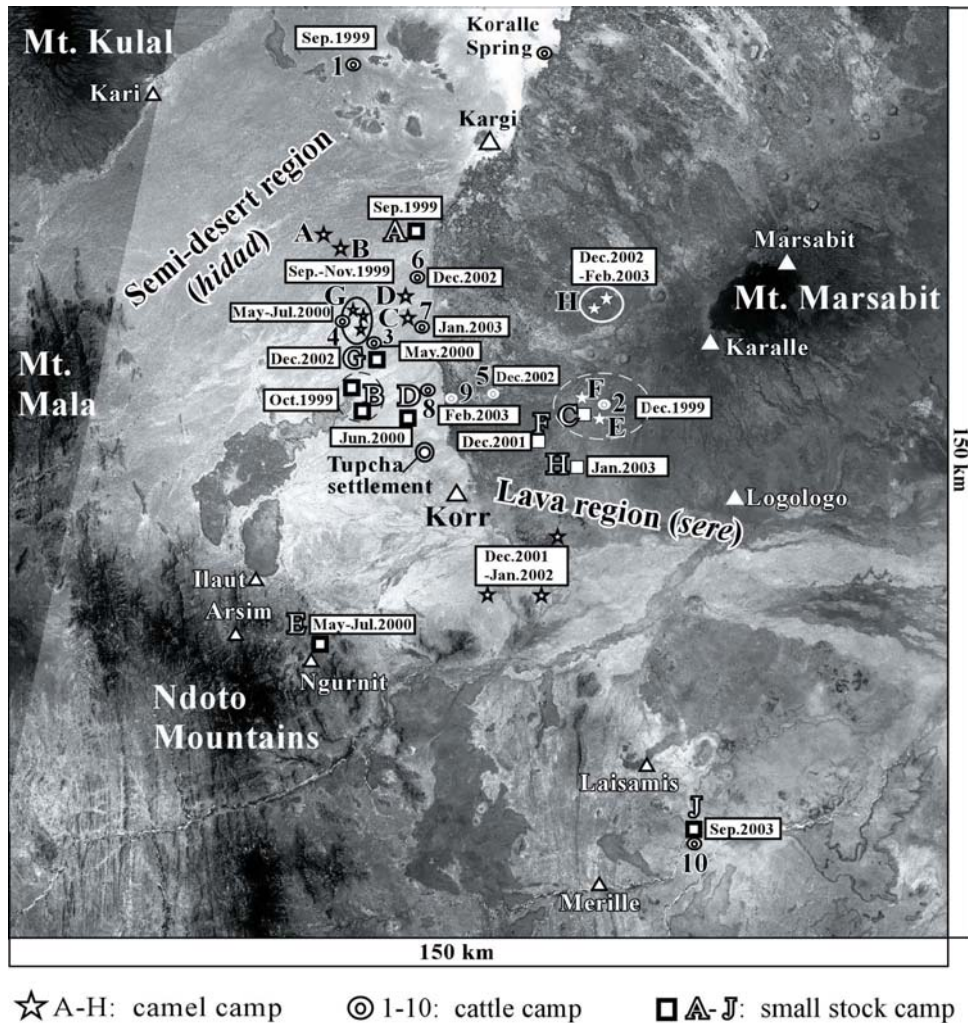


Figure 3. Positions of Tupcha settlement and herding camps.

The positions of the Tupcha settlement and livestock herding camps between 1998 and 2003, shown in Figure 3, are based on data collected using a global positioning system (GPS). During this period, the settlement had not moved far from the town of Korr, but herding camps moved frequently and covered a large area. Among these camps, camel camps were situated mainly in the semi-desert region, while cattle camps and goat and sheep camps were situated both in semi-desert and lava areas. In periods of drought,

cattle camps as well as goat and sheep camps moved significant distances from the settlement to access good pasture and water conditions, sometimes as far as 80 km (e.g., Camp-1, 10 and Camp-J). On the other hand, the average distance of camel herd traveled per day was 13.6 km in 1999-2000. Compared with Sato's (1980) report of 14.5 km per day, it is reasonable to think that high mobility of livestock has been remained.

Despite the sedentarization of settlements near the towns, herding camps frequently moved throughout a large area. Obviously, people living in settlements have less access to livestock products when compared to the previous residential pattern of seasonal fission and fusion of settlements and herding camps (Sato 1980). To solve this problem, people of settlements have improved seasonal fluctuation of human between settlements and herding camps.

Between September and December 1999, the Tupcha's camel herding camps moved six times (Camp A-F in Figure 3). I observed the construction of five camps, including three in the long dry season between September and November (Camp B, C, D) and two in the short rainy season in December (Camp E, F). During the dry season, 21-22 herds of Tupcha's camels joined together at camps set in the semi-desert grassland. The total populations of the three camps were 36, 43, and 40 people, respectively, and the average population per herd was 1.8 people. During the rainy seasons, these camel herds moved to the bushland near Mt. Marsabit. The two camps had total populations of 64 and 67, with an average of 3.1 people per herd. People explained to me that during the dry season, the volume of camels' milk is low, and they have to move a long distance to the water point every 10 to 14 days; thus, only herders are able to remain at the camp. In contrast, during the rainy season, when milk production is abundant and camels do not need to travel long distances for water, many people are able to live at the camps and rely on livestock for subsistence. Among 50 boys living in a rainy season camp, 28 boys (56%), at under seven years of age, were too young for herding tasks and just stayed for the milk.

Therefore, in the Rendille's current livestock management, the sedentarization of settlements near the town has neither centralized livestock into a limited area nor restricted their movements. The high mobility of livestock is maintained by separating settlement and herding camps and by keeping animals at camps; and the seasonal fluctuation of the human population at herding camps helped people of settlements to have more access to livestock products. The Rendille provide many reasons for why they have to move their animals frequently, including ecological factors such as looking for good pasture and water and avoiding drought, and socio-economic factors for performing ritual ceremonies, avoiding raids and conflicts, and accessing to livestock markets (Sun, 2002).

3-3. Distribution of Labour in Herding Tasks

In East African pastoral societies, social institutions such as descent and age systems are regarded as the principal structures underlying livestock management practices. In Rendille society, despite the growth of population and sedentarization, people continue to establish settlements consisting of members from the same clan. Households in the same settlement develop and maintain cooperative relations that exist in both herding and other day-to-day activities. Livestock herding camps, especially camel camps, typically consist of all of the animals from a settlement.

The age system basically functions to establish social relations and manage livestock herding tasks. In Rendille society, male age-grades distinguish boyhood, warriorhood, and elderhood, while female age-grades mark girlhood and womanhood. A collective circumcision ceremony is held every 14 years. After this ceremony, boys are initiated into a new age-set to become warriors. At the same time, those young men of previous warriorhood age-sets get married and become elders. Girls are initiated into womanhood through marriage.

Generally, small boys and girls stay in the settlements with their parents. At the age of seven years old, they start herding small stock around the settlements or near herding camps. Boys of ten years old or older are sent to camel or cattle herding camps and girls of this age are sent to small stock camps. Young men of the warriorhood age-grade are in charge of camel or cattle camps and are regarded as a defensive force during periods of regional instability. Most married men and women live at the settlements, where married men are in charge of local politics and ritual matters, and women engage in housework (Spencer, 1973; Sato, 1980).

In 2000, the Tupcha settlement had a population of 282 people, including 177 (63%) living at the settlement and 96 (34%) occupying the herding camps. Out of 39 married men, 22 (56%) lived at the settlement, ten (25%) lived in small stock herding camps, and two (5%) resided in camel and cattle camps. In contrast, among a total of 60 married women, 57 (95%) lived at the settlement. At this time, 16 young men belonged to the warriorhood, and 15 (94%) of them were in charge of the livestock herding camps. Thirty-one young boys (67%) and 32 young girls (64%) over seven years old lived in herding camps, whereas 66 infants (93%, boys and girls together less than seven years old) lived at the settlement. Therefore, the continuation of the age system and the practice of labor distribution through sex, age, and marriage made it possible for the Rendille to maintain their dual-residential pattern as well as the high mobility of livestock illustrated in Figure 3.

4. Challenging new Opportunities from Sedentarization

4-1. Developing New Water Resources

Although many factors affect the mobility of livestock, I observed that water availability causes the highest frequency of herding camp movement. According to the Rendille, camels can survive without water for two weeks, while small stock must be watered every three to four days during the dry seasons. However, cattle have to be watered every two to three days year-round. Since the only permanent surface water, Koralle Spring, is located far north of the central lowland where most Rendille have settled (Figure 3), only camels can travel to the spring for water. Cattle as well as goats and sheep use wells near settlements or towns. Most of these wells were dug in recent years as part of development projects.

In the 1970s and 1980s, water resource development was recommended as key to the success of development projects in East Africa's arid and semi-arid areas (Republic of Kenya, 1991). In Rendille land, geographic surveys of water veins, sponsored by Germany's Agency for Technical Cooperation (GTZ) and other international donors, were conducted along some big wadis, and several shallow wells were dug by the Rendille under the guidance of experts associated with development projects. However, in the 1980s, when global environmental problems began to attract much more attention than local development plans, water resource development came to be criticized for causing desertification. In Rendille land in the early 1990s, water resource development projects were gradually neglected and later disbanded. However, the Rendille, who had learned well-digging skills as well as the places where groundwater was likely to be found, began to dig wells by themselves. Figure 4 shows the distribution of wells dug by people of the Tupcha clan and the Saale clan settlements between 1998 and 2001.

In 2001, 34 wells were either complete or under construction within a 500 m area along a wadi. Of these, 20 were used for watering animals, while the rest were still works in progress. In contrast, in 1998 when I first stayed at the Tupcha settlement, there were only two wells. Well-i was finished and usable, whereas well-ii was still under construction. However, by 2001, the Tupcha had increased their number of wells to ten. Of these, six (i-vi) were available for use, while four were still being built. The wells were concentrated in a relatively small area because of the belief that water could be more easily found close to wells already proven to be viable. Both individuals and groups of people owned the wells, either the people who actually dug the well, or those who had financed the digging.

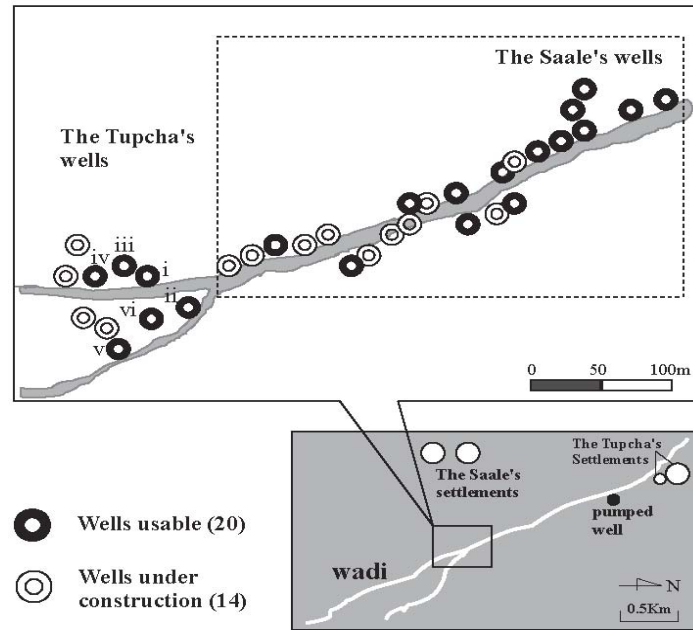


Figure 4. Wells dug by people of Tupcha and Saale settlements.

Digging wells in the central lowland is hard, time-consuming work. Tools are limited to hammers and iron sticks, and the bedrock under the wadi is thick and hard. Normally, it takes two to three months to dig a well. Despite these difficulties, over the last few years, well digging has become a booming business in the Korr area. This has important implications for sedentarization. As most settlements are near towns, wells are very convenient for daily use by many people. In addition, the location of wells, near permanent settlements, makes it easier for the owners to maintain and manage them. Furthermore, I found that people were trying to organize their animals at camps so they could be watered at these new wells. As illustrated in Figure 3, despite the sedentarization of settlements, livestock herding camps have continued to move frequently throughout a large area. Although this separation between settlement and camps has meant less access to livestock products for people at the settlements, herders tended to pass their animals through settlements before or after they watered their animals at the new wells. This arrangement has both helped people at the settlements gain livestock products and strengthened the relationship between settlements and herding camps. Moreover, since cattle must be watered every 2 to 3 days year-round, it would be impossible to raise cattle in the semi-desert grasslands without these wells.

4-2. Challenging New Economic Opportunities

Before the advent of towns in the central lowlands, it has been reported that the Somali traders transported agricultural products and general merchandize by caravan, and bartered with the Rendille. Furthermore, according to interviews with the oldest Somali merchant, who had resided in Korr for more than two decades, the Rendille used to travel

long distances to buy food and general goods and transported them by camels or donkeys before their settlements moved closer to towns.

However, more than 20 permanent shops are now located in Korr, and more than 50 settlements exist near the town today; the local economy has grown quickly, and the contacts between people of the towns and of the settlements have become frequent. In addition to the distribution of relief foods by the missions and the work of development agencies in the town, people living in settlements, especially married women, now visit Korr town every 3-4 days.

Relief foods have been distributed in Korr by missionaries such as the Catholic Mission and the AIC, and by international agencies such as the FH (Food for the Hungry) and the WFP (UN World Food Programme). This distribution of food was one of the major reasons the Rendille settled near Korr during the 1980s (Fratkin 1991, 1998). Today, relief foods are not often distributed in Korr except during extended drought periods. People living in settlements do not consider relief foods a major part of their food supply, though they expect to receive such foods for free.

In 1999-2000 an extended drought was recorded, and relief foods were distributed by the WFP and by missionaries in northern Kenya. During the observation period previously mentioned, people of the Tupcha settlement received maize flour four times: 20 kg per household on June 1 from WFP, 5 kg per household on June 26 from the Catholic Mission, 20 kg per household on June 28 from WFP, and 20 kg per household on July 12 from WFP. Generally, when relief foods are sent to Korr, married men from settlements go to the town to attend a meeting at which schedules for receiving food are set up. Then it is married women's job to go to the town and pick up their food. Since the food is carried to settlements by manpower alone, it is difficult work for the women if the settlement is far from the town. Therefore, while relief food is as an important supplement for the Rendille during periods of drought, it is undeniable that relief distribution promotes the sedentarization of the pastoral settlements.

People in settlements buy not only staple food such as maize, but also other items such as sugar, tea, chewing tobacco, and general goods such as clothes, sandals and torch batteries. However, the cash income of people living in settlements is very limited. Except for selling animals, usually goats and sheep, people have few opportunities to earn cash.

A notable feature of the business relationships that pertain between shops in Korr and people in settlements is a "credit" system described by shopkeepers. When people from a

settlement need to buy food or goods but do not have any money, they first go to those shops where the shopkeepers either know them or have a relationship with someone from the same settlement or clan. Then, people from the settlements order their goods and let the shopkeeper write their names in a notebook; thus, an individual's "credit" account starts. Generally, people continue to purchase goods at the same shop in order to strengthen their credit until they have money to repay their debt. Undoubtedly, this credit system requires mutual trust between shopkeepers and buyers. If the people from the settlements allow their credit increase but do not have the ability to repay, the shopkeeper may suffer a loss. Conversely, if the shopkeeper refuses to continue their credit, people from the settlements may suffer food shortage problems. During an interview with the shopkeepers, most of them said that they believed that debts, generally, would be repaid. Furthermore, by maintaining strong relationships with some members of the settlements, the shopkeepers obtain the information about people's property, such as livestock numbers and, on the basis of this information, decide the amount that they will extend credit.

Settling near the town has led to more expenses and demand for cash. Here I compare the items and expenses used in a wedding ceremony. The Rendille hold weddings at the bride's father's settlement, and it is the bridegroom's duty to prepare for the ceremony. During the ceremony, people from both the bride's and bridegroom's settlements are welcomed and are offered tea and chewing tobacco. The bridegroom prepares the animals for slaughter, as well as the sugar, tea, and chewing tobacco for the guests.

When warriors of the Ikichiri age-set held their weddings in 1976-79, 1-2 kg of sugar and small amounts of tea leaves and chewing tobacco were prepared. When warriors of the Ikororo age-set held their wedding in 1990-93 (a transitional period of sedentarization), each warrior bought 2-10 kg of sugar, small amounts of tea leaves, and 1-2 kg of chewing tobacco. However, when warriors of the Irmori age-set prepared to hold their weddings in 2002, each was required to buy 50-100 kg of sugar, 80 bags of tea leaves (50 g/bag), 4 kg of chewing tobacco, 3 to 5 pieces of clothing, and one cattle hide. These items would cost a warrior 6,000-9,000 Ksh, which equals about six months of daily expenses of a household at the settlement.

According to interviews with people from different age-sets, the reason for the increase in wedding costs is because of the sedentarization of settlements near the towns. Before people settled near towns, the distances between different clans' settlements were greater, and wedding ceremonies were held only for close relatives of the bride and bridegroom; thus, smaller amounts were sufficient for gifts. Once more people settled near the towns, visiting other settlements became more common and people enjoyed attending wedding

ceremonies. Thus, more provisions were required to offer to the expanded number of guests. Furthermore, weddings have developed into a competitive situation between warriors of different clans for showing off their wealth and generosity.

However, the growth of Korr town has created few opportunities to improve people's cash income. Most people living at the settlement rely on selling animals for cash. From November 2002 to March 2003, I recorded the numbers of camels and cattle that were sold by the Tupcha's two settlements in Korr. Although no camels were sold during this period, twelve cattle were sold to livestock markets, including seven cattle sold for warriors' weddings, two for hospital fees, and three for secondary school fees. Based on interviews, people at the settlements tended to sell cattle when they needed a sum of money. This trend is related to the demand of the livestock market.

There is no permanent livestock market in Korr. People have to travel a long distance to livestock markets either in Marsabit city or in the neighboring Samburu and Isiolo district. Since animals traded at these markets are mainly for meat to supply cities such as Nairobi, cattle for beef are quite valuable and can sell for the highest price among livestock. In contrast, the most important animal for the Rendille's subsistence, the camel, fetches a relatively low price at the market. Thus, the increasing popularity of cattle-raising correlates both to the increased need for cash in the settlements and the high price of cattle in the livestock markets.

In recent years, with the development of the transportation system, some Rendille have left Rendille land and become wagers in Nairobi or other cities of southern Kenya. Since most wagers are married men who have families living in settlements, the money they send back to their families may solve their daily cash demand problems, but also has the consequence of accelerating the cash economy in Rendille land.

Though few workers earn a good wage, some people still try to save money to buy livestock. During the period of field research, a married man who had worked in Nairobi for several years returned to the Tupcha settlement for a holiday, where he bought two adult male camels from two households in the same settlement. According to him, he tried to buy female camels, but could not find any to buy; therefore, he bought male camels with the expectation of exchanging them for females at a later time.

Compared to married men, relatively few warriors have stayed and worked in Nairobi. Interviews with Tupcha warriors revealed that most of them show some interest in working outside Rendille land. Nevertheless, most warriors have also reached a consensus that, as warriors, they have responsibilities to manage their livestock as leaders

in the herding camps until the next warrior age-set grows up and can take over their work.

5. Conclusion

Figure 5 illustrates the differences of pastoral practices between the 1970s and today. During the 1970s, the seasonal fission and fusion of the settlement and the herding camps was the most important pastoral strategy, enabling people to cope with the scarcity of resources and environmental uncertainty. According to Sato's study, the seasonal movement of settlements took one to two days and typically covered a distance of 15-40 km (Sato, 1980). However, as shown on the right side of Figure 5, after the settlement moved into the vicinities of the newly developing town, livestock were managed in remote herding camps and kept moving frequently throughout the year.

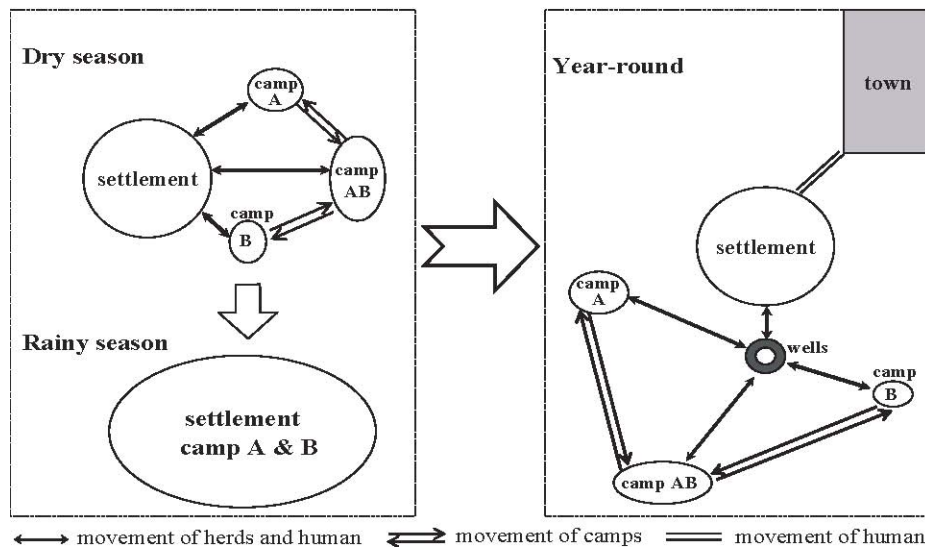


Figure 5. Change of residential patterns.

The interaction between settlements and herding camps has become more important; as the activities on maintaining cooperative relationships and social institutions in settlements contribute to the organization and management of herding camps, while the production activities of herding camps secure and improve the livelihood of the settlement. The new wells dug in recent years connect the settlement to the herding camps; these wells both improve the living conditions at the settlement and enable people living there to gain livestock products. Thus, the recent well-digging boom could be a positive sign showing an improvement to the Rendille's pastoral subsistence strategies. In addition, wells have improved the conditions affecting cattle-raising, which has become an important response to the growth of a cash economy in Rendille land.

In maintaining the mobility of livestock, two factors are particularly important: the communal use of rangeland and relationships with neighbouring ethnic groups. In Rendille land, with the exception of the Marsabit National Park and farms located on the top of Mt. Marsabit, the Rendille treat all areas as communal lands. The Kenyan government has not pressed privatization policies in areas of Rendille habitation because of the unpredictable climate as well as the dearth of productive land for cultivation. This state neglect gave the Rendille a great advantage in continuing their communal use of rangeland and moving their animals frequently. However, ethnic conflict and livestock raiding between different pastoral societies remain unstable factors that affect human and livestock movements. During the period of drought, competition over the use of natural resources, such as water points and rangeland, may cause conflict between the Rendille and neighbouring ethnic groups.

The new developing towns have had huge impact on pastoral subsistence. This includes a positive side reflected on the improvement of access to education, public health, and relief, and a negative side which prompted sedentarization and cash economy. Moreover, towns have functioned as communication centers in recent years, where local committees hold meetings to discuss their problems as well as get in contact with national politics and economy. Under the situation of sedentarization, the Rendille have created a significant “credit system” with small shops in town, which offers them opportunities to buy foods and goods from shops even without cash in hand. On the other hand, in response to the growing cash demand in daily lives, people have attempted some new economic activities, such as selling cattle in big markets and engaging wage works in towns or big cities. These could be considered as a process of diversification of household economy, which may help to reduce vulnerability to poverty.

Most large-scale development projects supported by international development agencies and national governments in the 1980s and 1990s failed to achieve their goals. During this period, nomadic pastoralism was regarded as highly conservative, and pastoralists were criticized as both passive and uncooperative. However, as this paper shows, the Rendille pastoral subsistence has changed from a relatively closed and self-sufficient system to a complicated local system in the last three to four decades. They are in the process of creating new livelihood strategies, which not only have the ability to remain livestock herding, but also are capable of responding to profitable opportunities brought from outside.

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