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The Economics of Pastoralism in Northern Kenya: The Rendille and the Gabra

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IPAL Technical Report No. F-3

THE ECONOMICS OF PASTORALISM IN NORTHERN KENYA: THE RENDILLE AND THE GABRA

by

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UNESCO-MAB FRG Integrated Project in Arid Lands

SUMMARY INTRODUCTION TO IPAL AND THE TECHNICAL REPORT SERIES

The Integrated Project in Arid Lands (IPAL) was established by UNESCO with financial support from UNEP in 1976 with the aim of finding direct solutions to the most urgent environmental problems associated with desert encroachment and ecological degradation of arid lands. It forms part of the international UNESCO Programme, Man and the Biosphere (MAB) which has links not only with UNEP's Desertification Unit but also with FAO, in response to the Plan of Action adopted by the 1977 United Nations Conference on Desertification. It is an example of the type of pilot activity that UNESCO and UNEP, together with other organizations and a number of government, are trying to promote to provide the scientific basis for the rehabilitation and rational management of arid and semi-arid zone ecosystems, through integrated programmes of research (including survey, observation and experimentation), training and demonstration. Phase III of the project, 1980-1983, is supported by funds-in-trust to UNESCO provided by the Federal Republic of Germany.

During the first phases of IPAL, a co-ordination unit was established in Nairobi and the initial field work started in the arid zone of northern Kenya in a working area of 23,000 km^2 situated between Lake Turkana and Marsabit Mountain. The Project now operates five field stations, at Mount Kulal, Olturot, Kargi, Korr and Ngurunit, with the project headquarters in Marsabit, which is the administrative centre of the District. Since its establishment the project has researched several aspects of experimental management of the region, concentrating upon the 'human ecology' of the nomadic pastoralists in dynamic interrelationship with the animals, plants and other resources of the drought-prone uncertain environment.

During the following three years (1980-1983), the investigations in progress have been extended and intensified to develop resource management plans or models for the area, taking into account the increasing human population, the trend towards sedentarization, the degradation of primary productivity and the increasing incidence of soil erosion all of which are factors resulting in the necessity for constant famine-relief measures in the region. Results obtained in the project are the subject of a number of training workshops and seminars in which Kenyan and regional scientists from the Sudano-Sahelian region participate.

This report is one of a series published by IPAL describing technical findings of the project and, where appropriate, giving management recommendations relating to the central problems of ecological degradation in the arid zone. The reports are divided into the following categories, distinguished by the base colours of their covers:

A general, introductory and historical: white

B climate and hydrology: blue

C geology, geomorphology and soils: brown

D vegetation: green

E livestock and other animal life: red

F social and anthropological: yellow

THE RENDILLE

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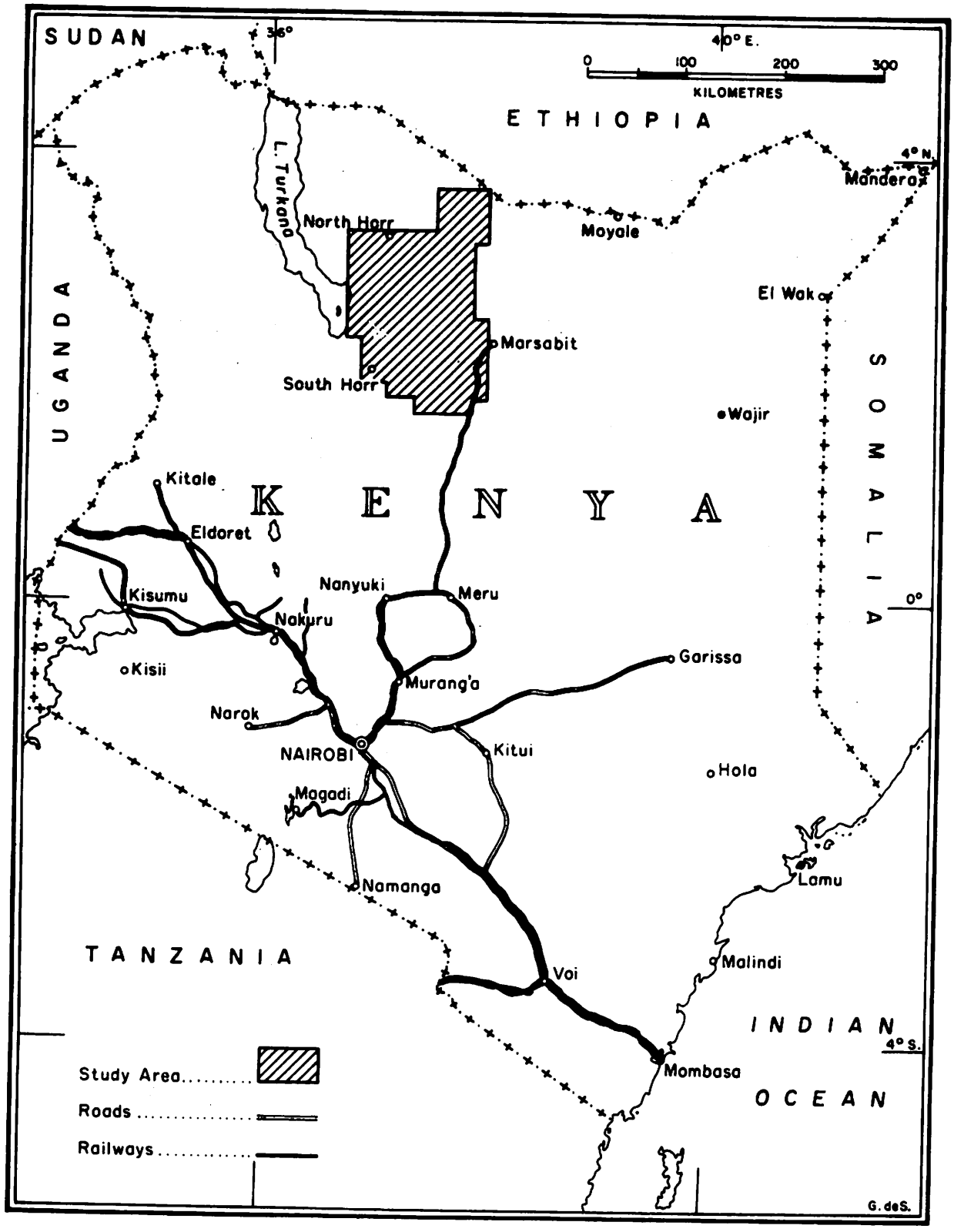
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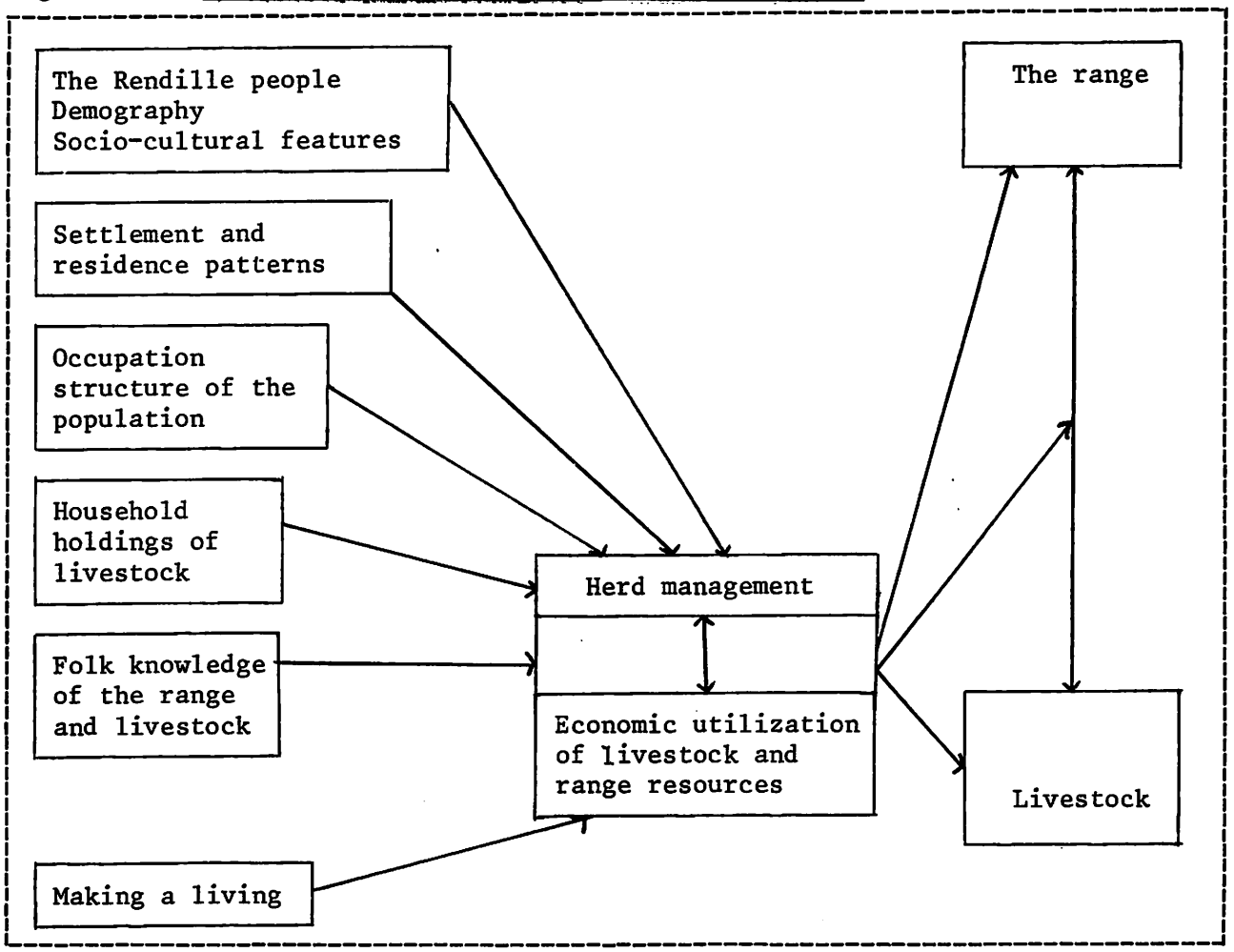
Chapter 1

INTRODUCTION

Given the time-scale I worked within and the other assignments I had - fieldwork and analysis of the Gabra pastoral system, contributions to the management plans for western Marsabit and papers given at seminars held under the auspices of IPAL - I had to place limits on my analysis and reporting on the Rendille livestock production system. Hence it follows that this is a preliminary report. This time constraint did not permit me to compare my findings with those of other anthropologists. The main focus was on producing a preliminary analysis of the data which were collected in the field.

Figure 1.1 illustrates key factors in understanding how the pastoral system of the Rendille operates. This report concentrates on analysing these factors and some of the interconnections. Time did not allow me to write on the impact of drought and outside contact (with the wider economy and government) on the Rendille production system. However, I have made contributions on these topics in the management plans (Lusigi, 1984).

Figure 1.1 Key factors of the Rendille pastoral system



Time was insufficient to consider learning the Rendille language as is the normal practice of anthropologists. However, IPAL gave me the resources to employ four full-time Rendille field assistants, namely Messrs. Peter Geikuku (assistant-in-charge), John Rigano, Leiti Galborana and Augustine Nyayaba Ilmweti. All are fluent in three languages: Rendille, English and Swahili. Much time was spent in training them in anthropological approaches.

To assist me in the analysis of my data I bought an Apple II Europlus at my own expense and IPAL provided financial resources to employ Dr. Frank Damm, Department of Physics, Kenyatta University College, on a part-time basis. He prepared computer programmes which accepted and analysed much of my data. Given more time more of the data could be computerized.

An interesting feature of the human ecology programme of IPAL was the aerial surveys conducted to study the movement and settlement patterns of the Rendille. Dr. Hugh Lamprey initiated me into the necessary techniques and he and Mr. Stephenson acted as pilots. We conducted four aerial surveys over the Northern Rendille and one over the Southern Rendille.

Chapter 2

THE RENDILLE PEOPLE

A. THE RENDILLE CLANS

The Rendille population is divided into two contrasting sections or moieties known in the Rendille language as Belisi-Beri (eastern moiety) and Belisi-Bahai (western moiety, Sato 1980) (1). The former moiety is said to be numerically larger than the latter. Each moiety is divided into a number of patrilineal clans (*gob*) and clans into subclans (*khod*). Subclans contain a number of patrilineages (*era*). The following table outlines the main clans and subclans discovered during research (2). The Rendille order their clans and subclans according to a system of ritual seniority (*weinan*). The Odola clan does not belong to either moiety (Beaman, 1981).

Table 2.1 The Rendille descent system

Moiety	Clan	Subclan
Belisi	Dubsahai	Wambille, Bulyar, Gudere, Mirigichan, Fur
Bahai	Rengumo	Ongom, Seye
	Nahagan	Dhurole, Galgorowle, Bahaiyeyto
	Matarbah	Galgidhele, Fecha
	Uyam	Basele, Galhaile
Belisi	Sale	Nebei, Goborre, Elegela,
Beri		Galoroyo, Gobanai, Gabana (Gabaneyo)
	Urawen	Jalle, Arigelle, Adisomelle
	Galtheilan	Kele, Mathacho, Galoro
	Tubcha	Galdydaye (Orbora), Galeithimot (Dhele)

The Ariall Rendille, who live in the southern part of the Rendille area, are regarded as Rendille who have adopted the ways of the Samburu. Their principal clans are Ongeli, Lukumai, Masula, Ilturiya and Neruguchu. Owing to time constraints, most of the work of the human ecology programme has been conducted amongst the 'pure' Rendille in the north.

The majority of the residents of a camp belong to the same clan or subclan and camps are frequently known by their clan or subclan affiliation. Each clan has its own myth of origin and plays particular roles within

Rendille society (Beamann, 1981). We did not research this aspect of Rendille life but it came to our notice that the Tubcha clan, for example, are the ritual caretakers of the Korole springs - the principal waterpoint of the Northern Rendille. No animals can be watered at these wells after the rains until elders of the clan perform the opening ceremony.

In the modern context politicians use the internal segmentation of the tribe as a means of soliciting support. Moiety or clan candidates rely mainly on support from members of their moiety or clan. Spencer (1973) notes a close association between tracts of rangeland and particular clans. This seems to be breaking down, perhaps due to the emergence of settlements where there is an increasing admixture of clans. However, where conflict exists between particular clans they avoid each other on the grazing grounds and Administrative Police are present at the Korole springs when the camels of opposing clans come to water lest latent animosities flare up.

B. THE RENDILLE AGE-SET SYSTEM

Another over-arching structure in Rendille society is the age-set system, which corresponds closely to that of the Samburu (Spencer, 1973). Every fourteen 'lunar' years (see Chapter 3, Section E) all youths between approximately the ages of 17 and 30 are circumcised en masse and thereby become warriors (*moran*). Boys as young as 10 years of age who are senior sons and whose fathers have died may be circumcised before their time. All clans move camp to a limited number of places for the circumcision rites and each clan is responsible for initiating its own youths. In 1979, the year of the last public circumcision, young Rendille who were working outside the district absconded from their posts in order to participate in the rites. This is a measure of the importance that initiation rites hold for individuals. Warriors are only entitled to marry 11 years after circumcision. Some in the community are breaking away from the customary practice of circumcision and even marry out of turn. Each set or cohort of warriors is known by a common name. Table 2.2 outlines the Rendille age sets of this centry and gives the dates when initiation took place and when warriors were free to marry.

The ideal residence for warriors is the satellite camp (3), where their primary task is to protect livestock and assist in digging and watering stock from deep waterholes. Where there are insufficient numbers of younger siblings to herd, warriors also assume herding duties. In the evenings their

delight and privilege consists in courting girls who are at the satellite camps.

Table 2.2 Rendille age sets

Age set	Initiation date	Marrying date
Irbangutho	1898	1908
Defungutho	1911	1922
Irbalis	1925	1935
Libale	1938	1949
Irbagutho	1952	1962
Irpandif	1965	1976
Defgutho	1979	

The warriors constitute the military wing of Rendille society and are expected to be brave and courageous, particularly against the common enemy. However, on occasions inter-clan clashes between warriors do take place which become a concern for the Rendille elders and Government administration. For example, in May and June 1982, a series of clashes occurred between the warriors of the Tubcha and Dubsahai clans at Kambini some 25 km from Marsabit town. They were sparked off when a Tubcha cattle owner assaulted a Dubsahai warrior who, instead of standing his ground, fled. In order to recover lost honour the Dubsahai warriors returned to severely beat up the cattle owner. This led to increased conflict between the warriors of both clans. The District Commissioner had to organize a public meeting at Kambini at which the local MP, Government officers and elders were present. Animals were slaughtered and the warriors of the combating clans ate at each other's camps. As it turned out the reconciliation did not last and in July 1983 a number of Dubsahai warriors were murdered in an inter-clan clash. Such incidents have the effect of maintaining and strengthening the boundaries between clans of the different moieties and may well be condoned (if not encouraged) by those who are interested in perpetuating an intra-tribal clanishness for political reasons.

C. POPULATION STATISTICS

The national population census data (1979) for the Rendille are shown in Table 2.3.

Table 2.3 Rendille population figures

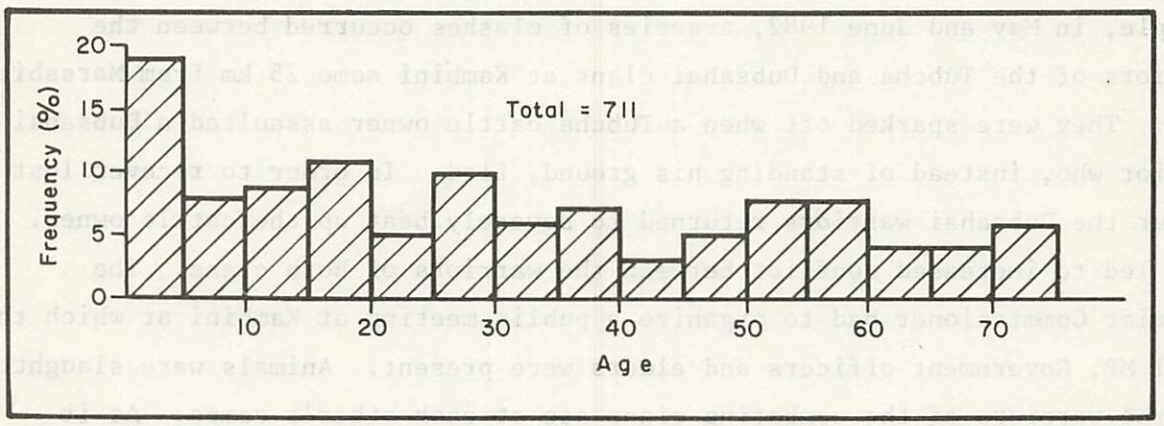
Area	Male	Female	Total
Kenya	10,940	10,854	21,794
Marsabit District	9,881	9,975	19,856
Rendille Homelands	9,138	9,274	18,412

Source: *Kenya Population Census*, 1979, Volume 1, pages 71, 131 and 150.

These figures indicate that 84.5% of the Rendille reside in their homelands, 6.6% live elsewhere within Marsabit District and 8.9% reside outside the District.

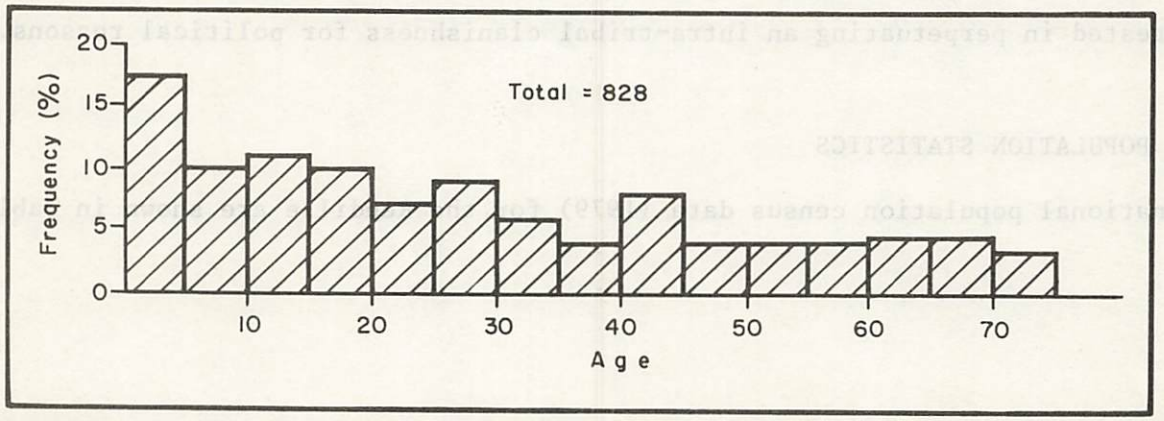
The following table and histograms were derived from our own data on the age/sex of 1,539 people.

Figure 2.1 Ages of females



Mean: 27.6
Standard deviation: 21.9

Figure 2.2 Ages of males



Mean: 25.5
Standard deviation: 20

Figures 2.1 and 2.2 indicate that there are more males than females in the population. For example, the sex ratio for the total population studied is 100:86 (i.e. 86 females for every 100 males). This is a demographic feature of nomadic societies. Table 2.4 shows the sex ratios of the population when divided into age categories.

Table 2.4 Sex ratios according to age categories

Age category	Sex ratio
0 - 4	100: 92
5 - 9	100: 68
10 - 14	100: 73
15 - 19	100: 92
20 - 24	100: 67
25 - 29	100: 75
30 - 34	100: 83
35 - 39	100:141
40 - 44	100: 33
45 - 49	100:103
50 - 59	100:161
60 - 69	100: 82
70 -	100:148

This illustrates that amongst the younger age categories there are more males. However, in some of the older age categories there are more females than males. In fact the age/sex ratios of the populations younger than 35 and 35 and older are 100:80 and 100:100 respectively. The difference is partly explained by the fact that women tend to live longer, as indicated in the differences of means between the ages of males and females (Figures 2.1 and 2.2).

The male numerical predominance cannot be explained by the fact that more care may be given to male infants and children, because greater incidences of male infant and child deaths were recorded (see below, Section H). In addition Rendille say that they do not discriminate between the sexes in infant and child care.

Another demographic feature gleaned from the tables is the youthful structure of the population. Those under the age of twenty constitute 48%

of the population, those under the age of twenty-five 55%, and those under thirty 63%. Finally, since the Rendille marry en masse every 14 lunar years it is expected that the age categories 0-4, 15-19, 25-29 and 40-44 will contain more people than adjacent categories, as is borne out by Figures 2.1 and 2.2.

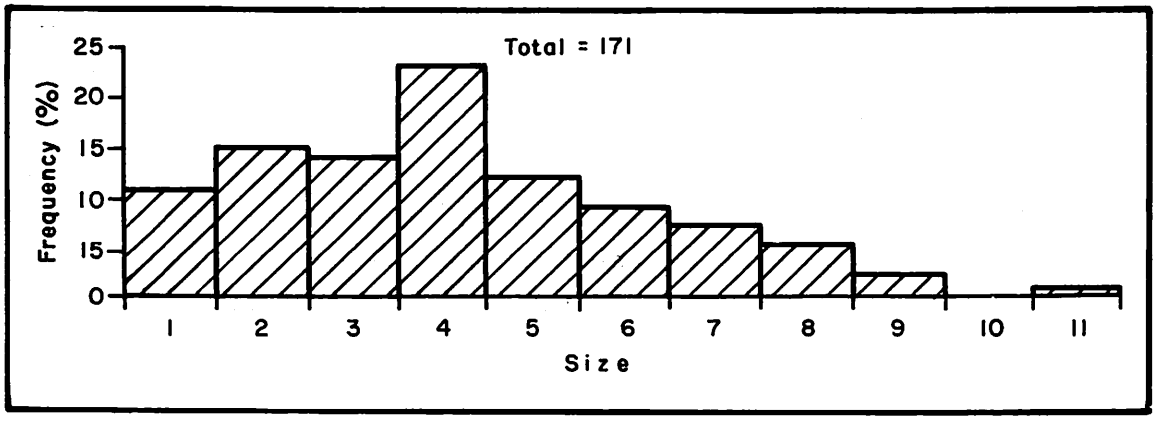
D. HOUSES, HOUSEHOLDS AND FAMILIES

By a house we mean the group of people attached to a dwelling house or tent. Each house normally has an adult woman who is either married (and hence under the care of her husband) or widowed. Included in the house are all the unmarried children of the woman of the house, and those who have been adopted or hired in.

The household is defined as the smallest domestic group which owns its own independent smallstock herd (cf. Dahl, 1979). The household may consist of one or more houses depending on how many wives the household head has, whether his dependent widowed mother lives with him or whether his eldest married son shares a common flock with him. Our concept of household differs from Dahl's concept in so far that she defines it as 'a residential local unit'. We define it as an ownership unit irrespective of whether all its members reside together or not.

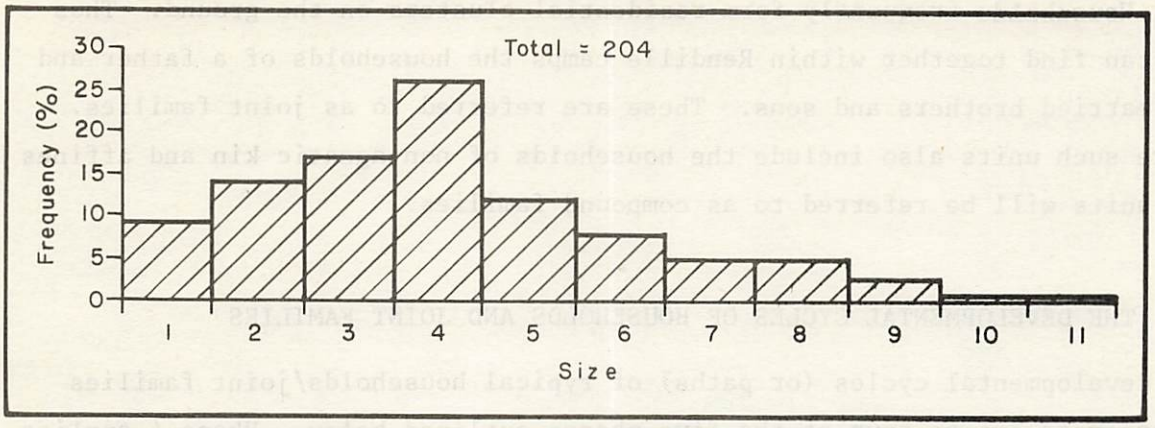
The following figures (2.3 to 2.6) outline the distribution of house and household sizes. There is no significant difference in size between country and town houses. However, country households are significantly larger than town households.

Figure 2.3 House size (town)



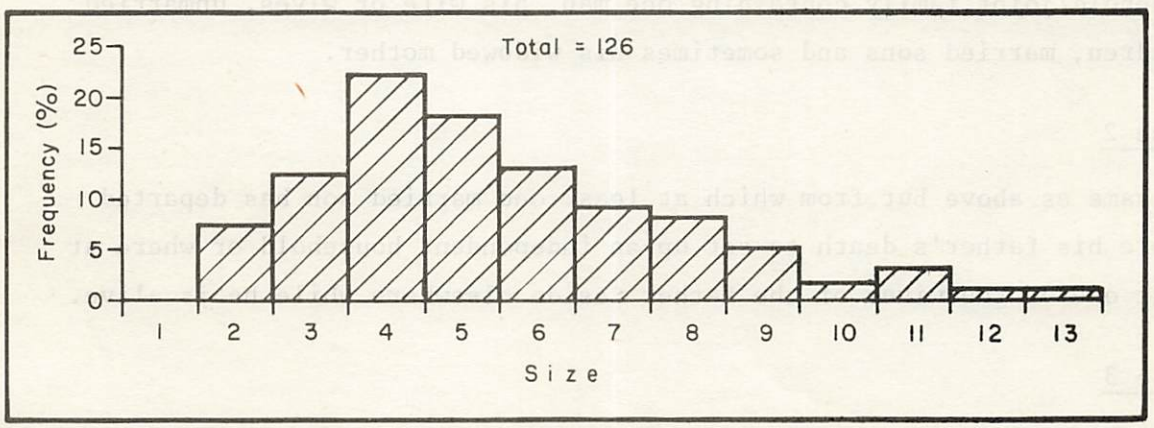
Mean: 4.1
Standard deviation: 2.2

Figure 2.4 House size (country)



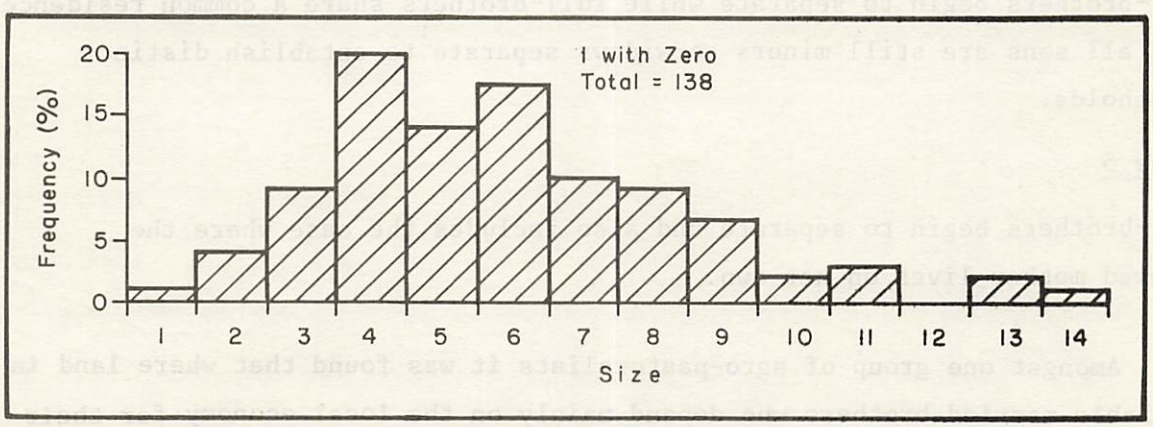
Mean: 4.1
Standard deviation: 2.1

Figure 2.5 Household size (town)



Mean: 5.4
Standard deviation: 2.4

Figure 2.6 Household size (country)



Mean: 5.9
Standard deviation: 2.6

Households frequently form residential clusters on the ground. Thus one can find together within Rendille camps the households of a father and his married brothers and sons. These are referred to as joint families. Where such units also include the households of non-agnatic kin and affines the units will be referred to as compound families.

E. THE DEVELOPMENTAL CYCLES OF HOUSEHOLDS AND JOINT FAMILIES

The developmental cycles (or paths) of typical households/joint families incorporate one to four of the five phases outlined below. Phase 4 applies only to polygynously based households.

Phases in developmental cycles

Phase 1

Household/joint family containing one man, his wife or wives, unmarried children, married sons and sometimes his widowed mother.

Phase 2

The same as above but from which at least one married son has departed before his father's death to set up an independent household or where at least one of the wives of the father reside elsewhere while he is alive.

Phase 3

Sons remain in common residence after their father's death under the authority of the eldest son when at least one of them is married; when all sons are minors co-widows decide to remain together, while the single widow lives on her own with her son(s).

Phase 4

Half-brothers begin to separate while full-brothers share a common residence; when all sons are still minors co-widows separate to establish distinct households.

Phase 5

Full-brothers begin to separate and also includes the case where the widowed mother lives on her own.

Amongst one group of agro-pastoralists it was found that where land is available married brothers who depend mainly on the local economy for their livelihood tend to separate and establish independent households on their own land. On the other hand, where brothers depend greatly on labour migration

they tend to place their wives back at home in a common homestead where a stay-at-home brother takes care of their wives and supervises their interests in livestock and cultivation (O'Leary, 1983, 1984). Amongst pastoralists who depend mainly on livestock for their livelihood it is expected that in many instances a brother will delay his permanent departure from his other brothers until he is assured that he has access to sufficient livestock and labour to support his household. He may well be middle aged before he achieves this.

Figure 2.7 Phases of households/joint families (town)

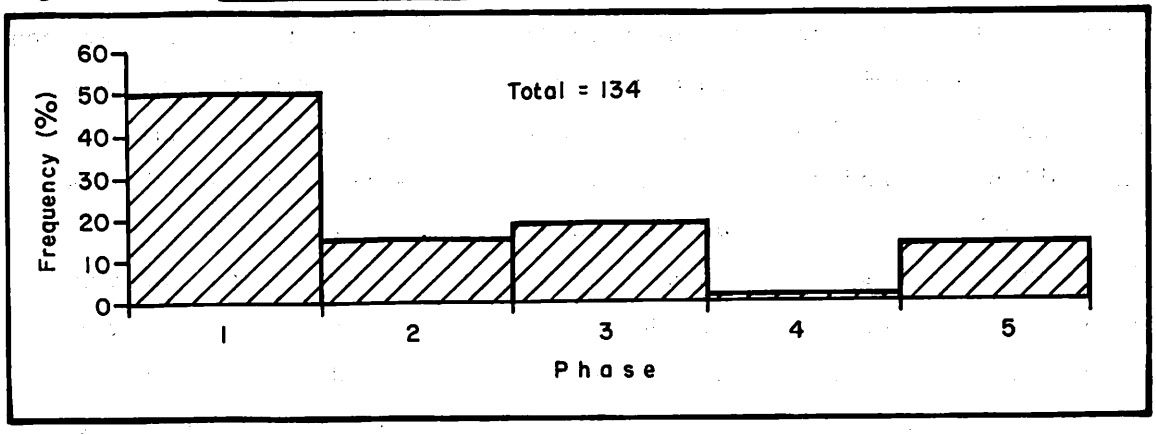
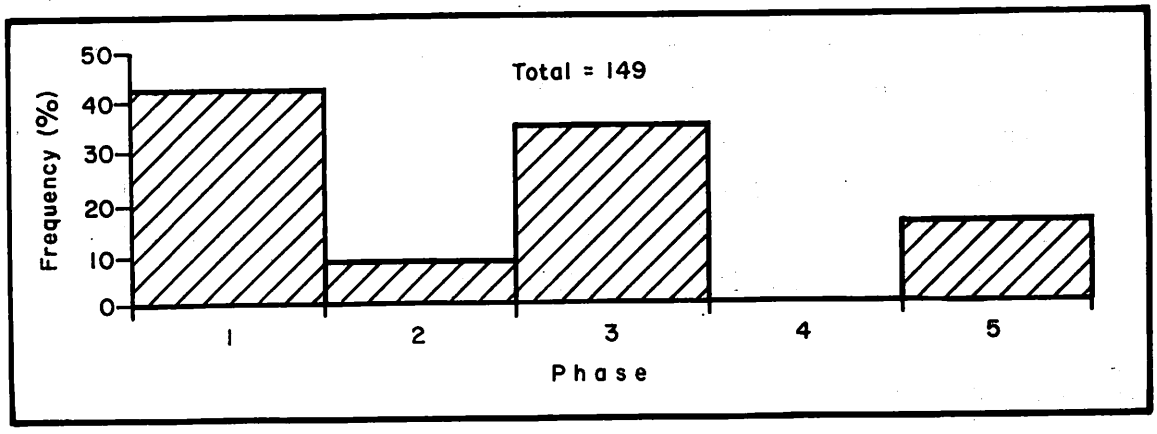


Figure 2.8 Phases of households/joint families (country)



The data from Figures 2.7 and 2.8 indicate that there is a significant difference between the strategies of brothers who reside in the town and of those who live in the country. In the town camps only 33.6% of households/ joint families are constituted by brothers who reside together after their father's death. The corresponding figure for rural camps is 47%. This indicates that town men are beginning to follow livelihood and residential strategies independent of their brothers. A greater number of town men obtain their livelihood from non-pastoral activities such as labour migration.

Frequently the wives of such men prefer to live with their own family of origin rather than with their husbands' brothers. This allows them the opportunity of living with their parents if they are alive and obviates occasions of potential conflict between them and the husband's brothers. For example when the migrant's wife resides with his brothers they tend to demand from her a share of the remittances he sends home or they might wish to slaughter some of his animals in his absence.

An interesting feature of the figures is the relatively high percentage of households/joint families that are residentially separated before the father dies: 14.9% in the case of town households/joint families and 9.4% in country areas. It suits certain households/joint families to assign component houses different economic tasks in disparate areas. For example, one man in Kargi lives with two of his wives. A third wife resides in Ulanula to manage his milch cows and to sell their milk at Marsabit Town, and the fourth wife resides in Karare to take care of his agricultural interests.

Elsewhere (see Chapter 5, Section B) it will be shown how a man can build up his own independent herd. Here it is sufficient to state that the oldest son inherits the greater part of his father's herd. He has overall responsibility for the stock of this brothers, particularly the camels, as long as they reside with him. Serious conflicts over how he exercises this responsibility can cause a rift between him and younger brothers which eventually leads to them separating. The Rendille custom which prescribes that young married couples should reside with the bride's family for at least two to three months immediately after the wedding provides disgruntled younger brothers an opportunity of making a final break with their oldest brother if they so wish to and if their affines agree.

F. ADOPTION AND HIRING

Adoption of children is common and may take place within a household which is constituted by two or more houses. For example a woman who has sons may be expected to offer one for adoption to a co-wife who is without sons. In Rendille society women long to have sons because a son guarantees them security in old age. Sons have the right to inherit their father's livestock. In this way mothers/widows can lay claim to stock, otherwise they are only entitled to their own dowry stock and the offspring of these stock. However, many of these stock may have been either slaughtered or sold and hence may be

insufficient to support a widow in her old age. For the rest of her livelihood she depends primarily on the person who inherits the animals of her deceased husband. Such a person is regarded as a reliable source of livelihood only when he is her own son.

In other instances of adoption poor households with many children may allow close kin who have large herds and who are in need of herding labour to adopt children. Where adoption is permanent the Rendille say that the adopted child assumes the same rights as the other children of the household. Thus an adopted boy will expect his foster father to obtain bridewealth for him when he marries. Genuine orphans are also adopted, usually by close kin. Children are viewed not as liabilities but as assets adding to the labour of the household. In addition boys will eventually provide security in old age and girls bridewealth when marrying.

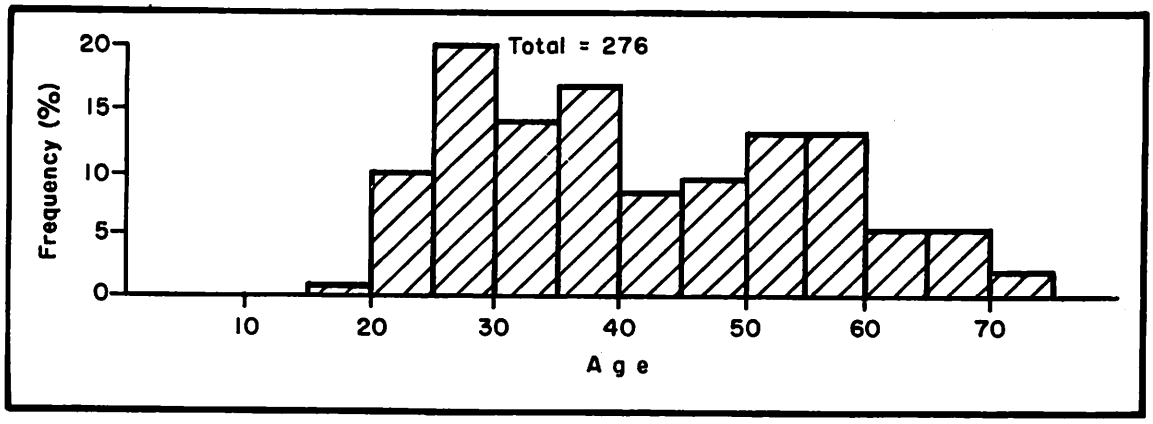
The Rendille term for adoption is *holadahman*. The same term is used for hiring by kind. Adoption is usually a long-term commitment, and the remuneration terms for the labour expended by the adoptee are generalized and not made specific. On the other hand, hiring is usually a short-term agreement and the terms of service are specified by custom. A hired male servant obtains one camel or bovine heifer or twelve smallstock (the majority of whom should be immature females) for a year's herding. Usually girls are adopted rather than hired. Adoptees and servants eat and drink at their new homes.

G. MARRIAGE STATISTICS

At marriage, brideprice, consisting of four female and four male camels (or cattle), is presented/promised to the family of the bride and dowry is given to the bride to assist the young couple in establishing their new household. The bridegroom also receives gifts of livestock from his family.

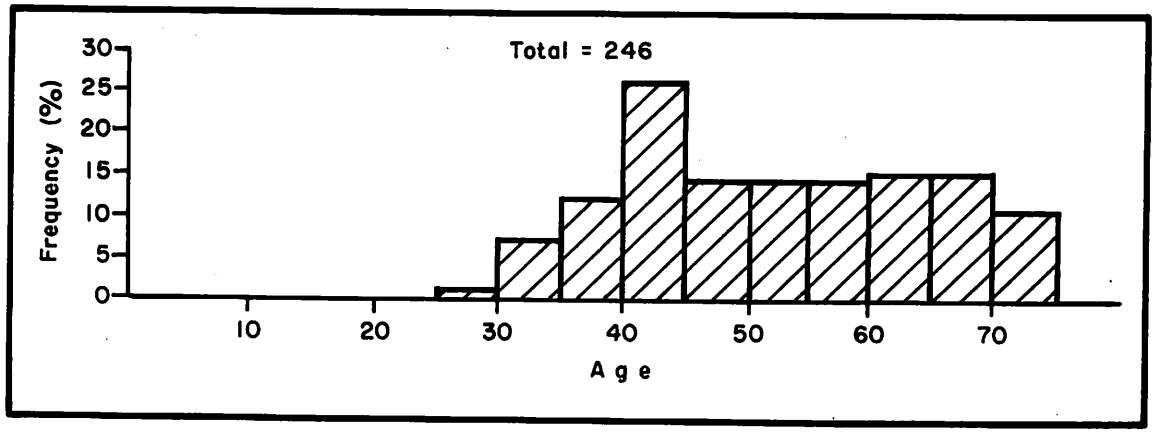
As already mentioned young men have to be warriors for eleven years before marrying. Thus a young man who is circumcised at 25 can only marry when he is 36 years of age. Usually men are older than the women they marry except in cases of women who are prevented from marrying until all their brothers have first married (4). The following figures illustrate the ages of married men, married women and the differences that exist in their ages.

Figure 2.9 Ages of married women



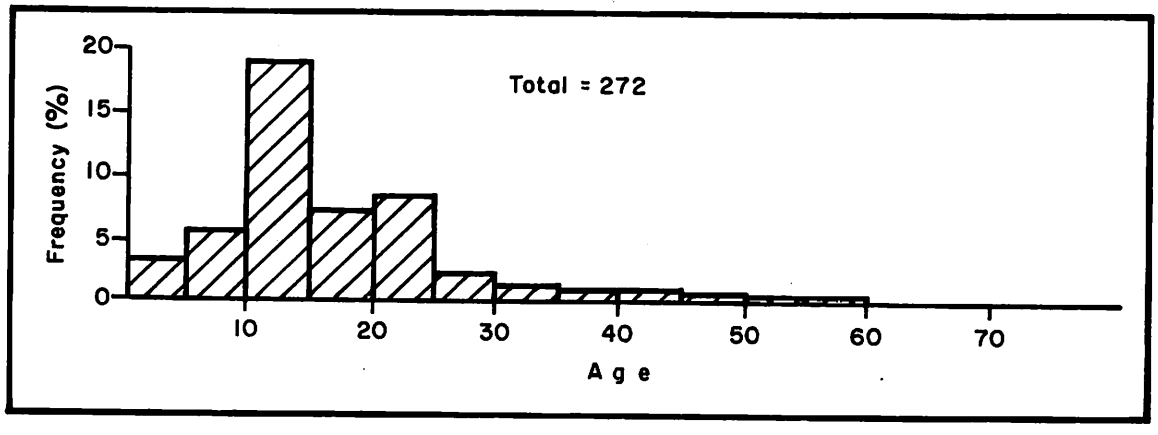
Mean: 39.1
Standard deviation: 13.2

Figure 2.10 Ages of married men



Mean: 50.5
Standard deviation: 12.8

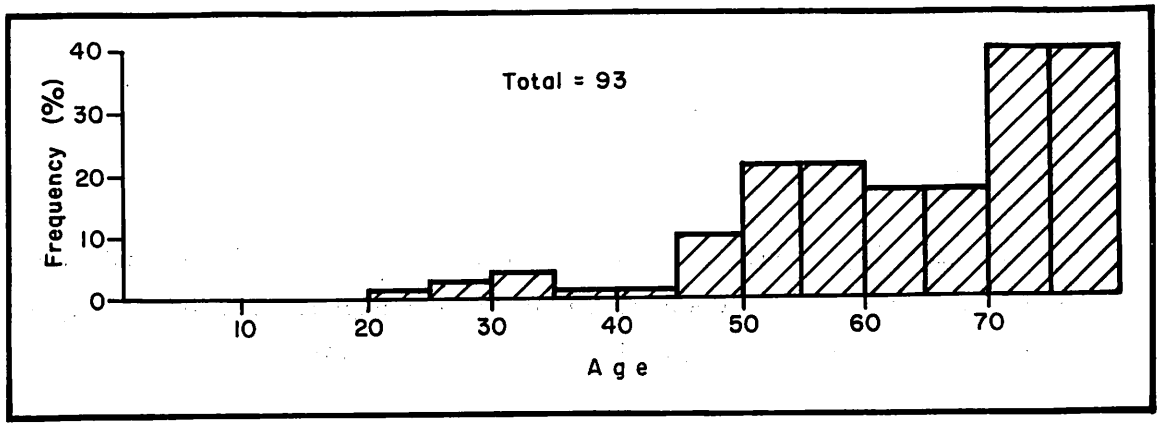
Figure 2.11 Age differences of married couples



Mean: 16.6
Standard deviation: 9.2

In a society where men are frequently much older than their wives it is expected that a sizeable percentage of adult women are widows. This is illustrated by the following figure.

Figure 2.12 Ages of widows



Mean: 61.4
Standard deviation: 14.3

Overall 27% of women over 24 years of age are widows, while 49% of women 45 or older are widowed.

Table 2.5 outlines the number of wives married men have.

Table 2.5 Number of wives per married man (town)

1	105
2	10
3	0
4	1

Mean: 1.1
Standard deviation: 0.4

Table 2.6 Number of wives per married man (country)

1	112
2	17
3	1

Mean: 1.1
Standard deviation: 0.4

Table 2.7 Number of wives per married man (total)

1	217
2	27
3	1
4	1

Mean: 1.1
Standard deviation: 0.4

Polygynous marriages only account for 11.8% of all marriages and few men have more than two wives. Country camps have a higher rate of polygyny (13.8%) compared with men who reside in town camps (9.5%).

H. OTHER DEMOGRAPHIC DETAILS

Data on the number of miscarriages (5) a woman may have had and the number of infants and children who died are sometimes difficult to obtain. In the town 11.7% of women (or houses) had at least one miscarriage, while 6.4% had at least two miscarriages and 2.9% three miscarriages. However, in the country camps only 5.9% had at least one miscarriage and 2.9% had at least two miscarriages. The difference may be attributed to the greater reticence of country women to answer such sensitive questions.

There were more male deaths of infants and children than female deaths recorded (58 as against 46). As already mentioned this indicates that no discrimination exists against females in infant and child care. Irrespective of sex 22.4% of women had lost at least one infant or child; while 8.8% lost more than one.

Notes

1. Spencer refers to these as the lower and upper moieties (Spencer, 1973).
2. More comprehensive lists of clans are found in Spencer (1973) and Beaman (1981).
3. The satellite camp is located away from the main camp and is locally known as a *forr* camp. For more details see Chapter 3, Section A.

4. This custon is known as *sepade*. For details see Spencer (1973); Sato (1980) and Beaman (1981).

5. Still-born births are included under this heading.

Chapter 3

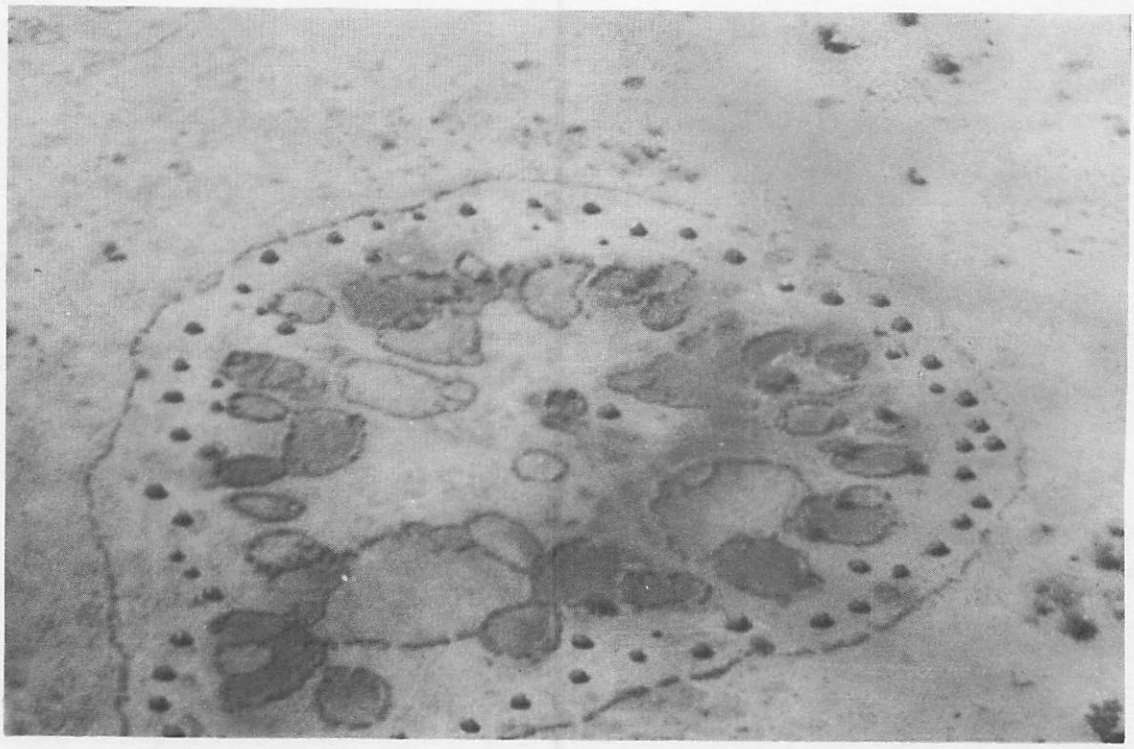
RENDILLE SETTLEMENT AND RESIDENCE PATTERNS

A. RENDILLE PASTORAL CAMPS

Settlement refers to the layout of pastoral camps, their size (i.e. the number of houses or tents to each camp), location and movement. It is what one observes from an aircraft. The study of residence goes a step further and focuses on how the people who occupy settlements are grouped and what principles govern these groupings. Such information can only be obtained by living in camps and observing and interviewing residents, and it becomes essential when studying the patterns of co-operation between households in penning and herding livestock.

The Rendille have two different types of settlements: main camps *(gob)* and satellite camps *(forr)*. Figures 3.1 and 3.2 are aerial photograph examples.

Figure 3.1 A Rendille main camp

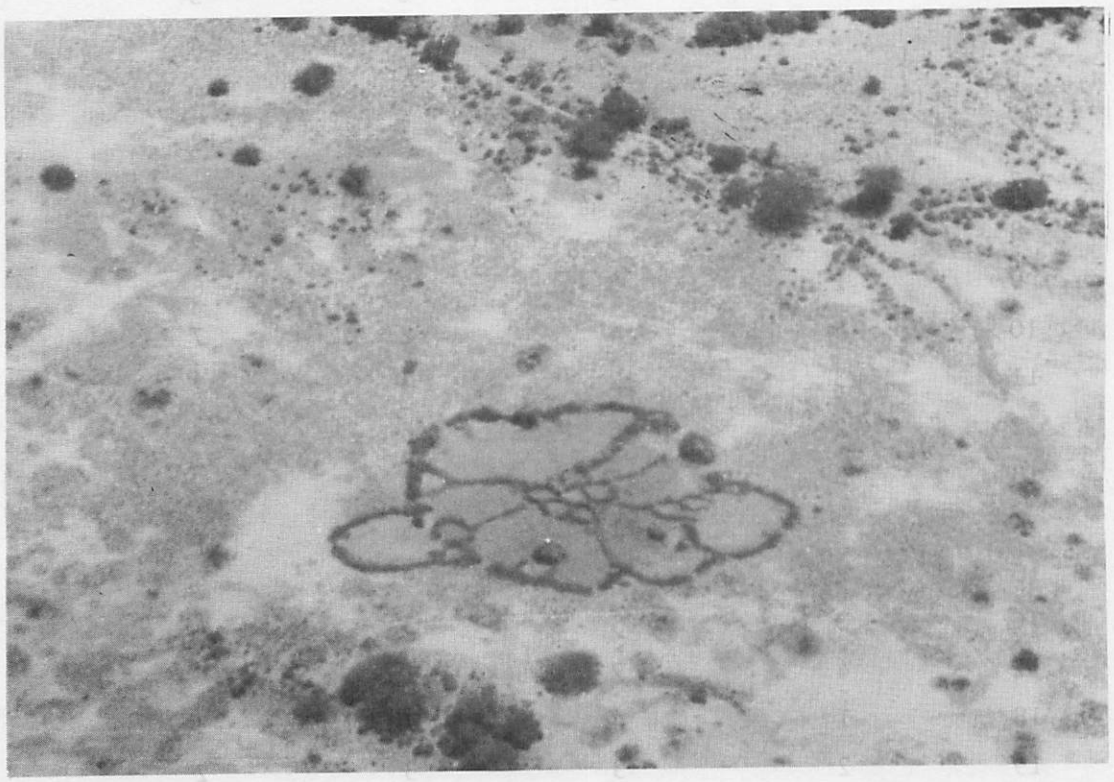


The main camp is usually surrounded by a more-or-less circular fence which is punctuated by gateways, each of which serves as an entrance and exit for the livestock of a set of households adjacent to the gateway.

In some instances women arrange two or four parallel lines of stones *(mos)* to ward off evil spirits immediately outside the fence but close to a gateway. These are newly constructed during the *Almadho* celebrations (see Section E of this chapter) or at the appearance of the new moon. The dwelling buildings are located immediately inside the outside fence. Livestock pens are located inside the circle of houses and at the centre there is an enclosed area known as the *nabo* which is used only by camp elders in the evenings to pray, socialize and discuss camp affairs. Every evening a fire is lit in the *nabo*. The pens for smallstock are situated close to the dwelling houses, while the camel pens are further away towards the camp centre. Cattle pens are usually closer to the houses than camel pens. Young animals are separated from the rest of the herd and have their own separate but adjacent enclosures.

The satellite camp also has a rounded shape. The circular enclosure in the centre is for young animals. Radiating outwards are fences which divide the camp into separate enclosures.

Figure 3.2 A Rendille satellite camp*



* I wish to acknowledge my gratitude to my wife Jenny for sketching Figures 3.1 - 2 from photographs.

B. THE SIZE OF MAIN CAMPS

Table 3.1 gives the frequency of camp size (i.e. the number of houses attached to a camp) over four different aerial surveys. Three of the surveys were conducted in the wet season, while the fourth (August 1982) took place in dry season conditions. In some instances ground checks were made, particularly in the trading centres of Kargi and Korr, and on the northern and north-western slopes of Mt. Marsabit. Only those houses which could be regarded as belonging to a pastoral camp are included in the tables. However the maps below include all houses counted.

Table 3.1 Camp size in Northern Rendille

Camp size	Camp frequency			
	May 1982	Aug. 1982	Dec. 1982	May 1983
1	1	0	0	4
2	0	2	3	2
3	2	3	6	3
4	2	4	4	4
5	5	2	4	10
6	2	5	6	12
7	4	6	7	5
8	3	9	13	9
9	1	3	4	6
10	5	4	2	7
11	3	2	3	2
12	2	6	6	5
13	3	5	7	8
14	3	1	5	9
15	2	5	9	4
16	3	5	3	4
17	4	2	1	6
18	1	4	7	3
19	2	3	3	2
20	5	2	6	3
21	5	3	4	1
22	5	2	0	2

Table 3.1 Continued.

Camp size	Camp frequency			
	May 1982	Aug. 1982	Dec. 1982	May 1983
23	2	6	2	0
24	3	1	1	4
25	3	3	4	3
26	2	5	2	3
27	1	3	1	3
28	2	3	3	0
29	1	0	3	3
30	1	1	2	3
31	0	1	0	1
32	2	1	0	1
33	1	1	3	1
34	1	2	1	1
35	2	3	3	1
36	0	2	1	1
37	3	1	1	0
38	2	0	0	0
39	1	1	3	2
40	2	0	2	0
41	1	1	0	1
42	1	2	2	1
43	2	1	1	2
44	0	2	1	0
45	0	1	1	1
46	0	1	0	0
47	0	2	1	0
48	0	1	0	1
51	0	0	1	1
52	1	2	0	1
53	0	0	1	2
54	1	0	0	0
55	1	0	1	1
56	0	0	0	2
57	1	1	0	0

Table 3.1 continued.

Camp size	Camp frequency			
	May 1982	Aug. 1982	Dec. 1982	May 1983
58	0	0	1	0
63	0	0	1	0
64	1	0	0	1
67	1	0	0	0
68	0	1	0	0
71	1	0	0	0
74	0	1	0	0
75	0	0	0	1
76	0	0	1	0
77	1	1	0	0
78	1	0	0	0
Total no. of houses observed	2,456	2,736	2,765	2,704
Total no. of camps observed	105	129	147	153
Mean size of camp:	23.4	21.2	18.8	17.7
S. D.	16.6	15.3	14	14.5

In February 1983 the Review Team requested us to survey the southern Rendille area. It was possible to conduct one such survey and the results are given below.

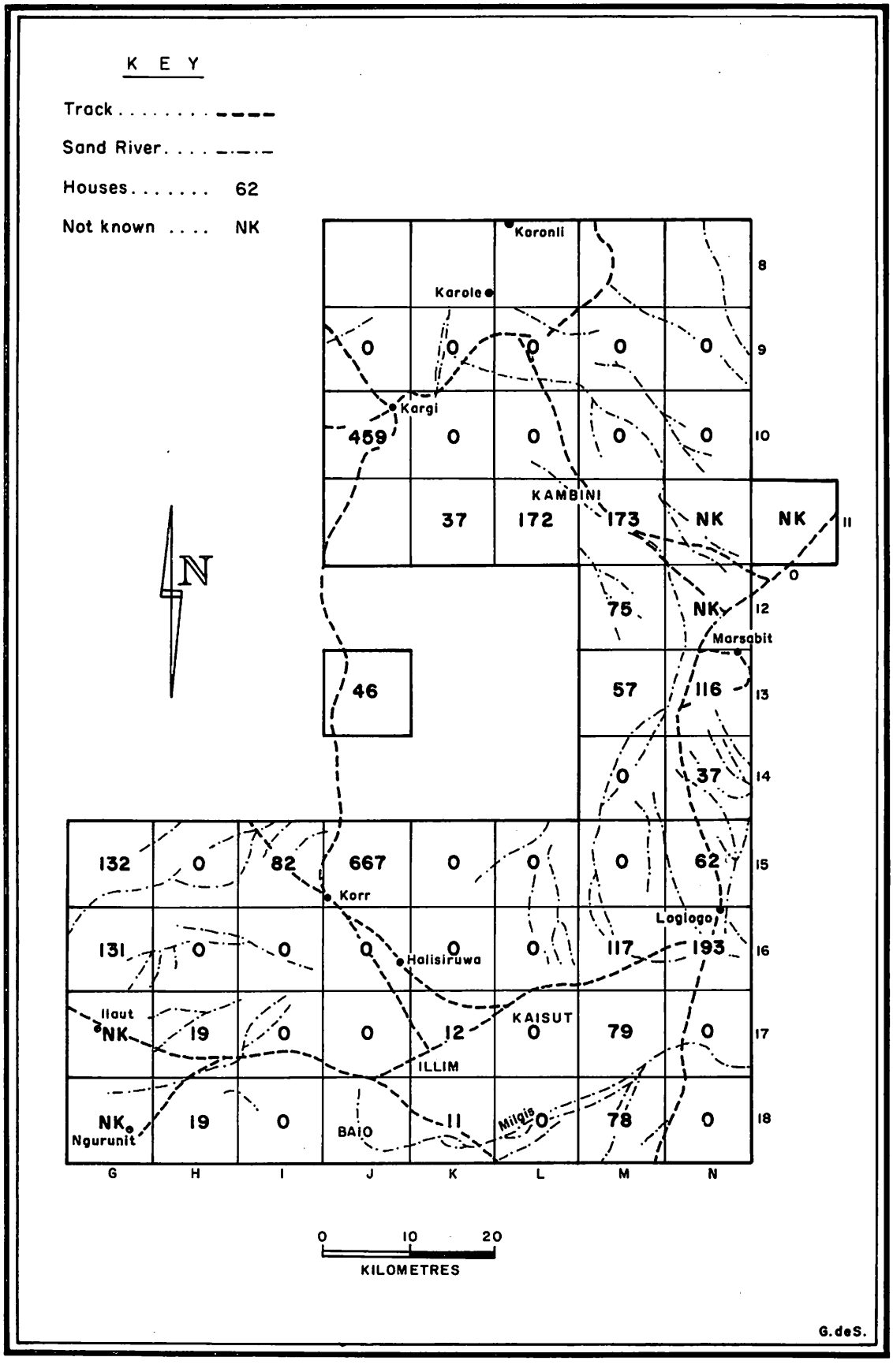
Table 3.2 Camp size in Southern Rendille

Camp size	Frequency (May 1983)
4	1
6	1
12	1
13	1
14	1
16	1
20	1
21	1
24	1
27	1
29	2
32	1
33	1
36	1
48	1
52	1
58	1
61	1
72	1
Total no. of houses observed	607
Total no. of camps observed	20
Mean size of camp	30.4
S. D.	19.1

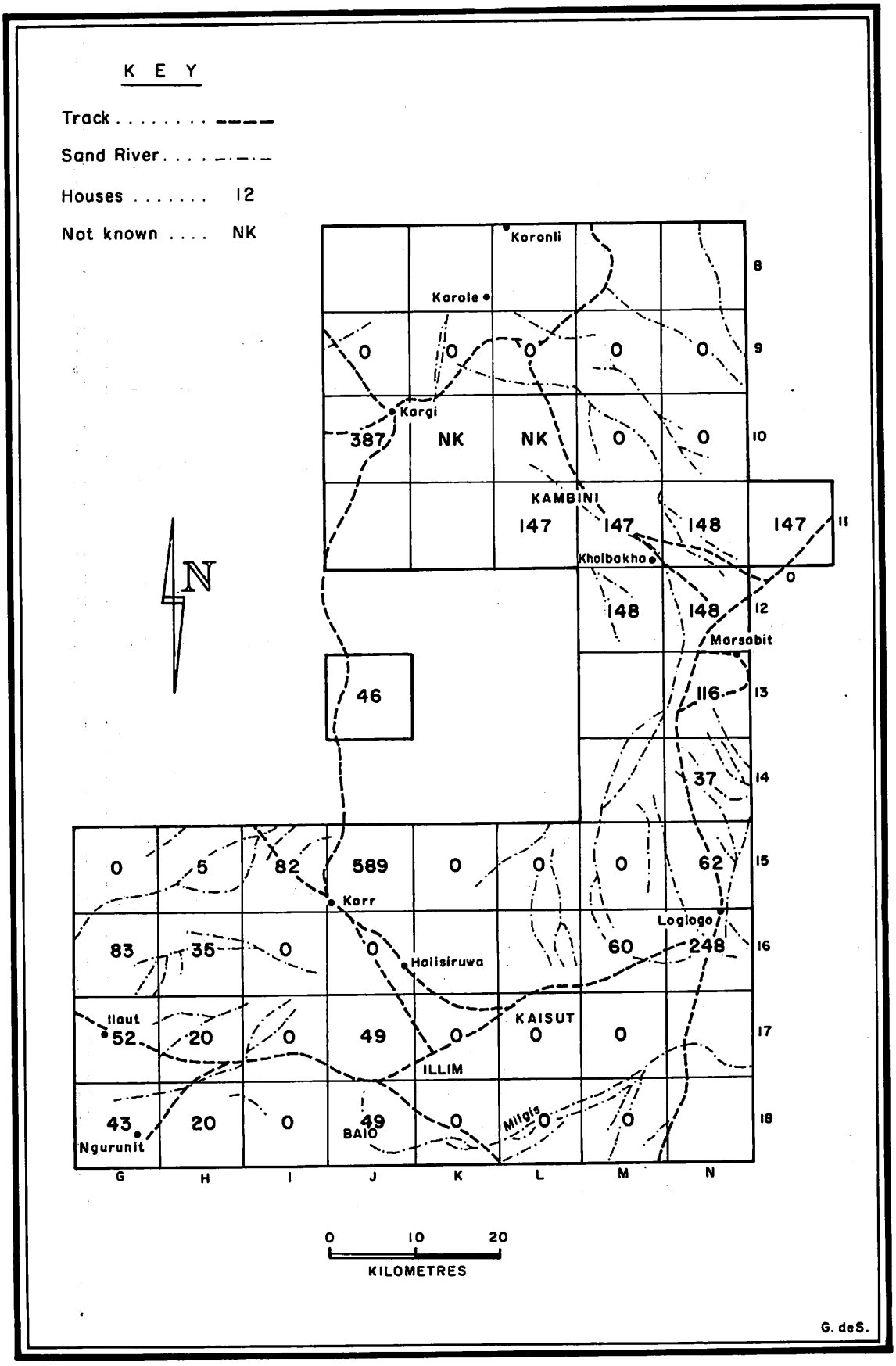
C. GEOGRAPHICAL DISTRIBUTION OF HOUSES/MAIN CAMPS

Maps 3.1 to 3.4 show how Rendille houses are distributed over the northern range and Map 3.5 how they are spread on the ground in the southern range. Not only do the Rendille have large camps but they tend to reside together in

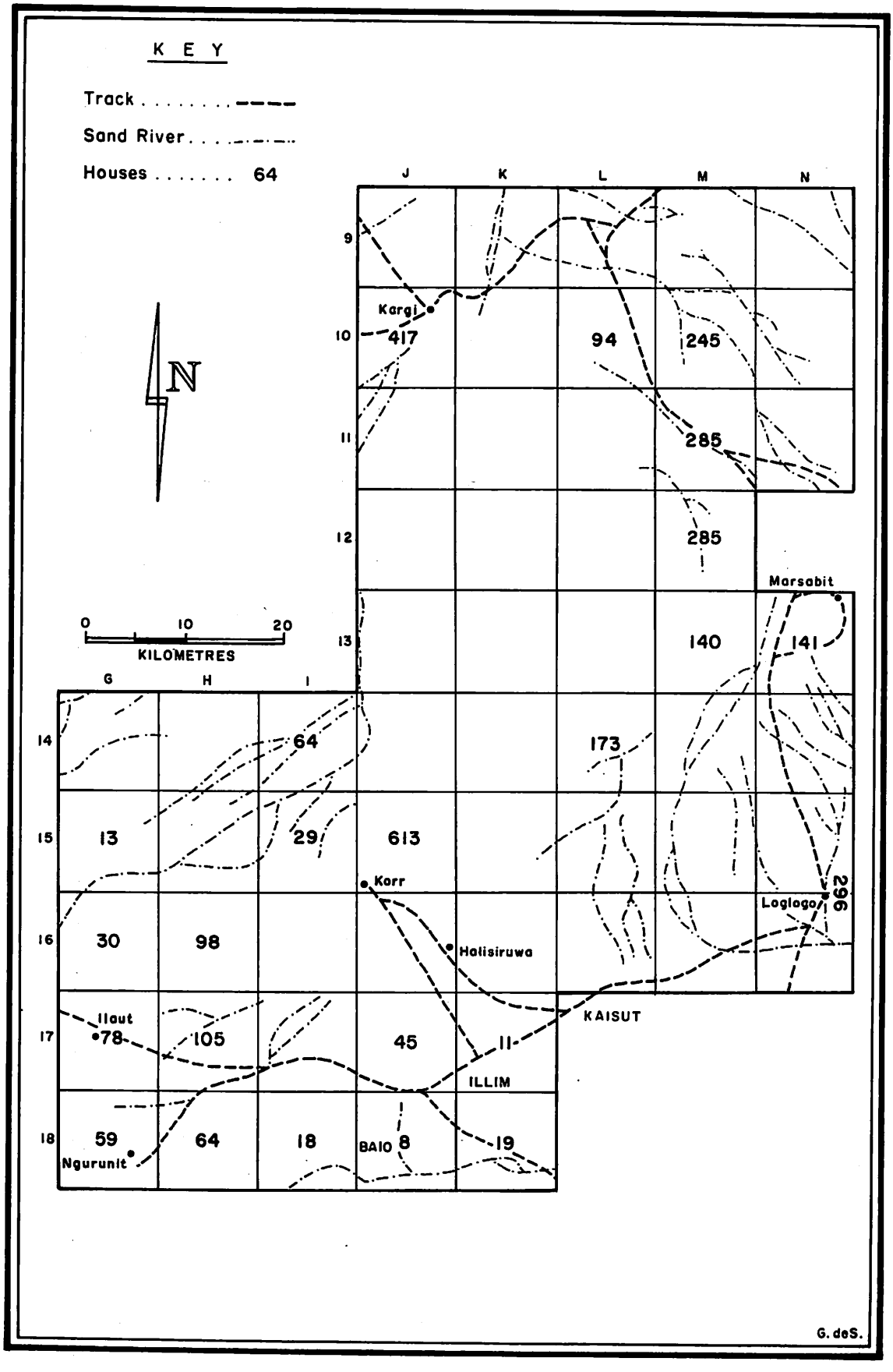
Map 3.1 The geographical distribution of Rendille houses, May 1982



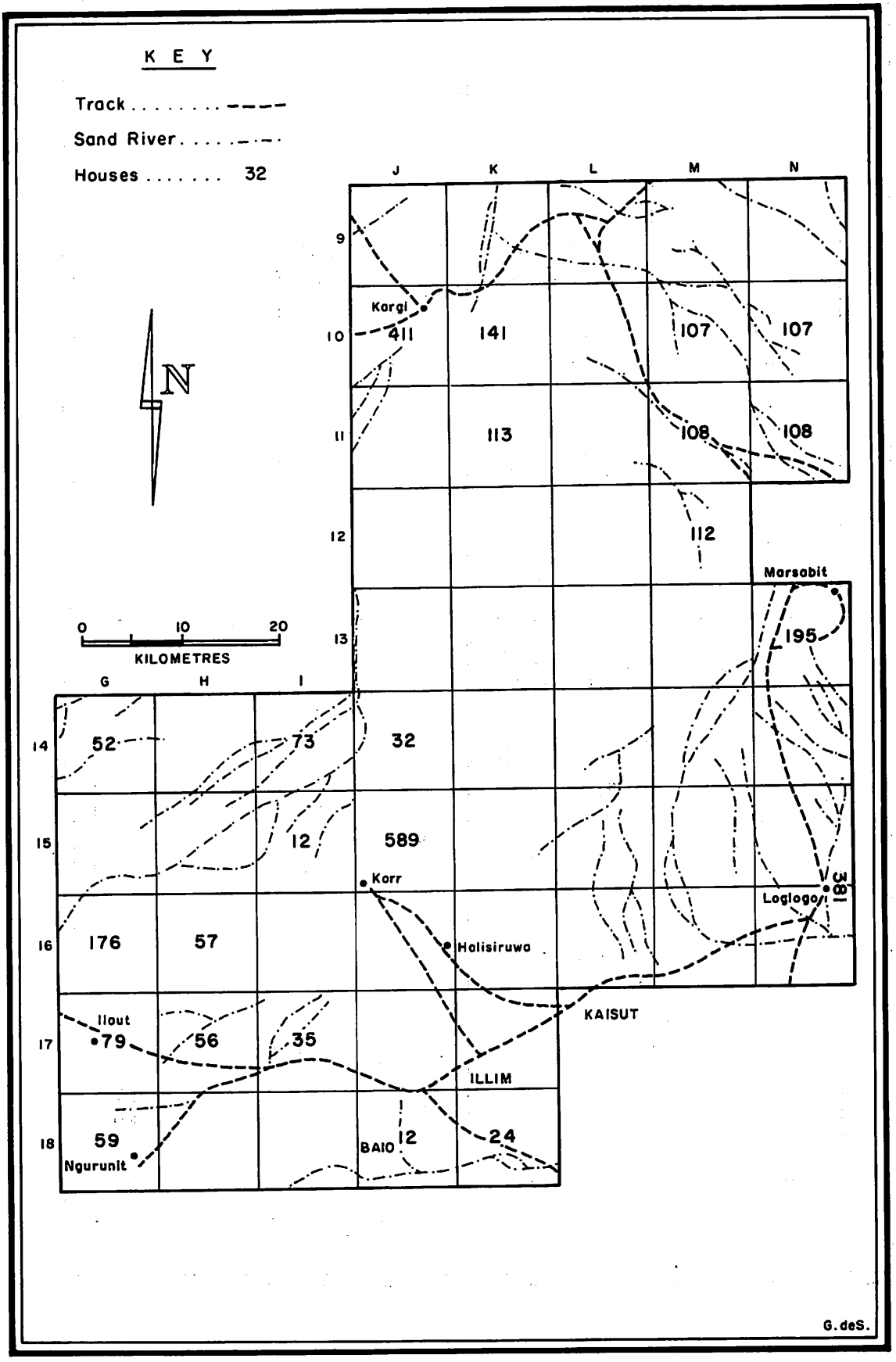
Map 3.2 The geographical distribution of Rendille houses, August 1982



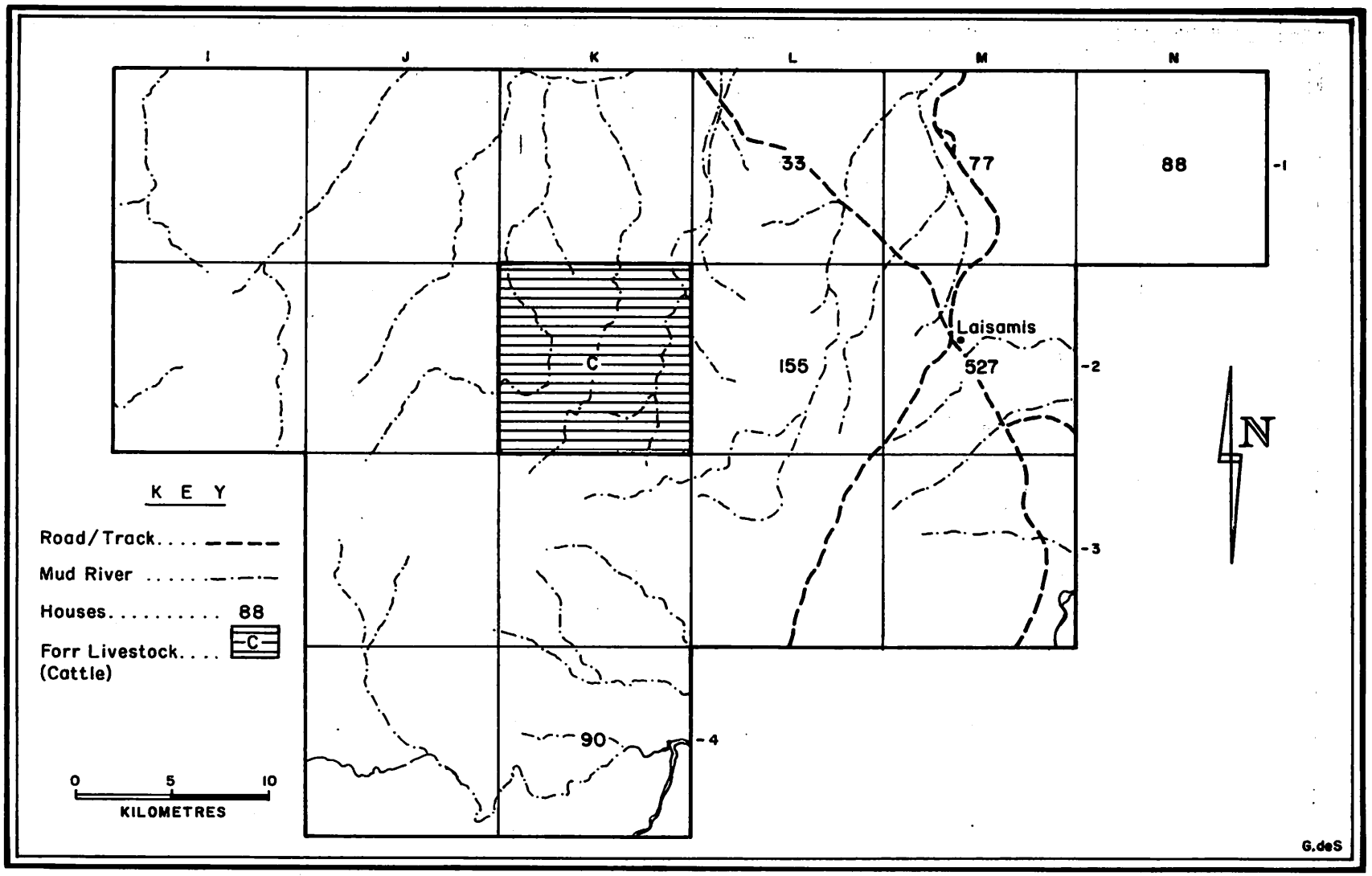
Map 3.3 The geographical distribution of Rendille houses, December 1982



Map 3.4 The geographical distribution of Rendille houses, May 1983



Map 3.5 The location of houses and *forr* camps in Southern Rendille, May 1983



local concentrations on the range and the impact of sedentarization can easily be noted. For example, in May 1983 47.6% of houses were located in or relatively close to the main trading centres of Kargi, Korr, Loglogo and Laisamis. A major concentration of rural camps exists on the higher reaches of the northern and north-western slopes of Mt. Marsabit. This concentration is mobile and its movement in wet seasons depends on where on the slopes the rain has fallen most. For example, in May 1983 it rained heavily in the northern slopes close to the Maikona-Marsabit road. This attracted camps towards that area (see Maps 3.3 - 3.4). Minor concentrations of camps occur in rural hinterlands close to Ngurunit, Illaut and Laisamis.

D. THE LOCATION OF SATELLITE CAMPS

Maps 3.6 - 3.8 indicate the location of camel, cattle and smallstock satellite camps on the northern range as observed in the four aerial surveys. Map 3.5 gives a picture of their location in the southern range in May 1983. In wet seasons (outside of periods when livestock from satellite camps are recalled to the main camps for family rituals) satellite camps move to areas where the rain has fallen most. If the rain in these areas is exceptionally high satellite camps of all species of domestic animals (i.e. camels, cattle and smallstock) will be drawn to them. This was particularly true in May 1982 when large concentrations of all species of *forr* stock were located in the western and north-western slopes of Mt. Marsabit (see Map 3.6). To a lesser extent the localized heavy rain which fell between Korr and Kargi in December 1982 attracted satellite camps of camels, cattle and smallstock (see Map 3.7). Wet seasons are the only times when smallstock, and particularly cattle, can use rangelands long distances from permanent water and their herders are usually quick to grasp the opportunity. However, if the rains are exceptionally good everywhere the tendency is to keep all stock at the main camp as long as possible after the celebration of family rituals so that all members of the household can drink the milk of its milch animals and the *forr* herders can enjoy as long as possible the luxury of living at home in the main camps before returning to the more stringent life of the satellite camps.

During dry seasons the camel satellite camps are able to remain some distance from permanent water (see Maps 3.6 and 3.7). For example, Hafare is a popular place for camel herding in dry seasons; while there they are watered at Korole some 70 km away. Cattle and smallstock fall back on rangeland

close to permanent water such as is found in Kargi, Korr, Ngurunit and Illaut (see Map 3.6). The aerial surveys do not monitor all satellite camps since sometimes the livestock may be using rangeland outside the area surveyed. For example, in May 1983 most of the cattle and smallstock of the Kargi Rendille were either at Kurkum or Kahi (which is on the lower eastern slopes of Mt. Kulal) and hence none of these were observed.

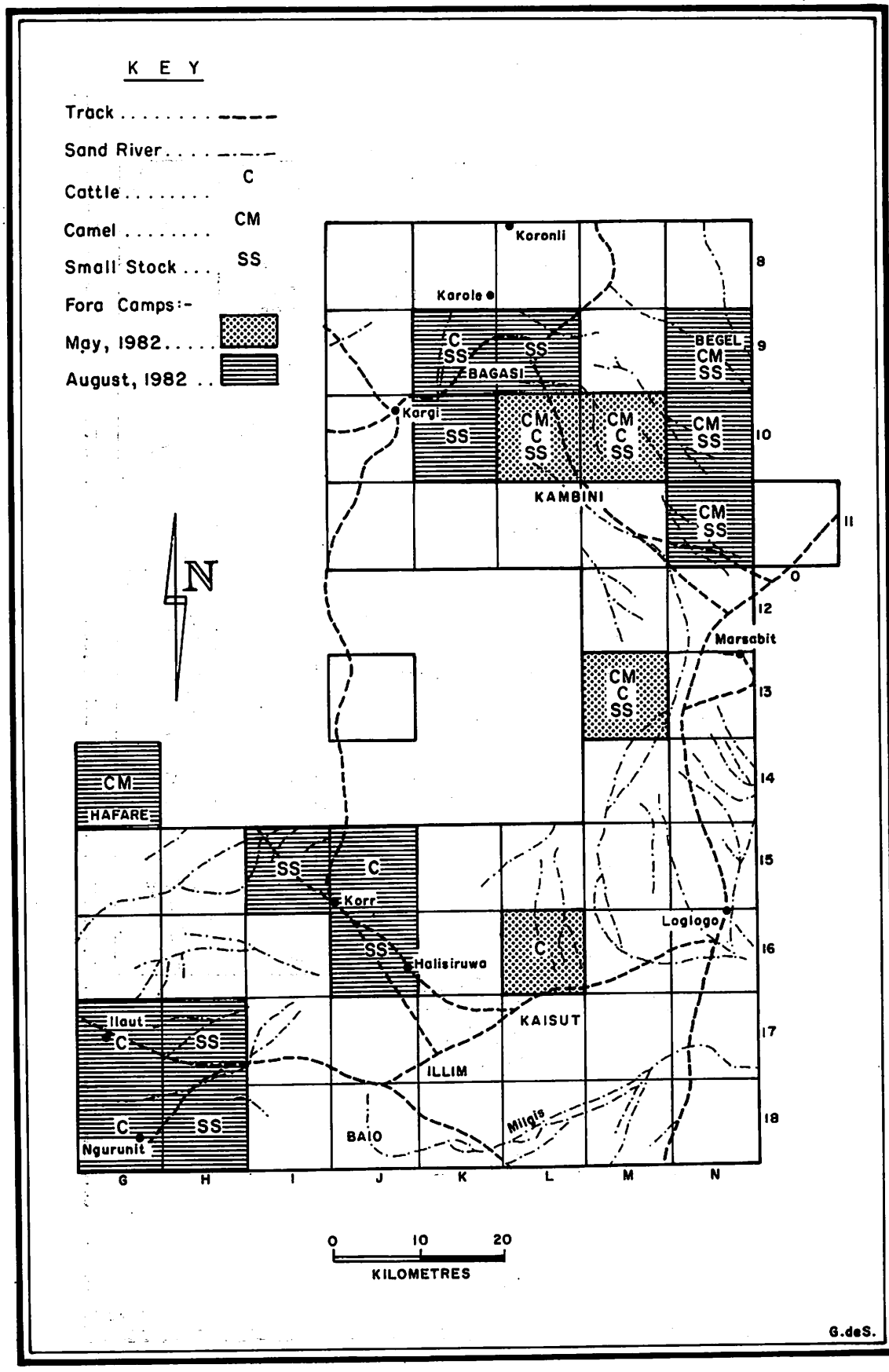
E. THE IMPACT OF FAMILY FESTIVALS ON MOVEMENT OF LIVESTOCK

Family rituals play an important part in the life of the Rendille. Table 3.3 outlines the main festivals, the lunar month(s) in which they usually take place and the actual dates when these rituals were observed. The Rendille recognize twelve months. These are as follows: *Ragar Kolarat, Ragar Lamatet, Haiti Keleye, Haiti Borane Orat, Haiti Borane Lamatet, Sonderi Orat, Sonderi Lamatet, Som, Furam, Dhibyal, Karafa* and *Thaga*. These months are based on the lunar cycle which consists, on average, of approximately 29.5306 days (i.e. the length of a synodical month from new moon to new moon (see Allen, 1964). Consequently they do not correspond to the months of the Gregorian calendar which is adjusted to the solar cycle and whose months average 30.4375 days. The Gregorian year has, on average, 365.2425 days while the year based on the lunar cycle has 354.367 days (see Allen, 1964). It follows that the 'lunar' year on which the Rendille calendar is based is 10.8754 days shorter than the Gregorian year. Hence the Rendille festivals will occur in any particular year (based on the Gregorian calendar) approximately 11 days earlier than in the previous year.

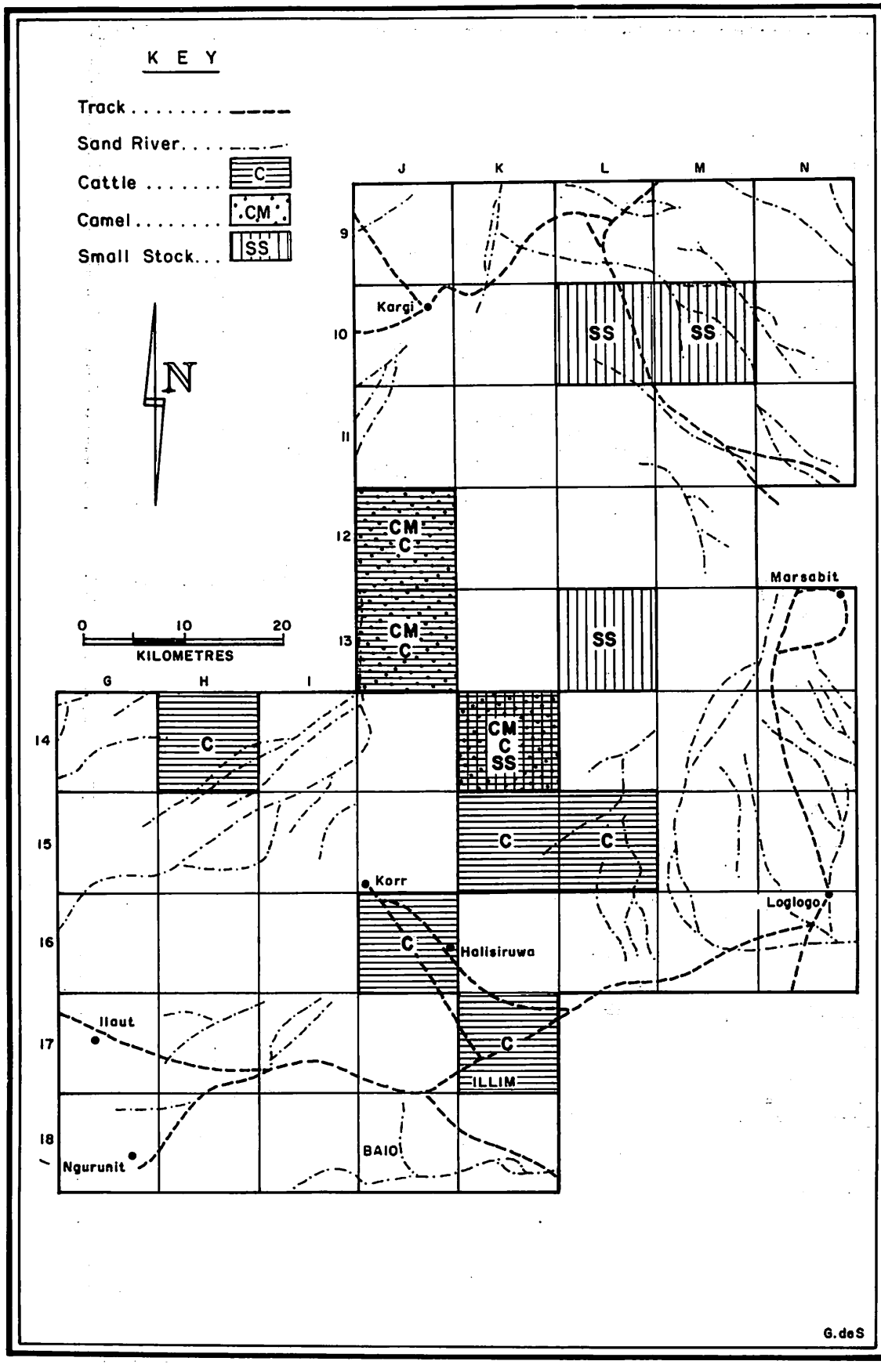
Table 3.3 Rendille family festivals

Festival	Month	Date(s) observed
(A) *Almadho*	-	25.12.82/08.01.83
(B) *Sorio Sonderi Orat*	*Sonderi Orat*	23.04.83/24.04.83
(C) *Sorio Sonderi Lamatet*	*Sonderi Lamatet*	02.06.82/03.06.82 23.05.83/24.05.83
(D) *Harafa*	*Harafa*	27.09.82/28.09.82
(E) *Sorio Ti Thagat*	*Thaga*	-

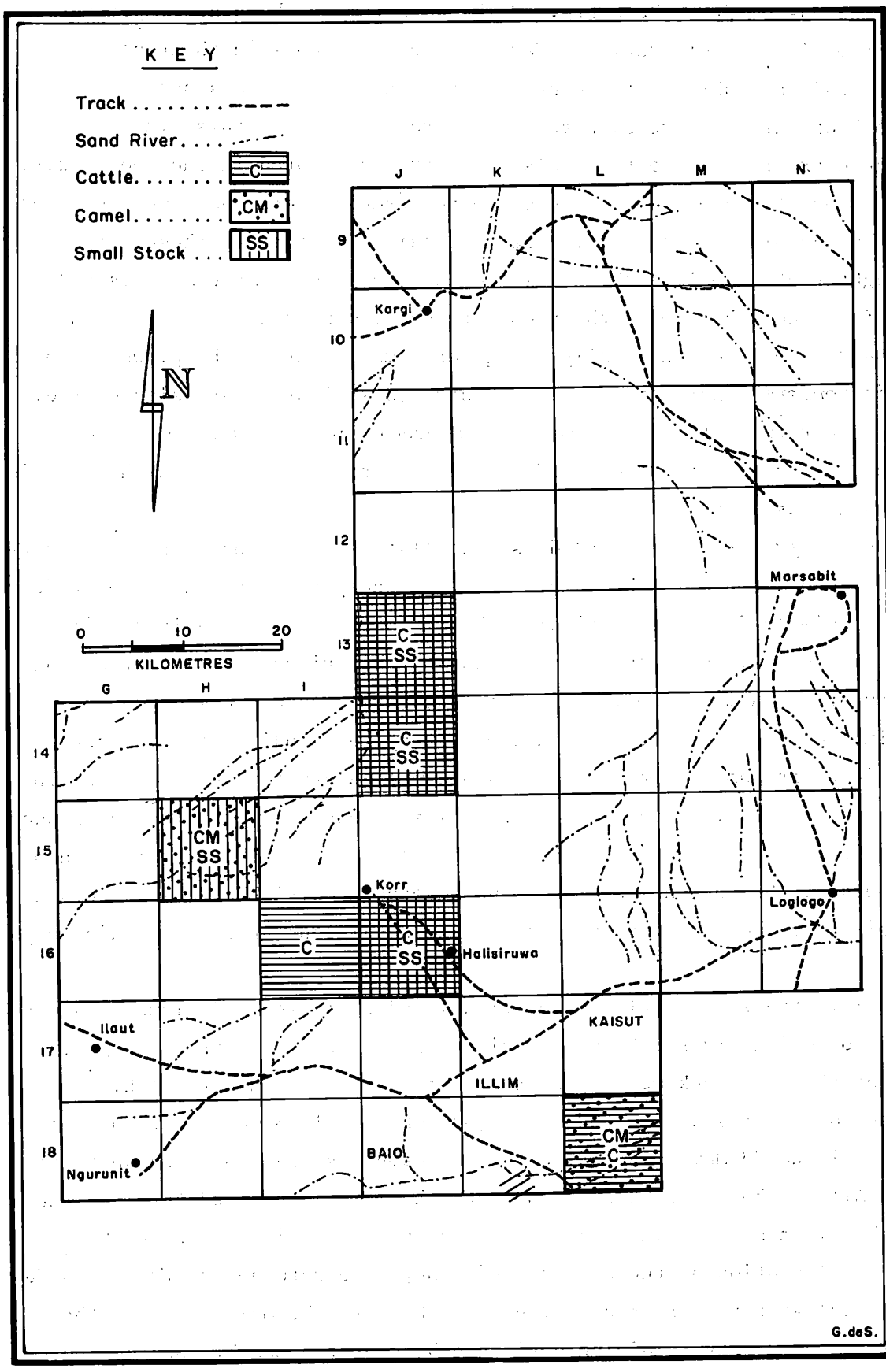
Map 3.6 The location of *forr* camps, May and August 1982



Map 3.7 The location of *forr* camps, December 1982



Map 3.8 The location of *forr* camps, May 1983



The *Almadho* ceremony celebrates the New Year and Rendille say that they adopted the custom from the Gabra. Milk and a female sheep are important ritual items in the celebration. Married men and widows in their capacity as house heads are obliged to be present for the celebrations and all the smallstock of the camp are supposed to be brought back at this time.

There are four *sorio* festivals. Two are celebrated in the two *sonderi* months. These two *sorio* rites cannot be performed unless the eldest son and most of the camels are present in the main camp. Central to these rites are the slaughter of a smallstock animal and the smearing of male members and camels of the household with the blood of the slaughtered animal. In the *Sorio Sonderi Orat* people usually slaughter a male goat or sheep, while in the *Sorio Sonderi Lamatet* female or uncastrated smallstock are slaughtered. During these rituals the *moran* are given a prominent place and are invited to a number of houses to eat the meat of the slaughtered animal, of which there is one to each household.

The *Harafa Sorio* is regarded as a smallstock *sorio* and does not require the presence of camels in the main camp. Old sheep and goats are the preferred slaughter animals for this festival. The *sorio* of *Thagat* ideally requires the presence of camels. Traditionally during this ritual the leader of the camp slaughtered a male camel calf, but this rarely occurs nowadays.

Since cattle were not kept in the past by the Rendille they do not feature in their family rituals. It is not obligatory to have them back in the main camp for any of the above ceremonies. However, since festivals such as *Sorio Sonderi Orat, Sorio Sonderi Lamatet* and *Almadho* are occasions when all members of the households plan to be together, cattle herders do return with their stock to the main camp if grazing conditions around the main camp permit.

To illustrate the influence of ritual and climatic conditions on decisions relating to moving livestock to the main camp in festival seasons we give the example of the livestock movements of a particular camp in Kargi (which belongs to the senior moiety) during the two major *sorio* in 1983 which were held on the 23 April and 23 May, respectively. The camp has seven herding units of camels. All of these were brought home to the main camp on 22 April on the eve of the first *sorio*. Instead of keeping the camels in and around Kargi until the celebration of the second *sorio* they were returned to *forr* on 5 May because local grazing were poor. They came back to the main camp for the second *sorio* on 22 May remaining until the 30th of the month. Spencer notes

similar considerations.

'All the boys and youths should return with their herds to join in the celebrations. When possible they will stay for at least the intervening month between two linked festivals, but if the rains have failed, drought conditions may make it necessary for them to leave after only a few days' (Spencer, 1973).

All the cattle herding units of the Dubsahi camp were at Larabasi which is south of Baio. Climatic conditions did not warrant bringing them back for either *sorio*. Only those herders who are also first-born sons returned as their presence is required for the proper celebration of the rites. The camp has 22 herding units of smallstock and all except three units reported back for the first *sorio* on 23 April. Originally it was not intended to bring back the smallstock, which were grazing pastures 10 - 20 km from Kargi in such places as Ririma, Falam and Bosi Guthan, as the rains had failed. However, it rained heavily on the night of 22 April and the morning of the 23rd, and this justified a move to the main camp. Other camps in Kargi brought their smallstock home later, on 27 and 28 April, as flooding delayed the move. In these instances replacement herders were sent out to enable first-born sons to be present for the rites.

Most of the smallstock units remained until the second *sorio*. There were a number of reasons for this. Firstly, it had rained around Kargi and it was thought that local pastures were at least minimally adequate for smallstock. Secondly, the difficulty of moving smallstock with young kids and lambs outweighed the importance of searching for better pastures elsewhere, at least until after the second *sorio*. When the second *sonder sorio* was celebrated the smallstock flocks began to move to *forr* camps between 3 May and 8 June 1983.

F. THE ITINERARIES OF INDIVIDUAL CAMPS (MAIN AND *FORR*)

In sections C and D, above, the geographical distribution of main and *forr* camps was treated at a macro-level. However, these data can be enriched by examining the movement of main camps and *forr* livestock over time. This information is obtained by interviewing herders and livestock owners. All parts of the range have place names. An effort was made to locate these place names on a map and measurements between place names were taken along the shortest line between these place names. Obviously herders do not necessarily take the shortest line between places and the location of place names on the

map must be regarded as tentative. The tables below outline the movement of main camps and *forr* stock (camels, cattle and smallstock) over a three-year period. Only major moves are recorded. Local moves involving a distance less than a kilometre are not considered. The Rendille recognize four seasons per annum: *Nabhaider* (long dry season), *Yer* (short rain season), *Nahaigaban* (short dry season), and *Guu* (long rain season). In our presentation the year begins with the long dry season and ends with the long wet season of the following year. Thus 1979-1980 refers to the period beginning with the long dry season of 1979 and ending at the end of the long wet season 1980. The study concentrated on main-camp and livestock movements of eight camps, four of which now are located in Kargi (1-4) and four on the northern and north-western slopes of Mt. Marsabit (5-8).

Table 3.4 The movement of main camps

Year: 1979/80								
Camp No	1	2	3	4	5	6	7	8
Total distance travelled (km)	0	82	0	56.6	41.3	6.5	129	-
No. of moves	0	6	0	3	3	1	4	-
Average distance of moves (km)	0	13.7	0	18.9	13.8	-	32.3	-
S. D.	0	6.2	0	10.6	5.7	-	4	-
Year: 1980/81								
Total distance travelled (km)	0	0	0	0	31.5	19.25	16	76.4
No. of moves	0	0	0	0	1	1	1	6
Average distance of moves (km)	0	0	0	0	-	-	-	12.7
S. D.	0	0	0	0	-	-	-	6.8
Year: 1981/82								
Total distance travelled (km)	0	0	0	0	62.5	35.8	24.8	45
No. of moves	0	0	0	0	3	2	2	2
Average distance of moves (km)	0	0	0	0	20.8	17.9	12.4	22.5
S. D.	0	0	0	0	8.8	2.3	3.4	12

Table 3.5 The movement of *forr* camels

				Year: 1979/80				
Camp No.	1	2	3	4	5	6	7	8
Total distance travelled (km)	349.5	306.3	249.8	268.2	580.5	-	147.5	-
No. of moves	15	11	5	9	20	-	4	-
Average distance of moves (km)	23.3	27.8	50	29.8	29	-	36.9	-
S. D.	9.3	13.6	40.7	21.5	13.5	13.5	16.2	-
				Year: 1980/81				
Total distance travelled (km)	249.2	527.3	208.5	367.8	393.8	251.8	385	690.1
No. of moves	15	13	4	9	12	5	5	14
Average distance of moves (km)	16.6	40.6	52.1	40.9	32.8	50.4	77	49.3
S. D.	5.4	23.6	59.6	18.7	17.4	35.1	64.7	43.3
				Year: 1981/82				
Total distance travelled (km)	372.3	349.8	-	369	-	-	240	502
No. of moves	17	13	-	9	-	-	5	16
Average distance of moves (km)	21.9	26.9	-	41	-	-	48	31.4
S. D.	13.1	16.9	-	17.4	-	-	27.2	19.8

Table 3.6 The movement of *forr* cattle

				Year: 1979/80				
Camp No.	1	2	3	4	5	6	7	8
Total distance travelled	221.4	139.8	193	162.4	238	-	181	-
No. of moves	12	5	5	5	10	-	4	-
Average distance of moves (km)	18.5	28	38.6	32.5	23.8	-	45.3	-
S. D.	11.4	21	23.8	21.4	12.6	-	19.2	-

Table 3.6 continued.

				Year: 1980/81				
Camp No.	1	2	3	4	5	6	7	8
Total distance travelled (km)	275.1	512	337	301.5	397.3	-	236	-
No. of moves	17	11	4	2	11	-	4	-
Average distance of moves (km)	16.2	46.6	84.3	150.8	36.1	-	59	-
S. D.	7	30	85.7	71.1	23	-	67.3	-
				Year: 1981/82				
Total distance travelled (km)	365.5	245.1	82	85.8	303.8	-	146	-
No. of moves	15	12	2	6	10	-	4	-
Average distance of moves (km)	2.45	20.4	41	14.3	30.4	-	36.5	-
S. D.	12.3	8.4	19.1	8.5	19.8	-	26.5	-

Table 3.7 The movement of *forr* smallstock

				Year: 1979/80				
Camp No.	1	2	3	4	5	6	7	8
Total distance travelled (km)	188.8	153.8	137.3	55.8	192.8	410	-	-
No. of moves	9	11	3	3	6	12	-	-
Average distance of moves (km)	21	14	45.8	18.6	32.1	34.2	-	-
S. D.	8.1	6.6	18.9	9.2	19.1	22.2	-	-
				Year: 1980/81				
Total distance travelled (km)	-	157.3	407.3	65.5	301.5	240.5	-	440.5
No. of moves	-	10	3	3	2	8	-	6
Average distance of moves	-	15.7	135.8	21.8	150.8	30.1	-	73.4
S. D.	-	7.2	88	13.7	71.1	19.3	-	65.9

Table 3.7 continued.

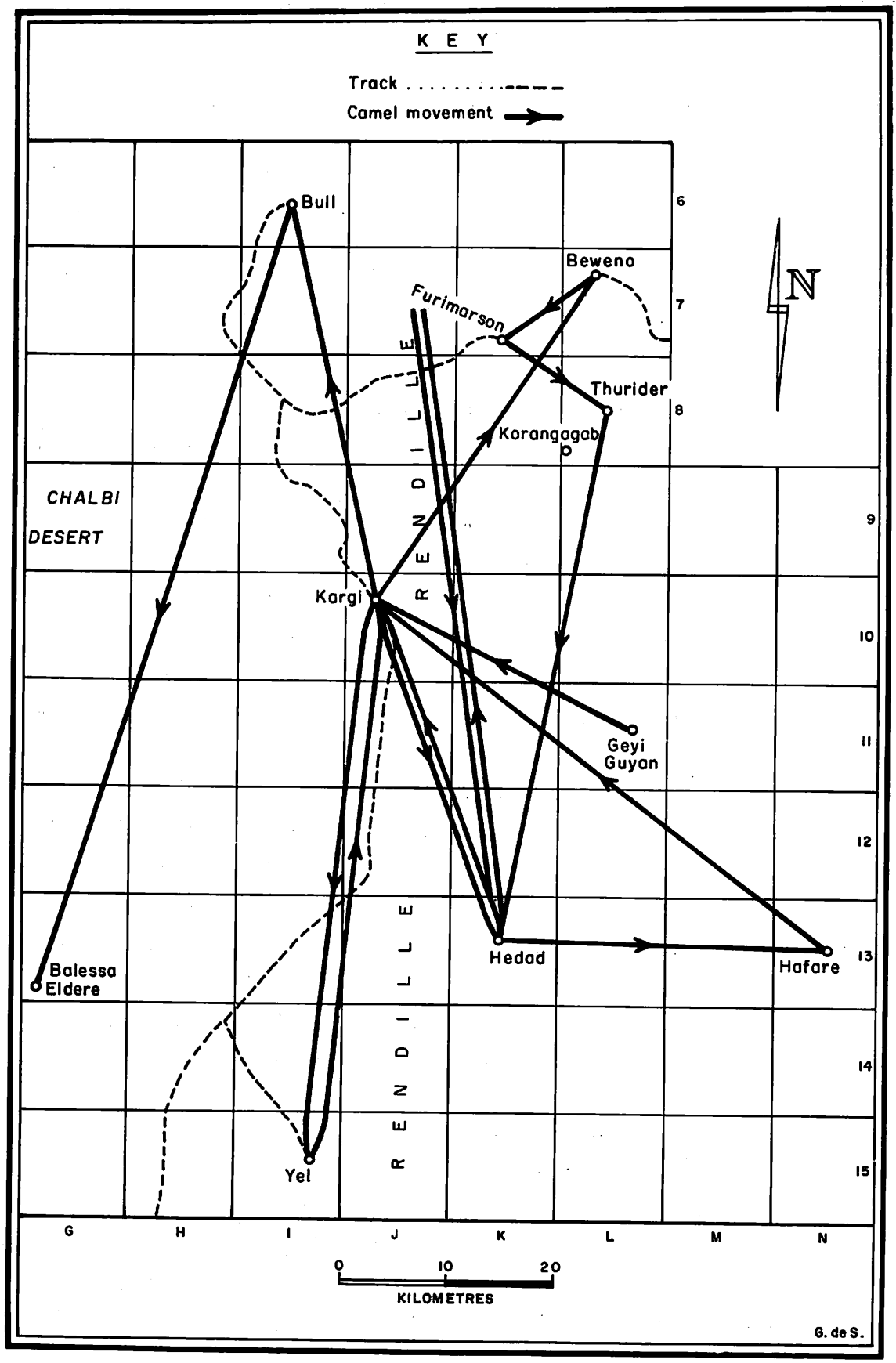
	Year: 1981/82							
Camp No.	1	2	3	4	5	6	7	8
Total distance travelled (km)	203.5	283.8	224	45	169.5	240	108.5	89.8
No. of moves	13	14	3	2	10	9	7	5
Average distance of moves (km)	15.7	20.3	74.7	22.5	17	26.7	15.5	18.0
S. D.	7.6	10.9	37.1	5.3	8.2	18.9	8.6	14.2

The above tables illustrate how little main camps move in relation to *forr* camps. In 1979/80 the country camps moved on average 59km, in 1980/81 35.8km and in 1981/82 42km (see Table 3.4). Since 1980 the four town camps have remained in Kargi. Camel *forr* camps usually move over longer distances than cattle and smallstock *forr* camps. For example, between 1979 and 1982 annual average distances covered by *forr* camels were 317.0, 384.2 and 366.6 km respectively (see Table 3.5), while corresponding figures for cattle were 189.3, 343.2 and 204.7 km and for smallstock 189.8, 268.8 and 186 km (Tables 3.6 - 3.7). The year 1980/81 was a drought year and it greatly affected the distances covered by cattle and smallstock *forr*, while the camel *forr* were the least affected by drought conditions. During the drought year cattle and smallstock from Kargi and the northern and north-western slopes of Marsabit in general moved either towards the eastern shores of Lake Turkana (Moiti and Alia Bay) or southwards towards Merille River. That explains the greater distances covered during the drought year. Camels, because of their capacity to use rangeland 60 - 80 km from permanent water, generally remained in the locality moving between the slopes of Marsabit and the Hedad, although some did move northward as far as Gus and Khomothe and others southwards as far as Irrer.

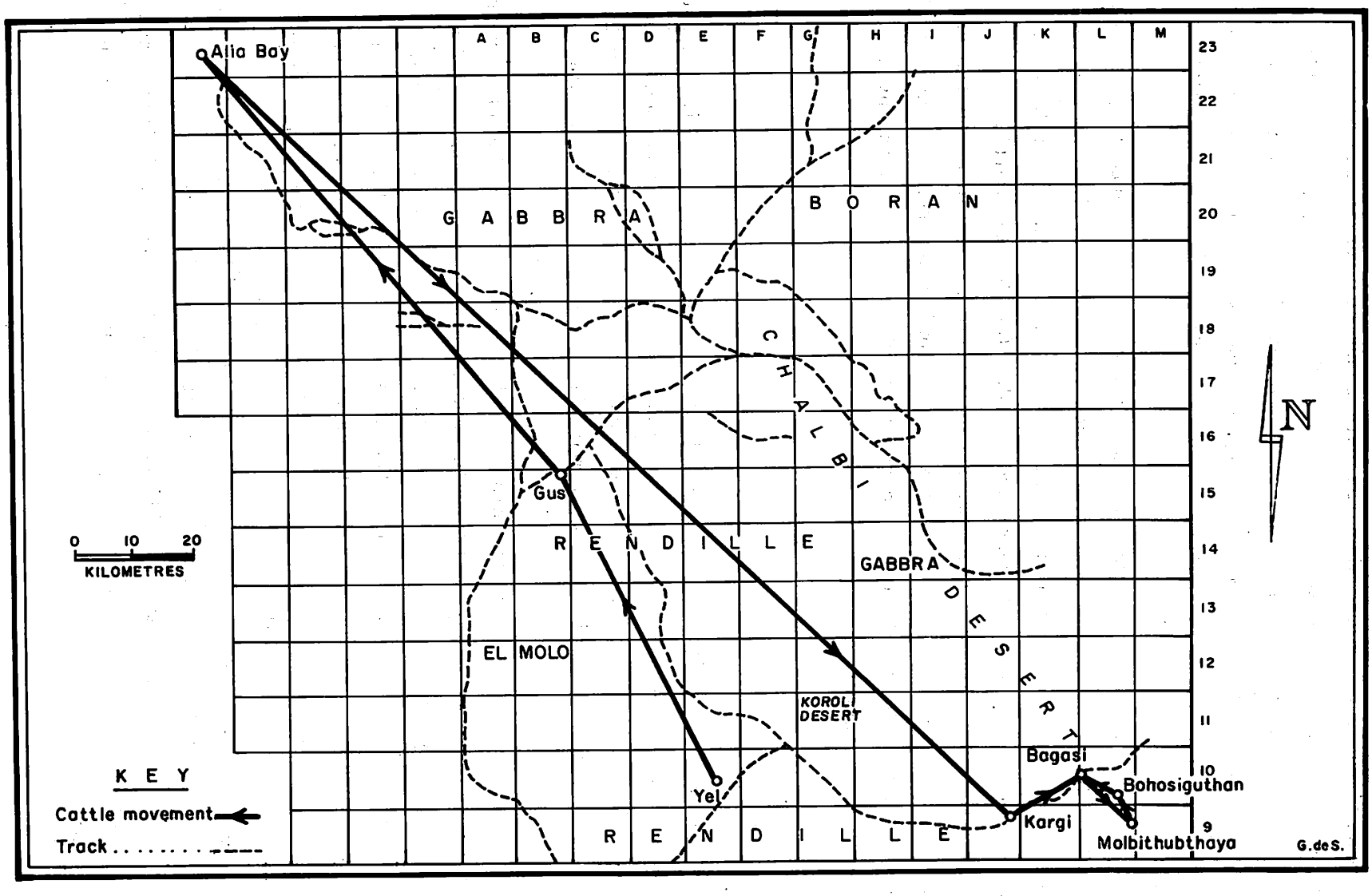
Maps 3.9 and 3.10 outline the movement of camels and cattle of Galkor camp between April 1980 and March 1982.

In general our data show that in the wet season the *forr* livestock 'follow the rain'. This means that when the rain falls heaviest on the slopes of Marsabit Mountain, as happened in the wet season of March-May 1982, the majority of *forr* stock of the Northern Rendille concentrated there.

Map 3.9 Movement of the camels of Galkor Camp, April 1980-March 1982



Map 3.10 Movement of the cattle of Galkor Camp, April 1980-March 1982



However, there are times when the rain comes heavier in the plains, as happened in the wet season of March-May 1983, and many *forr* livestock were located for a short period west of Kargi, particularly around Falam. In this instance the rainfall was low and by May and June cattle, followed by smallstock, began to move toward Kahi Springs which is on the eastern slopes of Mt. Kulal.

In some drought years these stock move further north to graze rangeland east of Lake Turkana. Other areas used in drought periods by cattle and smallstock are Kom (Samburu District), Koiya, Kamatony (near Wamba), Ilkerjej (close to South Horr) and Oronder (on Mt. Marsabit).

In minor droughts the camels can utilize range closer to the settlement areas. However, in major droughts the following are regarded as suitable reserves for them: Khamothe (north of Mt. Kulal), Kom, Kamatony and Hagargabo (towards Bubissa).

G. RESIDENCE

In Chapter 2, Section D it was noted that people are grouped into houses and households, and these units can combine to form joint and compound families. Joint families can combine to form local patrilineages (see Chapter 2, Section A). The kin composition of two camps is examined. The principles uncovered in the two examples are operative in other camps as well.

Figure 3.3 outlines the kin ties that exist between heads of neighbouring houses of a Kargi camp. A triangle denotes a male and a circle a female. When these symbols are filled in and darkened it denotes dead people. The numbers indicate the position of the house in the ritual ordering of the camp (see Chapter 2, Section A). Sometimes strict ritual seniority is not observed because a late-comer may not be able to find a site for his/her house in the appropriate place.

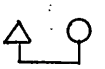
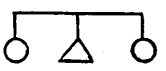
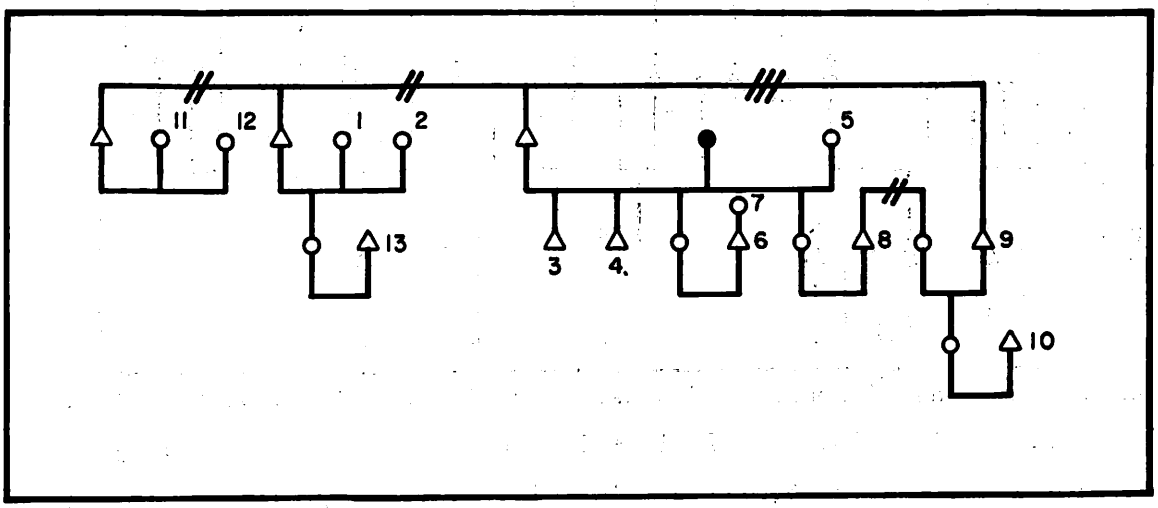
 denotes a married couple and  siblings. Where there is one stroke cutting the joining horizontal line it indicates that the pair so joined belong to the same patrilineage (*era*), two strokes indicate that the pair belong to the same subclan *(Khod)* and three strokes that they belong to the same clan *(gob)*.

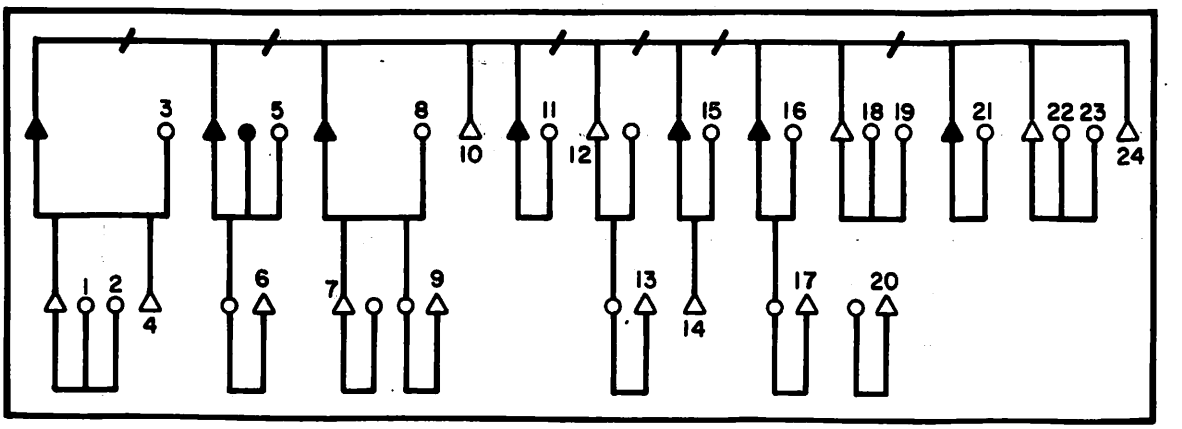
Figure 3.3 The kin chart of a Kargi camp



The camp has 13 houses which comprise 10 households (1 + 2, 3, 4, 5, 6 + 7, 8, 9, 10, 11 + 12), 7 joint families (1 + 2, 3 + 4 + 5, 6 + 7, 8, 9, 10, 11 + 12) and 4 compound families (1 + 2 + 13, 3 + 4 + 5 + 6 + 7 + 8, 9 + 10, 11 + 12). The significance of such groupings for herding purposes will be discussed later (see Chapter 7, Section A). The camp is known as Elegela which is a subclan of the Tupcha clan. However Elegela members occupy only 7 (53.8%) of the houses of the camp (i.e. 1, 2, 3, 4, 5, 11 and 12). An eight house (i.e. 9) is occupied by a clan mate of Tupcha but of a different subclan. Five (38.5%) of the houses are occupied by non-Tupcha members (i.e. 6, 7, 8, 10 and 13). All of them are affines of the Tupcha clan: four of them are men married to daughters of the clan (i.e. 6, 8, 10 and 13) and one (7) is a mother of one of these men. According to Rendille custom a newly married couple live with her people for at least three months after they marry. This enables the young bride to learn the practical and social skills of being a wife from her mother. A man may stay longer if he feels his association with his affines is more beneficial economically than residing and working with his own brothers. This may be the case if his affines are richer in livestock than his own people. As already noted, nowadays a wife of a labour migrant frequently opts for living with her own people rather than in the camp of her husband's.

Figure 3.4 illustrates the kin connections between heads of neighbouring houses in the Galbor (1) Camp which is a country camp. Galbor is a patrilineage (*era*) of the Gabana, a subclan of the Sale clan.

Figure 3.4 The kin chart of Galbor camp



Galbor camp has 24 houses; 18 households (1 + 2 + 3, 4, 5, 6, 7 + 8, 9, 10, 11, 12, 13, 14 + 15, 16, 17, 18 + 19, 20, 21, 22 + 23, 24); 12 joint families (1 + 2 + 3 + 4, 5, 6, 7 + 8 + 10 + 11, 9, 12, 13, 14 + 15, 16 + 18 + 19, 17, 20, 21 + 22 + 23 + 24); and 6 compound families (1 + 2 + 3 + 4, 5 + 6, 7 + 8 + 9 + 10 + 11, 12 + 13 + 14 + 15, 16 + 17 + 18 + 19 + 20, 21 + 22 + 23 + 24). Nineteen (79.2%) of the houses are occupied by members of the Galbor patrilineage. Houses dwelled in by non-Galbor members (i.e. 6, 9, 13, 17 and 20) are affines of the lineage. In general the kin composition of the Galbor Camp is more homogenous than that of the Elegela Camp.

Note

1. This is a pseudonym.

Chapter 4

RENDILLE OCCUPATIONAL PATTERNS

A. INTRODUCTION

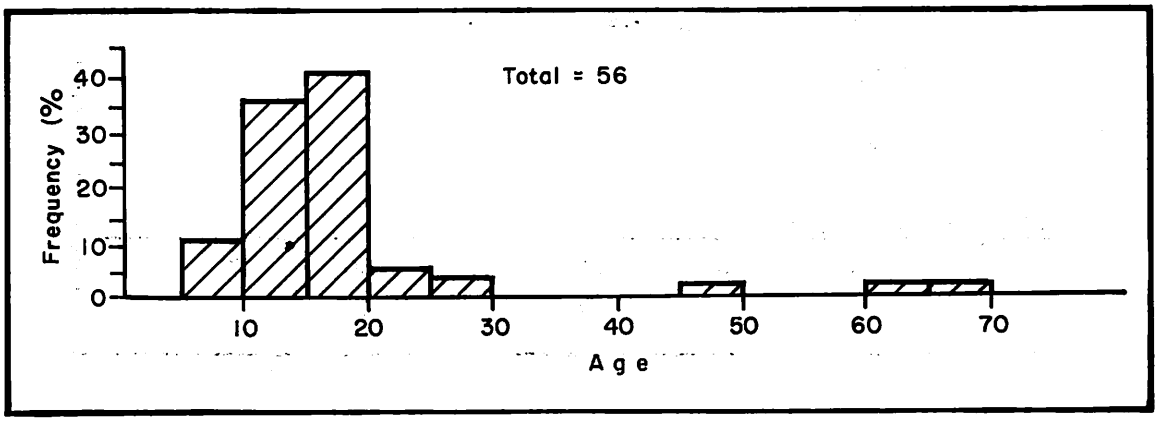
In this chapter the extent to which the Rendille are employed in livestock keeping is examined. Herding occupations are divided into six categories: camel herding (local and *forr*), cattle herding (local and *forr*) and smallstock herding (local and *forr*). Only those who are involved in these activities full time are recorded. It needs mentioning that full-time herders can receive assistance from those not in full-time herding when the animals are being watered and milked. In addition, elders, most of whom are not full-time herders, have overall responsibility for the management of their herds. Married women play an important ancillary role as milkers and distributors of meat in the livestock production system (Beaman, 1983).

Wage employment and involvement in the school system are becoming increasingly important as the Rendille pastoral economy moves away from self-reliance towards a greater dependency on the wider economy. We distinguish between employment within and outside the district, and between casual, low-paid and better paid employment.

B. HERDING

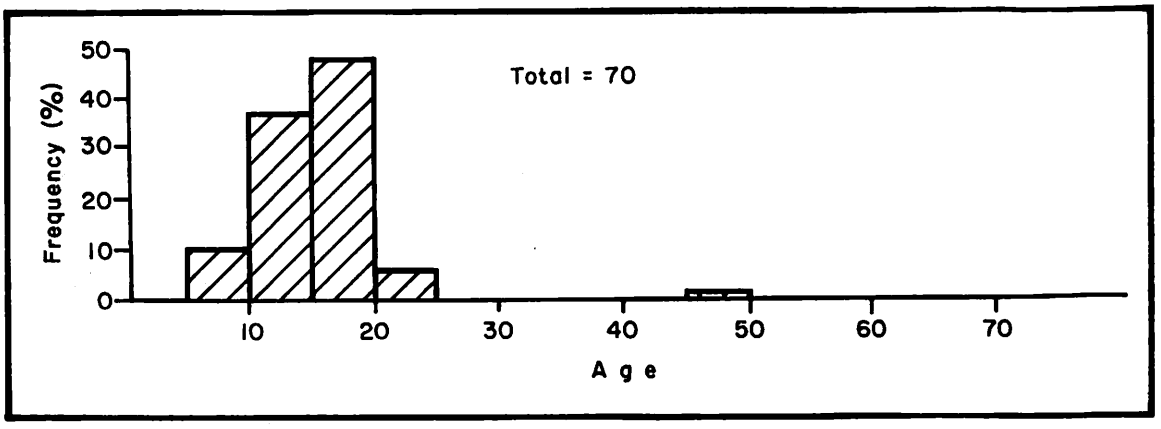
Figures 4.1 and 4.2 outline the number of girls and women involved as full-time herders (i.e. those who herd the livestock of their own family or household). Girls also herd the livestock of those who adopt them or hire their labour. The extent to which this occurs is recorded in Figures 4.3 and 4.4.

Figure 4.1 Female family herders (town)



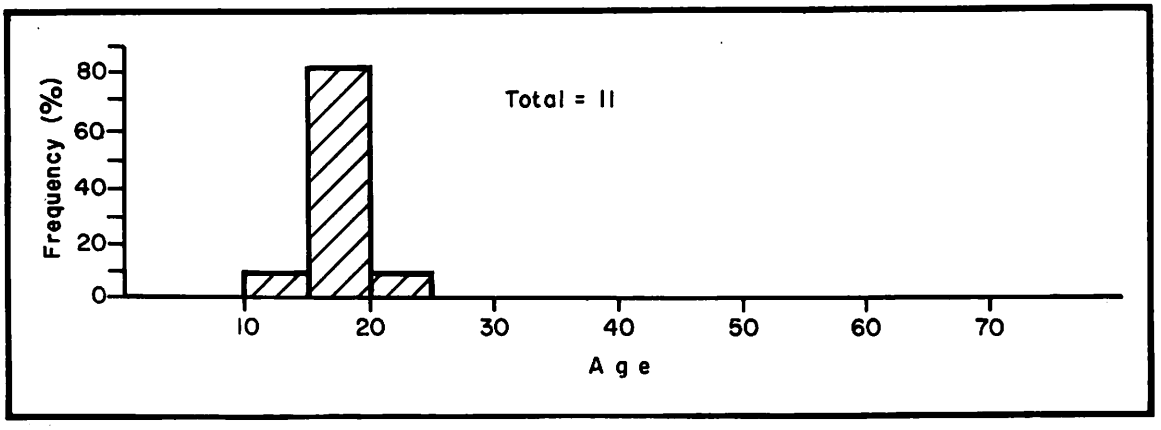
Mean: 16.7
Standard deviation: 9

Figure 4.2 Female family herders (country)



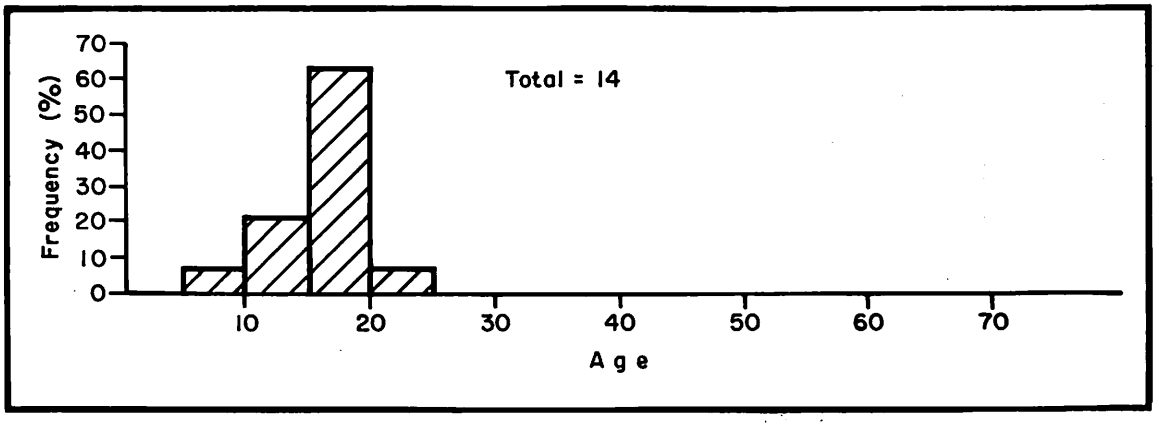
Mean: 15.4
Standard deviation: 5.4

Figure 4.3 Hired/adopted female herders (town)



Mean: 17.5
Standard deviation: 2.2

Figure 4.4 Hired/adopted female herders (country)

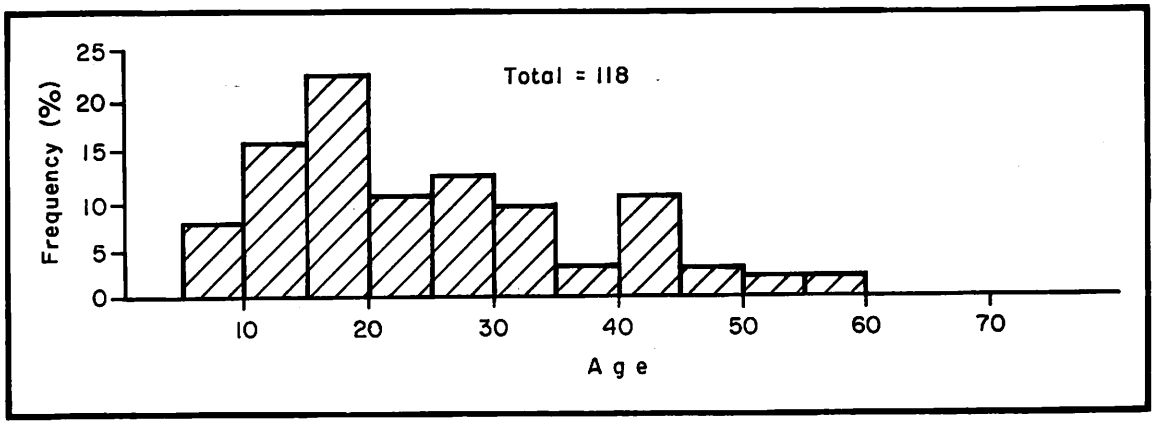


Mean: 16.1
Standard deviation: 3.6

The involvement of females in herding reaches a peak in the 15-19 age category and declines rapidly as girls marry. The average age of herding females lies in the 15-19 age category. Few married women are full-time herders.

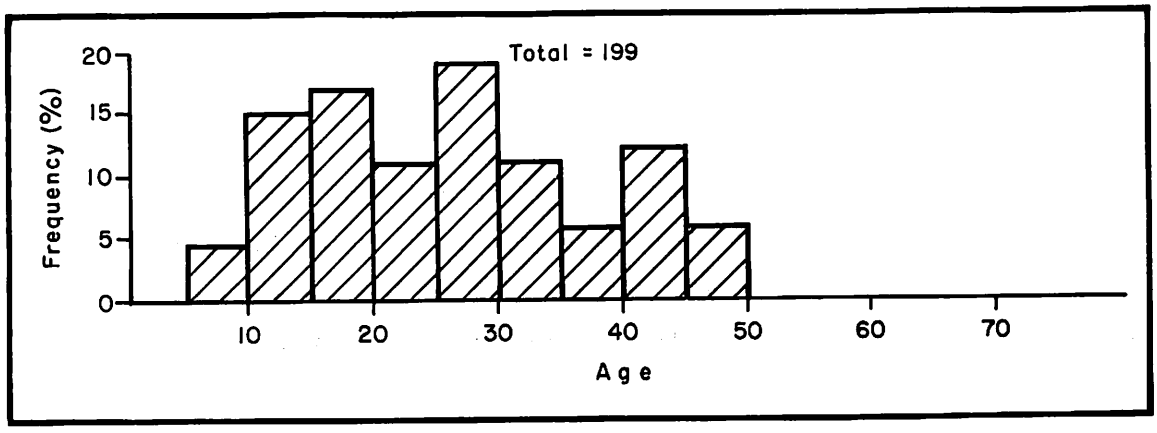
Figures 4.5 and 4.6 indicate the numbers of youths and men who are family herders and Figures 4.7 and 4.8 the numbers of males who herd for households who hire or adopt them.

Figure 4.5 Male family herders (town)



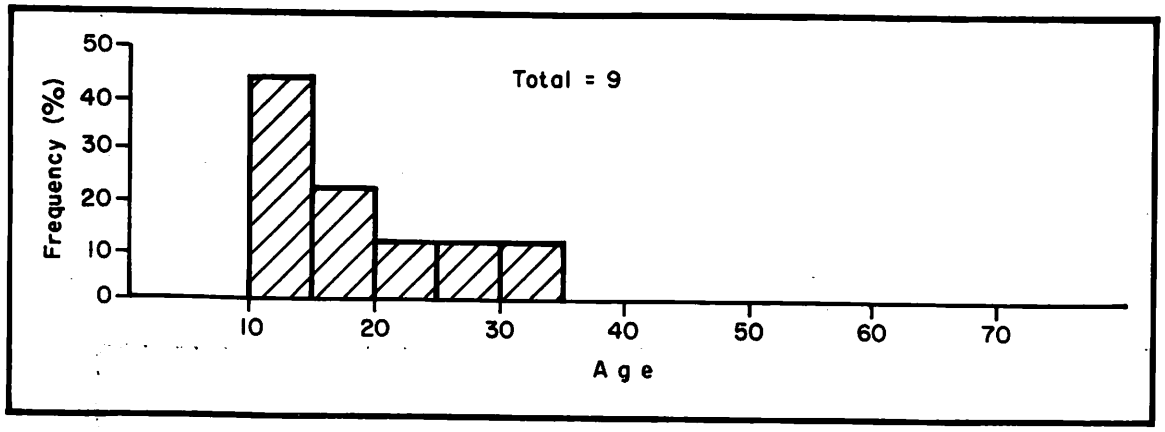
Mean: 24.4
Standard deviation: 11.9

Figure 4.6 Male family herders (country)



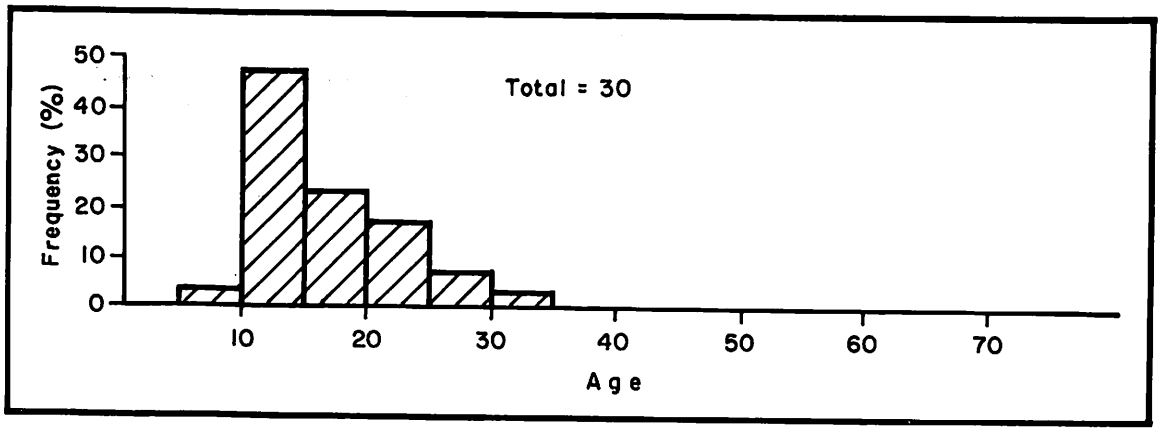
Mean: 26.6
Standard deviation: 12.1

Figure 4.7 Hired/adopted male herders (town)



Mean: 18.6
Standard deviation: 7.4

Figure 4.8 Hired/adopted male herders (country)



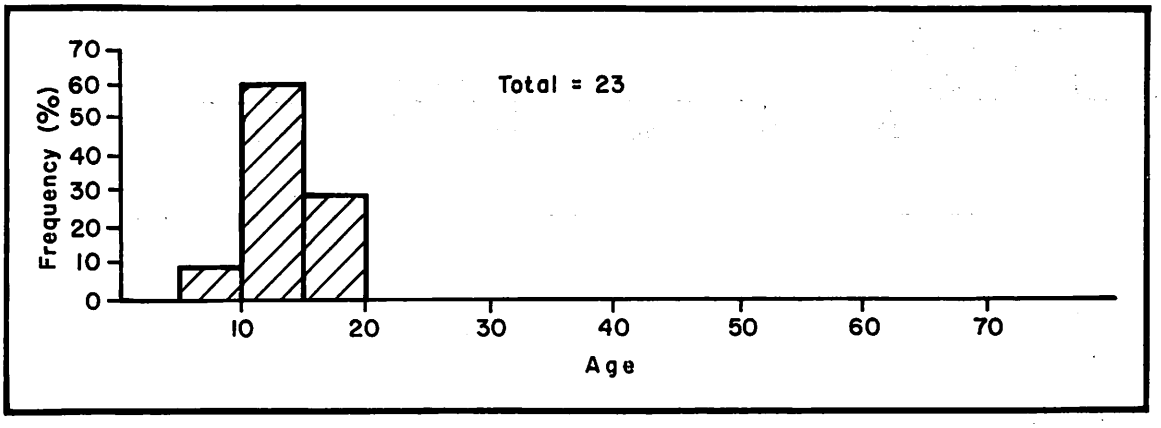
Mean: 16.8
Standard deviation: 5.8

Males begin to herd at the same time as females and reach a peak of involvement in herding in the 15-19 age category. But similarities end there. The herding life-span of men is much longer than in the case of women. Frequently married men who have no teenage children herd smallstock (see next section).

C. WHO HERDS THE CAMELS, CATTLE AND SMALLSTOCK

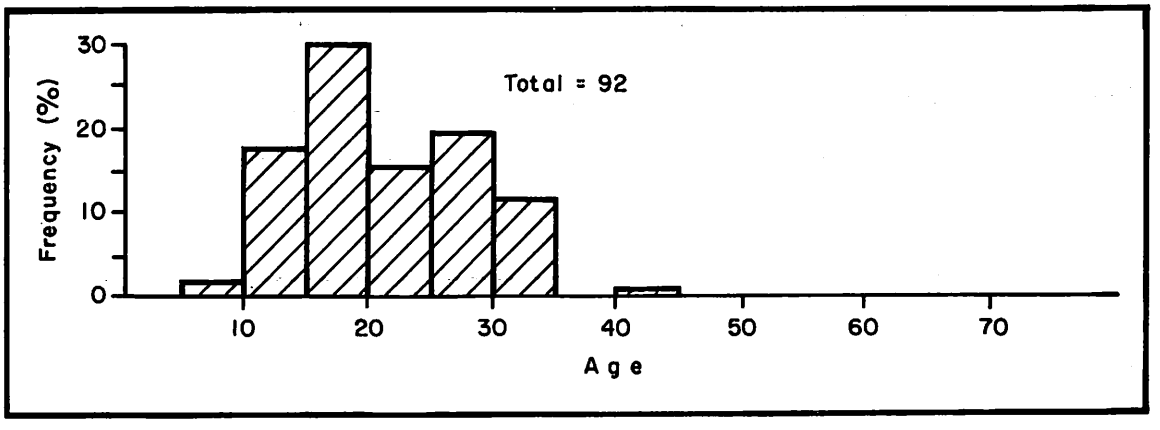
Figures 4.9 - 4.11 illustrate the age/sex of the family herders of camels (local/*forr*).

Figure 4.9 Female herders of local camels



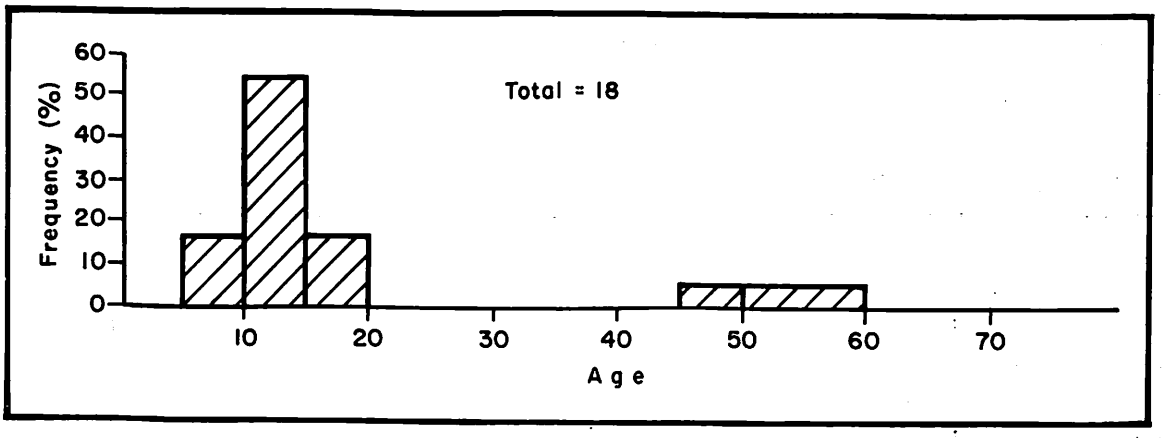
Mean: 13.6
Standard deviation: 3.0

Figure 4.10 Male herders of *forr* camels



Mean: 21.2
Standard deviation: 7.1

Figure 4.11 Male herders of local camels

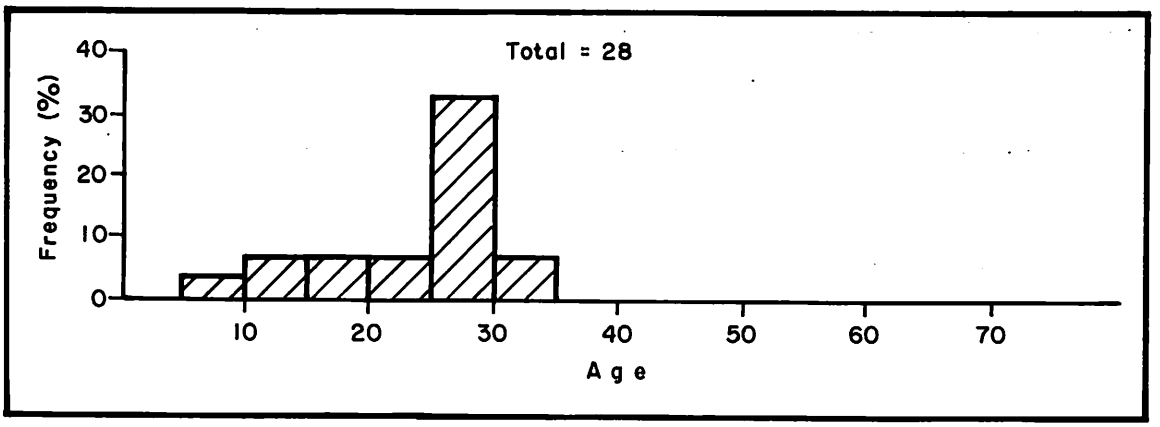


Mean: 16.8
Standard deviation: 12.9

Camel herding is predominantly a male occupation. We recorded no instance of a girl or woman herding camels at a *forr* camp. Married men rarely herd *forr* camels (see Figure 4.10). However, girls, boys and married men can take care of small numbers of pack and milch camels that may be kept at the main camps (see Figures 2.9 and 2.11). Children mainly herd the calves and only herd adult animals under the close supervision of older people.

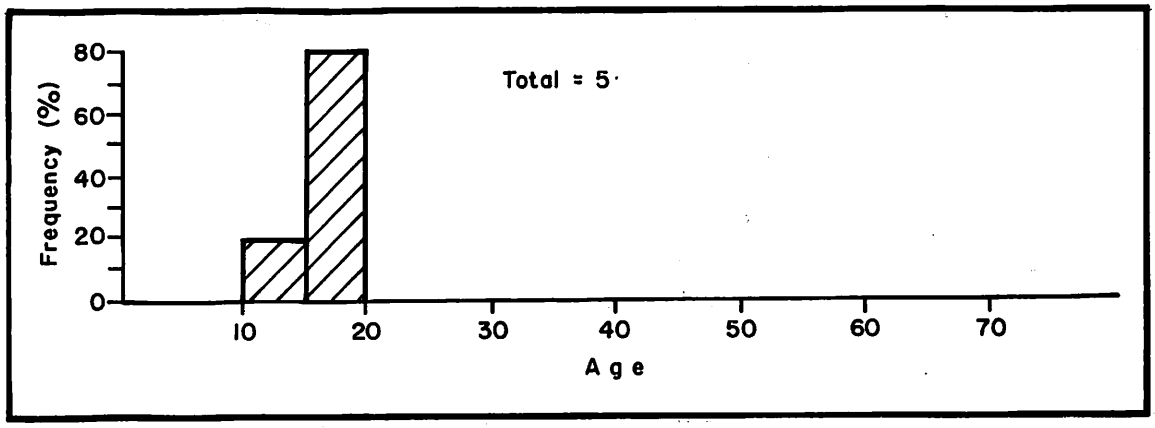
Figures 4.12 and 4.13 outline the age/sex of family cattle herders (local/*forr*). Fewer people are employed in herding cattle than camels.

Figure 4.12 Male herders of *forr* cattle



Mean: 22.5
Standard deviation: 7.7

Figure 4.13 Female herders of local cattle

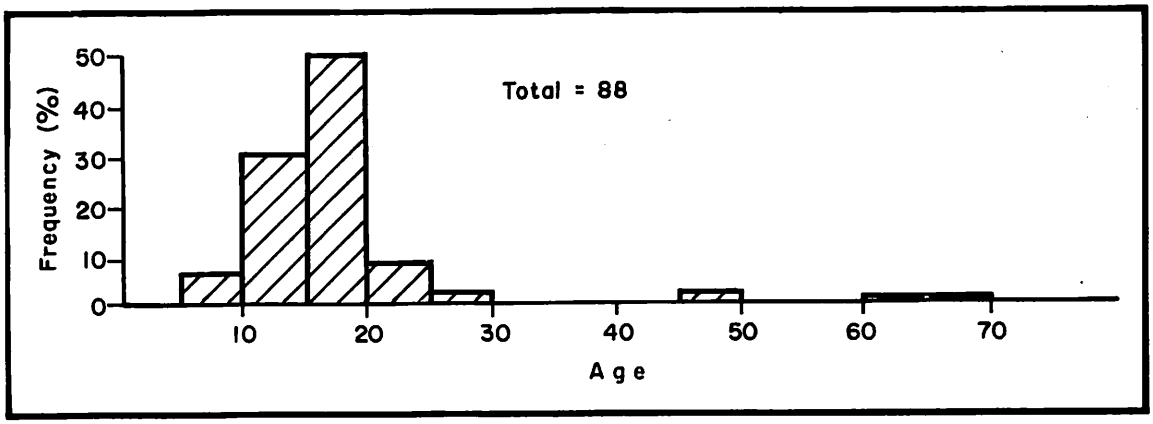


Mean: 16.5
Standard deviation: 2.2

No girls were recorded as herding *forr* cattle and few boys or men herded cattle which were kept at the main camps.

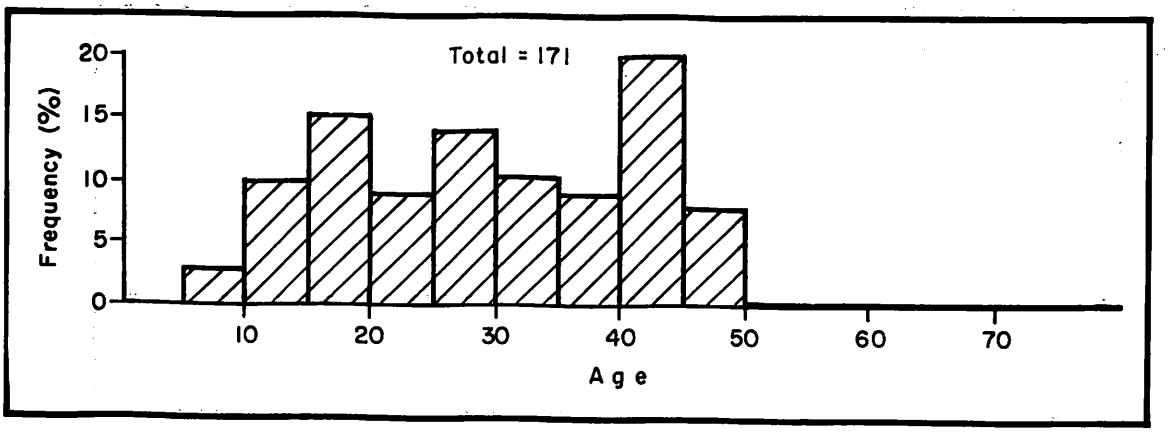
The majority of family herders take care of smallstock. Figures 4.14 - 4.17 outline the age/sex of smallstock herders.

Figure 4.14 Female herders of *forr* smallstock



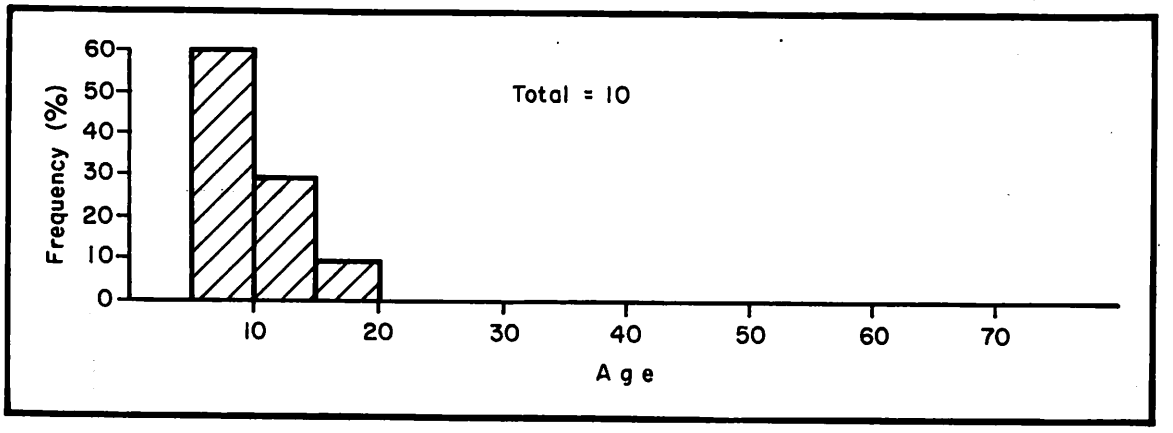
Mean: 17.2
Standard deviation: 8.0

Figure 4.15 Male herders of *forr* smallstock



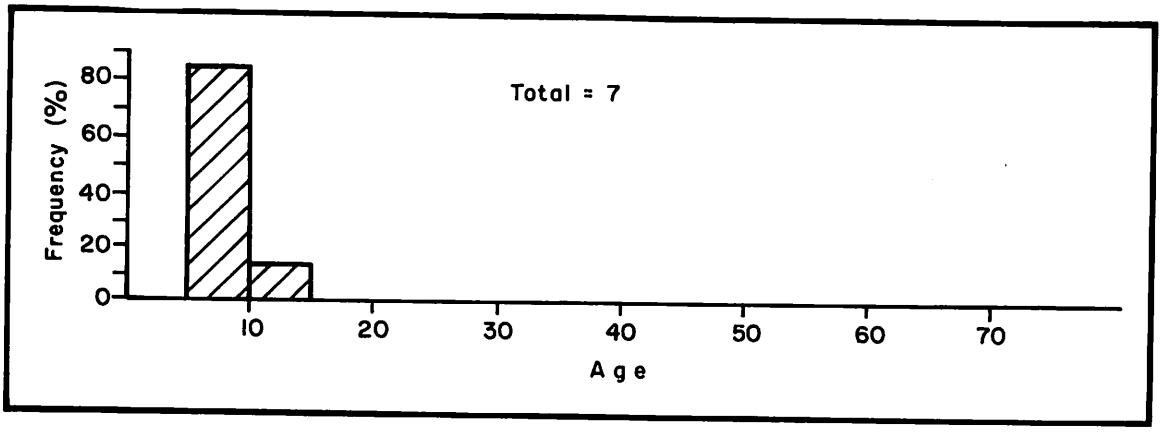
Mean: 30.3
Standard deviation: 12.7

Figure 4.16 Female herders of local smallstock



Mean: 10.5
Standard deviation: 3.5

Figure 4.17 Male herders of *forr* smallstock



Mean: 8.2
Standard deviation: 1.9

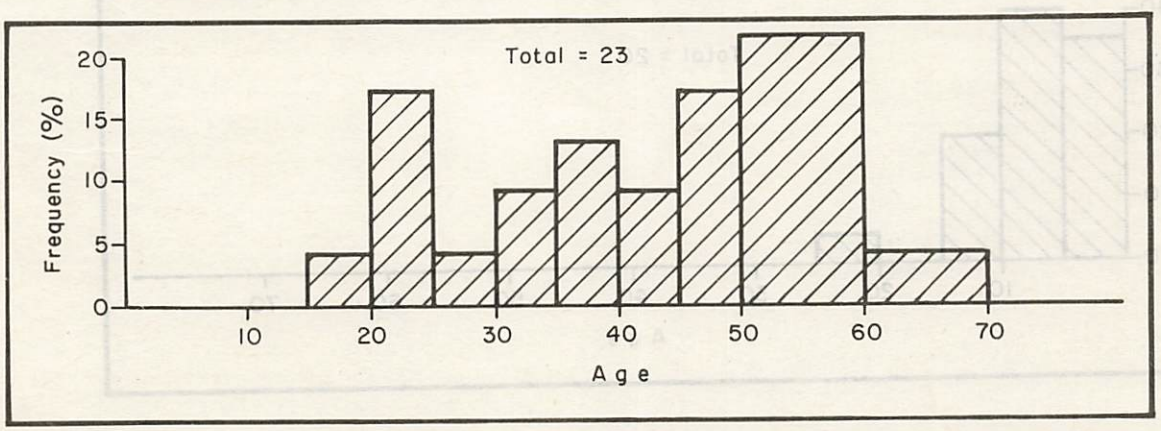
The majority of females who herd *forr* smallstock are in the 15-19 age category. The majority of women at *forr* camps are widows who have no adult children to herd for them. Quite a number of married men herd *forr* smallstock on their own or with the assistance of their young children. However, when their children become old enough to take care of the smallstock on their own married men confine themselves to managerial tasks. Children mainly herd the smallstock which are kept at the main camps. Young children at the satellite camps mainly herd kids and lambs and only herd adult smallstock under the close supervision of their elders.

D. WAGE EMPLOYMENT

An increasing number of men perforce seek for wage employment. There are a number of reasons for this. Firstly since the 1960s the Rendille animal population has not kept pace with the human population growth rates. This means that a number of households have insufficient numbers of stock for subsistence. Wage employment is the main alternative sought. Since there are few wage employment opportunities within the District the majority opt for working outside the District, particularly in Nairobi (see Figures 4.18 - 4.19). Since many of those who seek work outside the District have little or no education they finish up on low-paid jobs. Secondly, since the early 1970s more children have been sent to school (see below). Nowadays an increasing number of school leavers seek wage employment. Those who have completed their secondary school education have some hope of obtaining better paid jobs (i.e. those with monthly earnings greater than Shs 800).

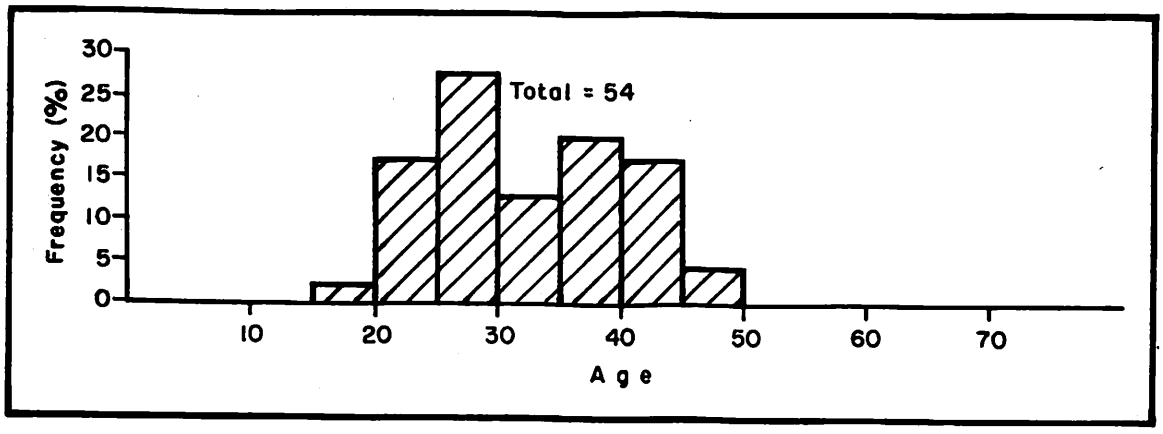
Figures 4.18 - 4.19 give data on the age/sex of those in non-herding employment within and outside the district.

Figure 4.18 Male wage earners within the district



Mean: 40.3
Standard deviation: 13.5

Figure 4.19 Male wage earners outside the District



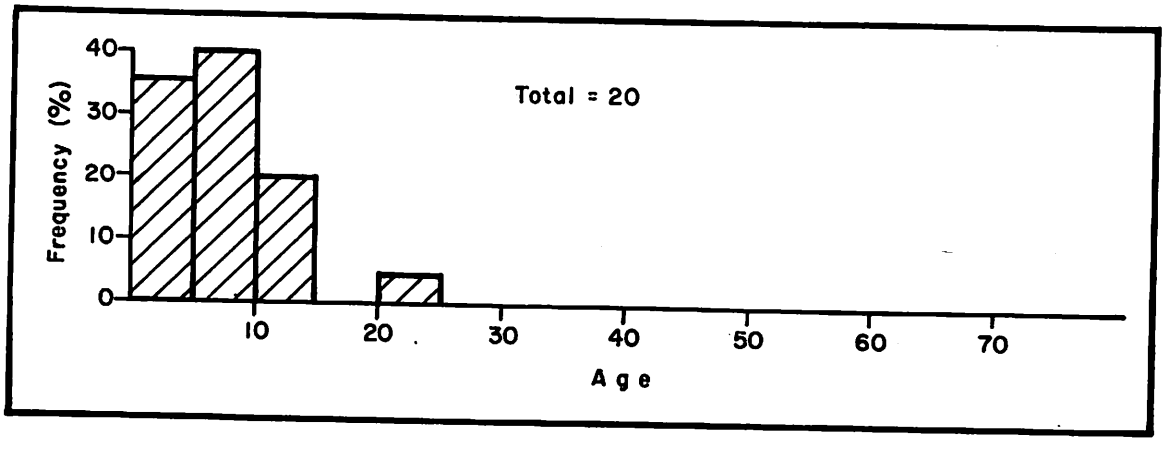
Mean: 32.4
Standard deviation: 7.7

The majority of wage earners within the District are in better paid jobs, mainly with some Government ministry. On the other hand, the majority of male workers outside the District are in low-paid employment and those with better paid jobs are mainly younger men with education. Only one girl was recorded as having wage employment. She was employed locally as a maid.

E. SCHOOLING

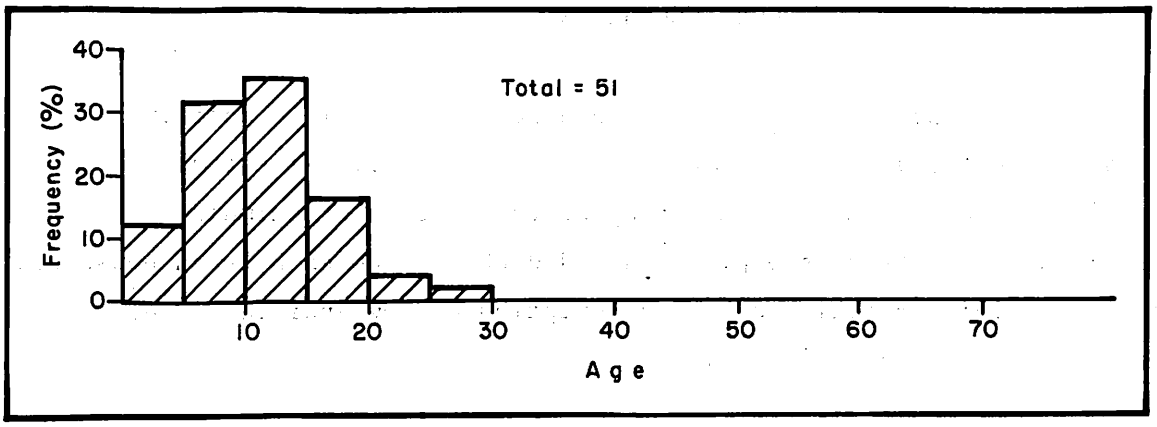
There is a trend to send more children to school. It is Government policy to encourage parents to send their children to school. Parents are also beginning to see its importance as a means of improving their childrens' job opportunities. However, the trend is mainly a town practice (see Figures 4. 20 - 22).

Figure 4.20 Ages of girls at school (town)



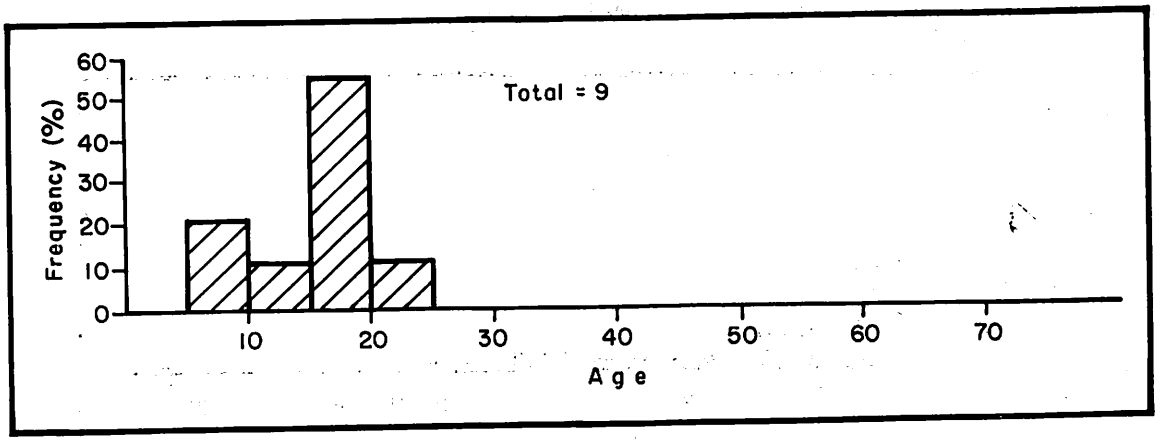
Mean: 7.5
Standard deviation: 5.1

Figure 4.21 Ages of boys at school (town)



Mean: 11.2
Standard deviation: 5.6

Figure 4.22 Ages of boys at school (country)



Mean: 15.3
Standard deviation: 5.1

More boys than girls are schooling. Indeed, our data show that there was no girl from country camps at school.

Chapter 5

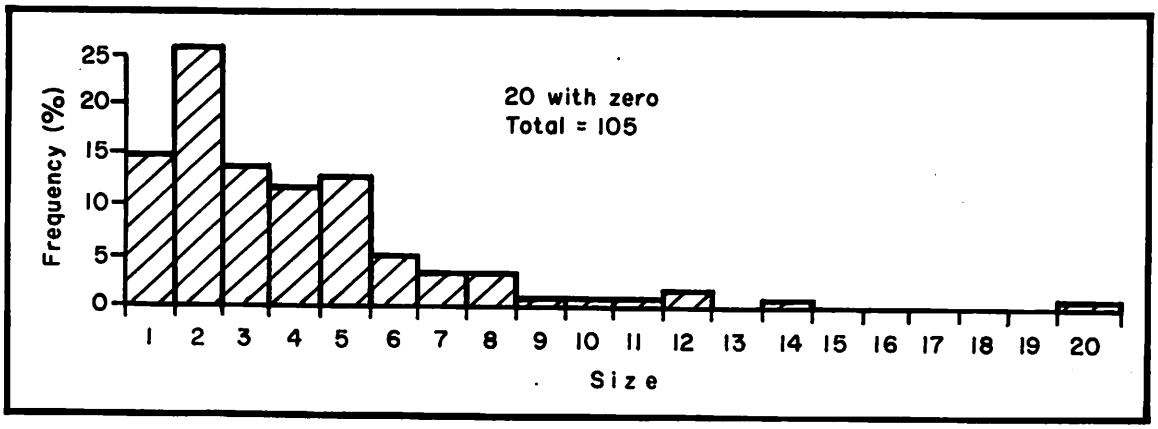
RENDILLE HERDS

So far this study has focused on certain aspects of Rendille society. Here, and in subsequent chapters, interest is shifted to their livestock and how the Rendille manage them. In this chapter the numbers of animals of each species - camels, cattle, sheep, goats and donkeys - owned by each household is examined. This is followed by a description of how individuals and households acquire rights in animals.

A. HOUSEHOLD LIVESTOCK HOLDINGS

Figures 5.1 - 5.12 outline household holdings of camels, cattle sheep and goats in town camps, country camps and of all camps taken together (1).

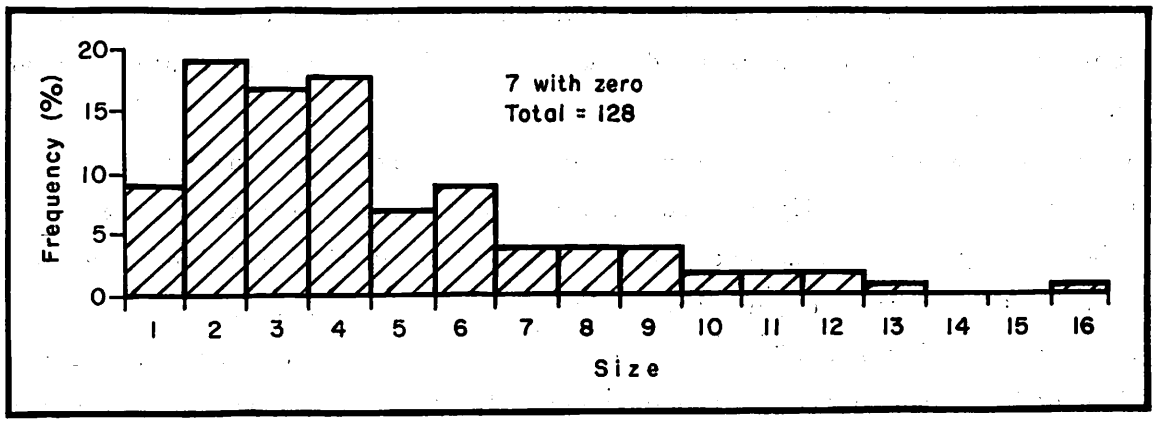
Figure 5.1 Household holdings of camels (town)



20 zeros (i.e. 20 households without camels)

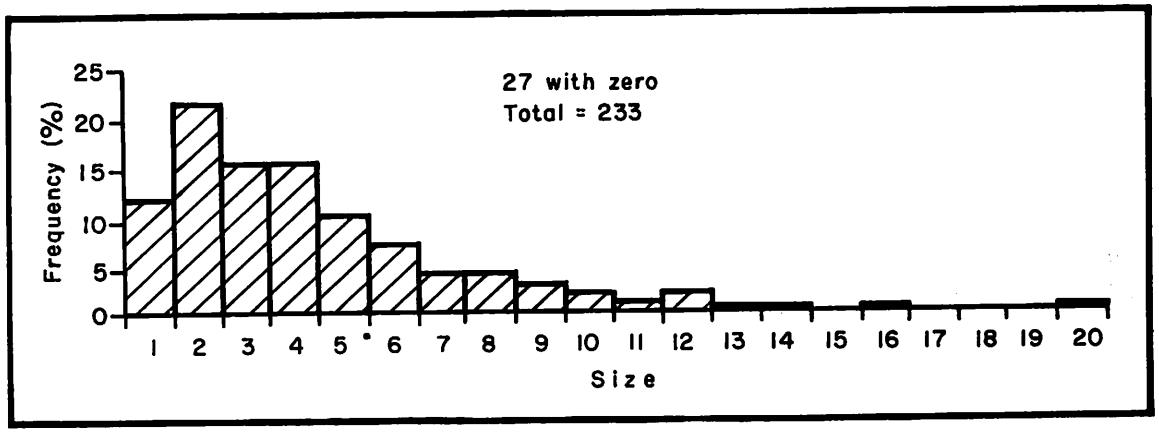
Mean: 11.9
Standard deviation: 13.2

Figure 5.2 Household holdings of camels (country)



Mean: 15.9
Standard deviation: 12.2

Figure 5.3 Household holdings of camels (total)

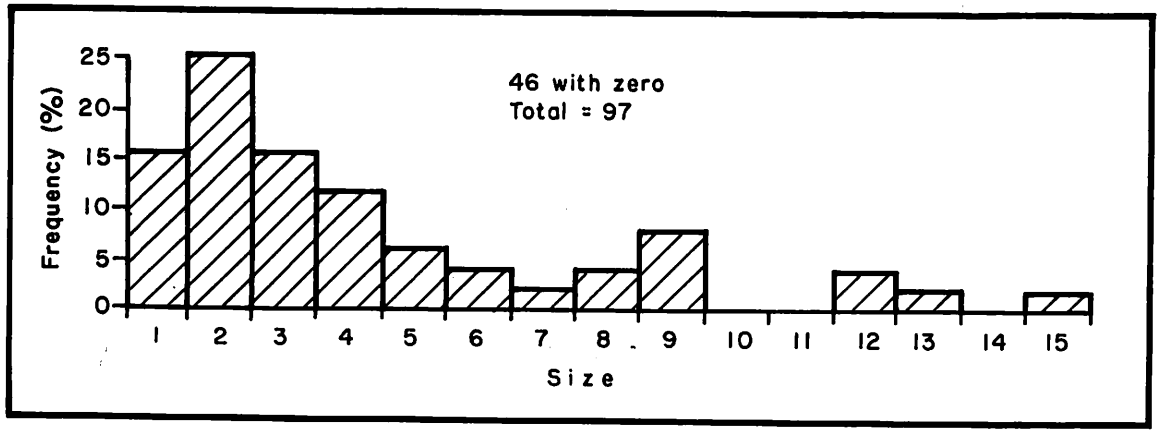


Mean: 14.1
Standard deviation: 12.8

The overall average size of camel herds is 14.1 head per household. This confirms that the Rendille are a camel people. Given that the average size of household is 5.7 persons it follows that on average there are 2.47 camels per person. Country households own statistically significantly larger herds than town households.

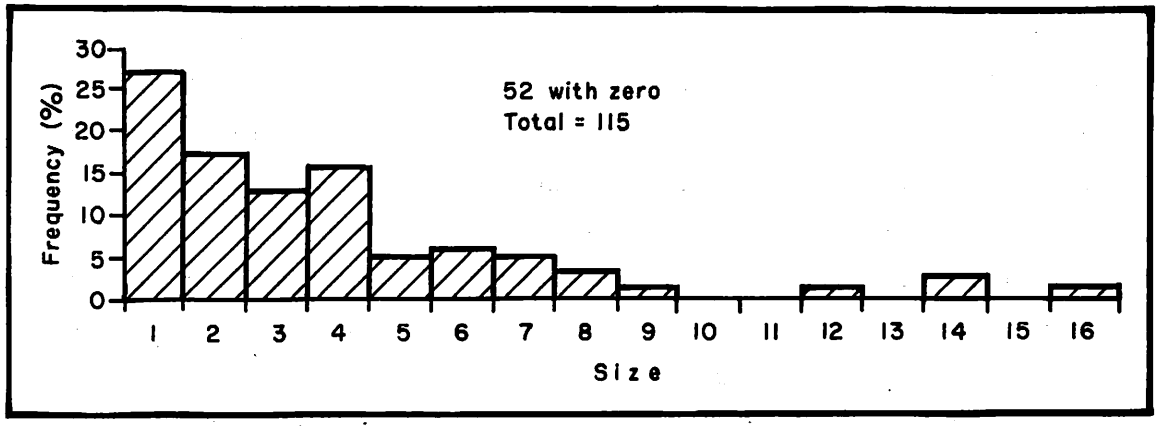
At present Rendille regard 1 - 10 head of camels as a small household herd, 11 - 39 head as a medium-sized herd and 40 or more head as a large herd. They are quick to note the overall drop in herd size and indicate this by pointing out that in the past large household herds contained 61 - 100 camels, medium-sized herds 25 - 60 head and small herds were those with 1 - 25 head. The drop in the overall size of household camel herds is due primarily to the fact that the human population has increased faster than the camel population.

Figure 5.4 Household holdings of cattle (town)



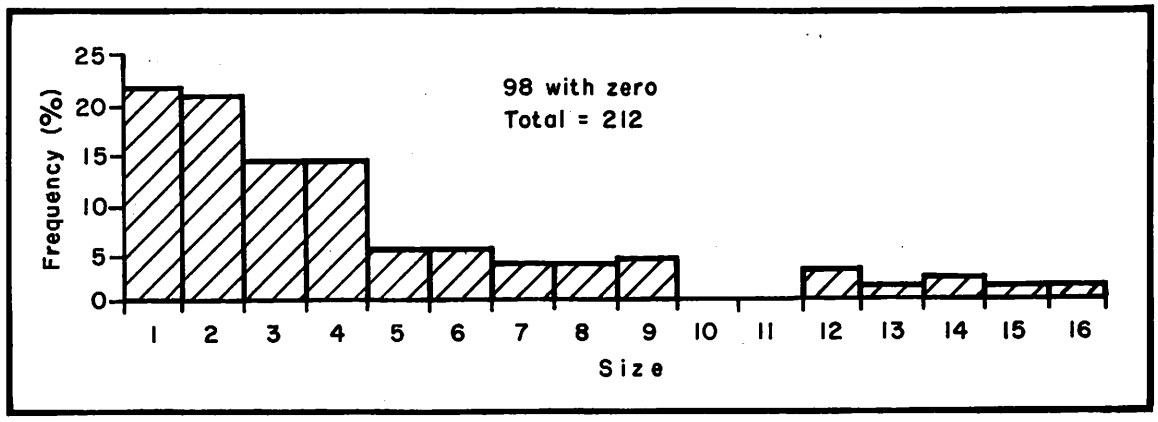
Mean: 8.3
Standard deviation: 12.9

Figure 5.5 Household holdings of cattle (country)



Mean: 7.6
Standard deviation: 12

Figure 5.6 Household holdings of cattle (total)



Mean: 7.9
Standard deviation: 12.4

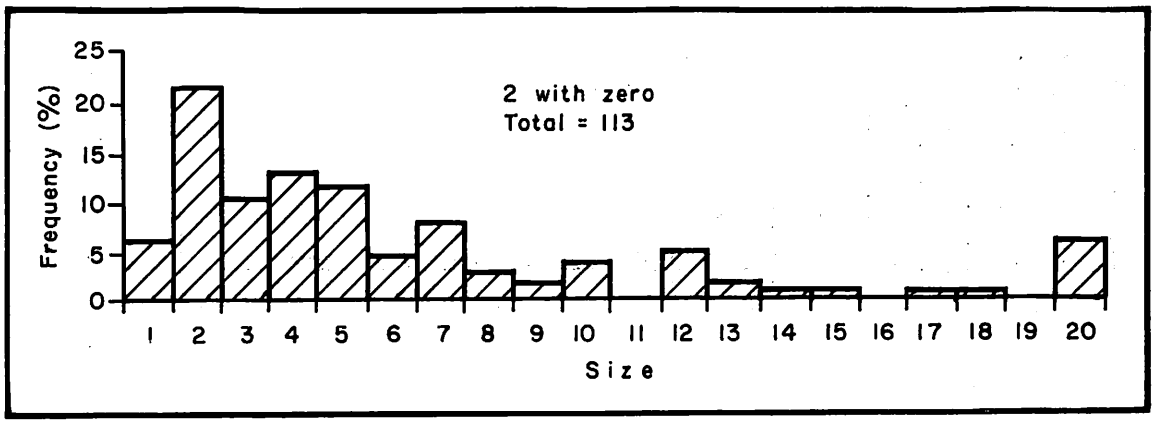
In the past Rendille households owned no cattle, or very few. At present 98 out of 212 households still own no cattle. Investment in cattle over the last 20 to 30 years is due mainly to market considerations. While there are market facilities, however inadequate, for cattle the Government

of Kenya has done little to develop a market for camels. In fact, the closing down of a canned camel meat factory at Archer's Post in the 1960s because of political considerations denied the camel producers of Marsabit District any market outlet for their camels. Between 1966 and 1980 and in 1981/82 only 20 and 170 camels, respectively, were exported from the whole of Kenya to the Middle East where there is a thriving market for camels. Since there is no internal market for camel meat, prices for camels are low. Rendille producers are lucky to obtain an average of Shs. 1,500 for mature males. However, because of the illegal flow of camels across the border from the North-Eastern Province to Somalia, prices for camels there are approximately double what is obtainable by Marsabit producers. Prices for camels in Sudan, where the main export market is Egypt, are approximately 400 dollars or about Shs. 5,600.

The overall average size of Rendille household cattle herds is 7.9. Town stock owners have significantly larger cattle herds than country owners. This may indicate that they are more oriented to the market than their country cousins.

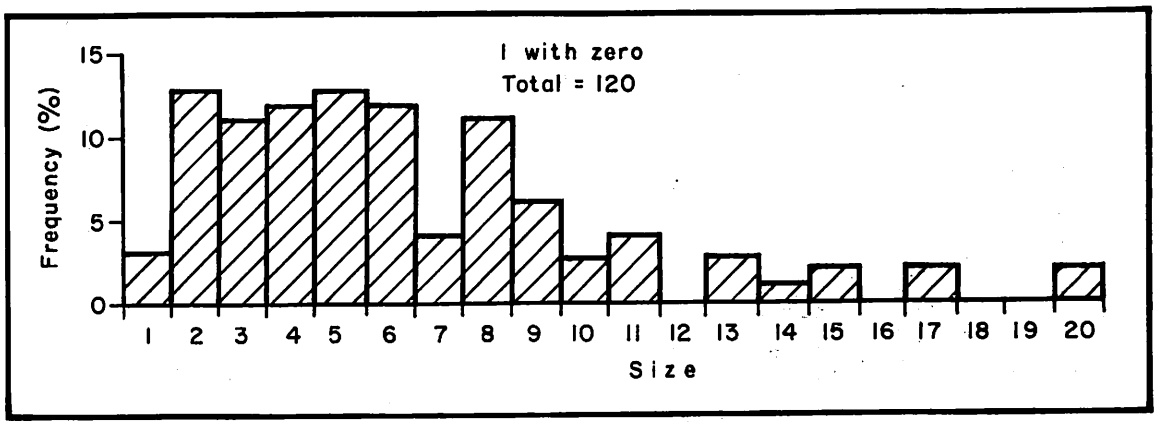
The above data show that the Rendille own more camels than cattle (2). It is said, however, that the Arial Rendille to the south have more cattle in their herds. The statistics of the human ecology team seem to contradict the findings of the livestock ecology group who conclude that the Rendille own more cattle than camels (Lusigi, 1984). Reconciliation of the two seemingly contradictory figures may be sought in differences between the methodologies and aims of the human ecologist and the livestock ecologist. While the latter calculated through aerial and statistical methods the number of stock observed over territory usually used by Rendille, the assistants of the human ecologist counted on the ground the livestock holdings of individual Rendille households. The approach of the livestock ecologist gives a measure of the livestock use of the surveyed range but not a true measure of what numbers of livestock Rendille own, for two reasons. Firstly, frequently the livestock of non-Rendille also use what is regarded as Rendille range. For example, the Samburu of Karare send many herds of cattle onto the north-western slopes of Marsabit during wet seasons. Secondly, at times Rendille owners move out of their home rangelands (and the area surveyed by the livestock ecologist) large numbers of livestock. This happens particularly in drought years and hence these livestock go uncounted. The assistants of the human ecologist followed up all the herds of households studied even when these herds were grazing outside the boundaries of the aerial surveys.

Figure 5.7 Household holdings of sheep (town)



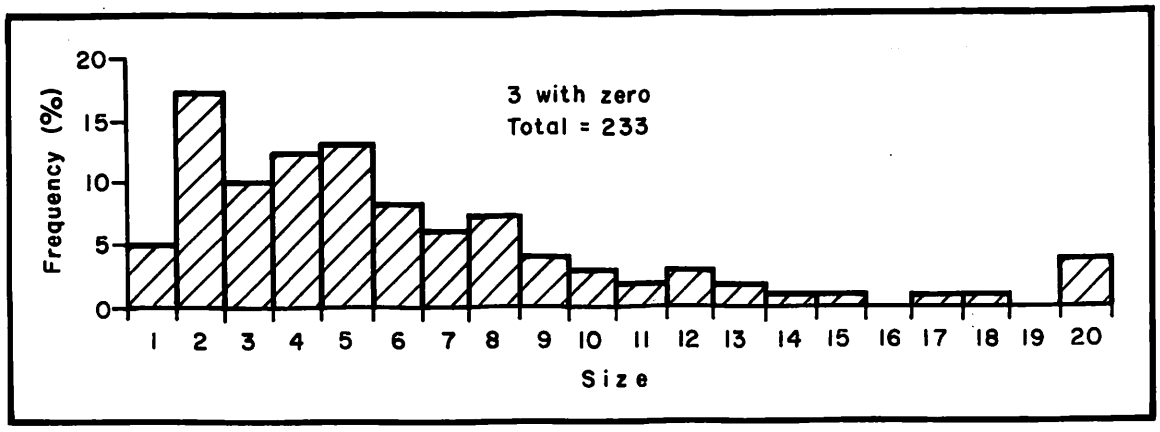
Mean: 87.6
Standard deviation: 88.1

Figure 5.8 Household holdings of sheep (country)



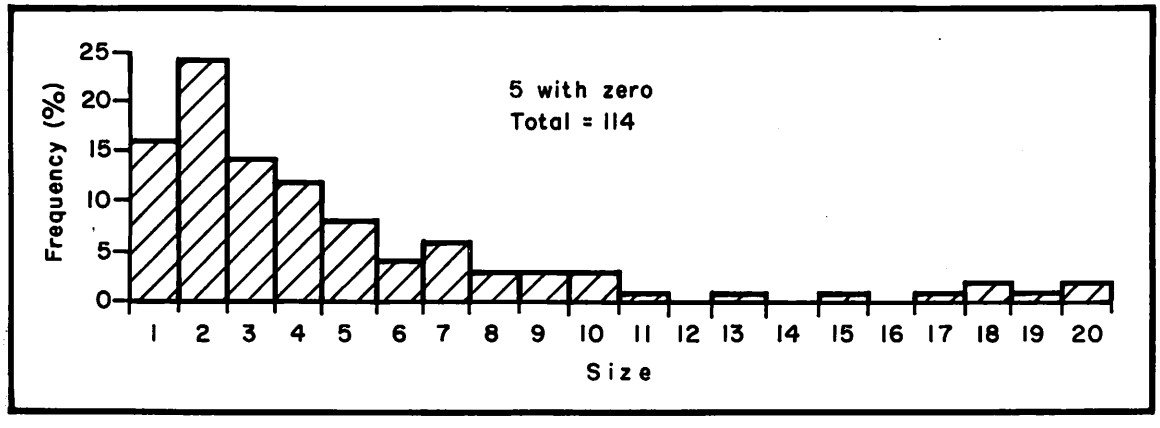
Mean: 86.3
Standard deviation: 66

Figure 5.9 Household holdings of sheep (total)



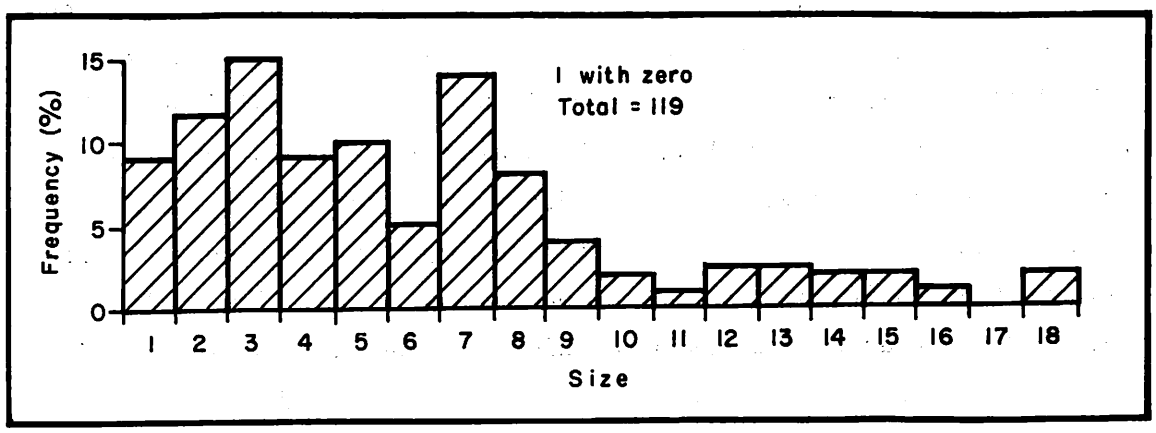
Mean: 86.9
Standard deviation: 77.4

Figure 5.10 Household holdings of goats (town)



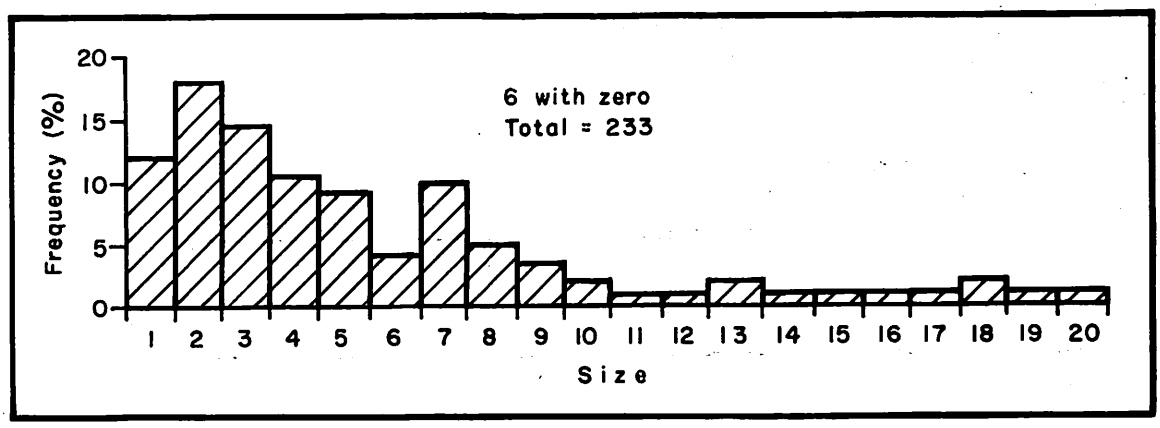
Mean: 61.6
Standard deviation: 69.7

Figure 5.11 Household holdings of goats (country)



Mean: 78.5
Standard deviation: 58.9

Figure 5.12 Household holdings of goats (total)



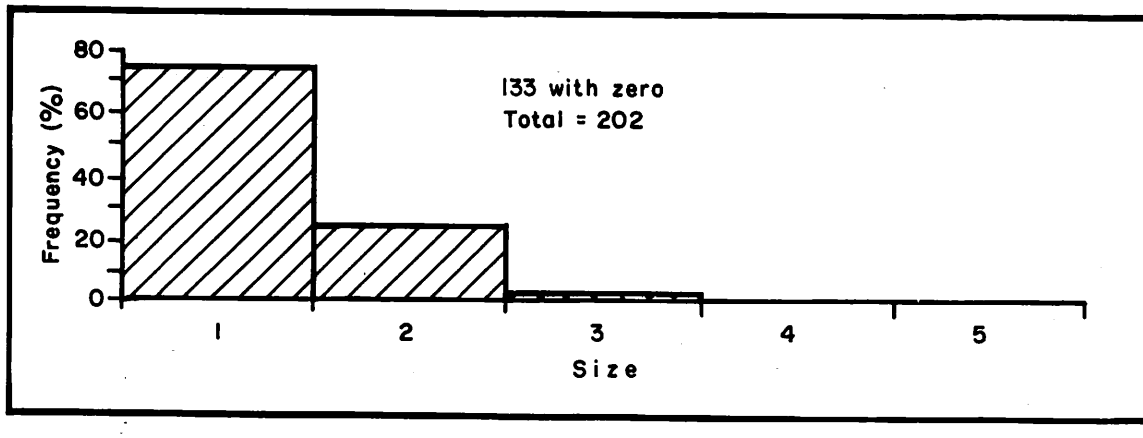
Mean: 70.2
Standard deviation: 64.8

Overall, Rendille smallstock flocks contain more sheep than goats (see Figures 5.9 and 5.12). The difference between sheep and goat numbers is smaller in the case of country camps. Country households on average own 86.3 sheep and 78.5 goats; while town households have on average 87.6 sheep and 61.6 goats. Indeed two of the country camps have more goats than sheep.

The Rendille consider mountainous terrain and colder conditions to be more suitable for goats than for sheep. The plains where it is warmer and where there is less lava pavement are regarded as more suitable for sheep. This may explain why the Kargi stock owners have higher proportions of sheep in their flocks than their country cousins who reside on the higher slopes of Mt. Marsabit. Other reasons are given for higher percentages of sheep. The growth rate of sheep flocks is higher and sheep survive drought conditions better than goats. Young goats are more susceptible to extreme heat conditions when on the move, and kids fall victim more easily to liver diseases than lambs. Lambs are given more milk to suckle than kids. It is thought that the faster growth rate of lambs necessitates a greater milk intake and that kids develop a condition known as *sirgo* (*T. multiceps, Coenurus cerebralis*) if allowed to suckle too much.

Figure 5.13 shows that the Rendille own few donkeys. Donkeys are used as baggage animals mainly for short trips and at smallstock and cattle *forr* camps.

Figure 5.13 Household holdings of donkeys (total)



Mean: 0.4
Standard deviation: 0.7

The first-born son inherits rights over all animals owned by his father. If he is still a minor when his father dies his mother controls the herd under the supervision of her dead husband's brother(s) until he comes of age. In cases where the eldest is married and his father is senile, in practice he assumes the ownership of his father's herd even before the latter dies.

In some instances junior sons will be married and own at least their own separate smallstock flocks at their father's death. Eldest sons are obliged to find bridewealth stock for their younger unmarried brothers. The dependency of younger brothers on their oldest brother can lead to tension when the former feel that their senior brother does not have their best interests at heart when he fails to reward them with sufficient numbers of livestock in return for their labour in herding.

The natural path to animal wealth, particularly for men who begin life with few large stock, is first to build up smallstock flocks and when these are sufficient in number to exchange them for larger stock. The exchange rates are as follows:

1 untrained pack camel	:	12 smallstock mixed in age and sex
1 trained pack camel	:	13 smallstock mixed in age and sex
1 mature female camel	:	30 smallstock mixed in age and sex
1 bovine heifer	:	12 smallstock mixed in age and sex
1 bovine cow	:	20 smallstock mixed in age and sex

This path to animal wealth also corresponds to the labour resources a household is likely to have. In the early stages of marriage a man will only have young children unable to take responsibility for adult animals at *forr* and he may have no alternative but to herd his smallstock himself (see Chapter 4, Section C). If he does possess a number of camels the appropriate strategy is to leave most of them in his senior brother's herd and to take with him - if he does decide to reside away from his oldest brother - only milch camels. Only when his children, particularly his sons, become teenagers and are able to herd both smallstock and camels at *forr* does it become appropriate for him to diversify his stock holdings.

Sons of very poor families can acquire stock by hiring their labour to more wealthy households. The going rate is one female camel or bovine per annum or twelve smallstock (see Chapter 2, Section F). However, nowadays poor men frequently look for a job and use savings from their wages to buy livestock to build up their herds.

B. ACQUIRING ANIMALS

The Rendille recognize different types of rights over animals. Where an individual is given an outright gift of an animal the practice is referred to as *alal*. The recipient in such cases has total ownership and use of the animal and of its progeny if it is a female.

There are two types of animal loans, namely *maal* and *kalisime*. In the former practice the recipient has the right to use the animal until it is requested back by the owner. Male progeny belong to the receipient, while female progeny belong to the owner, but the latter may be left with the beneficiary as *maal* animals. In some instances the *maal* animal may be left with the beneficiary until it dies. Spencer (1973) refers to the *maal* animal as a shared beast. The practice of *kalisime* primarily gives the beneficiary the right to the milk of animals for a specified time.

While the *alal* practice transfers ownership of animals between households, *maal* and *kalisime* practices confer immediately on the beneficiary households' rights of use of animals without change of ownership.

The analysis of data on livestock ownership indicates that there is a wide range in the numbers of animals households own. Many households possess inadequate numbers of stock. However, the practice of loaning animals can tide these households over periods of scarcity. In general, transfer of ownership of animals only takes place between close kin, while animals are loaned not only to close kin but also to neighbours and more distant kin.

Within households the male head is the legal owner of the household livestock. His wife has the right to the milk of his animals. Where the owner has more than one wife he sees to it that each has a sufficient number of milch animals to meet the needs of their respective houses. A wise husband consults his senior wife in these matters.

The sons of the household slowly acquire rights in animals of their father or close patri- and matri-kin. Sons born after a difficult birth can receive a gift of a camel or a bovine. When the hair of the male infant is first cut (*guthur*) or when the male child has two teeth of the lower jaw removed (a practice which is dying out) are also occasions when sons obtain a camel or bovine. Circumcision and marriage are special occasions when sons obtain camels or cattle from their family and close kin. Only the first- and second-born sons benefit from their sisters' bridewealth livestock *(gumo)*, and junior sons obtain gifts of animals when their grandfathers (paternal and maternal), father and older brothers die. The *sorio* celebrations are occasions when animals are petitioned.

Girls can also acquire livestock on the occasions that their brothers obtain them, such as at birth after a difficult delivery, but in their case they only obtain gifts of smallstock. For example, at her father's death a girl receives a gift of a female sheep.

When a woman who is a first-born child marries she obtains a male camel and a *maal* female camel. On the day that a newly married woman moves residence away from the camp of her own people she receives gifts of smallstock, particularly from her father and close maternal kin. These animals form part of her dowry *(barito)* and assist the couple in establishing a viable household flock. When her own daughters marry she is given a gift of an immature female sheep *(mintubis)* and when the bridewealth for them is paid the mother is presented with one of the male camels.

Only women who have sons can look forward to widowhood with any comfort. The eldest son inherits the household's herd and is obliged by custom to take care of his widowed mother. The brother(s) of her deceased husband can take from a widow (who has no son) all her stock excluding her *barito* animals. Frequently women caught in such a plight come to depend on their married daughters.

Notes

1. The first column in each figure represents the scale intervals, starting with the lowest and working upwards. The value of the interval varies. For household holdings of camels and cattle the intervals are 1 - 4, 5 - 8, 9 - 12 etc.; for household holdings of sheep and goats 1 - 15, 16 - 30, 31 - 45 etc.; for household holdings of milch camels and cattle, pack camels and donkeys 1, 2, 3, 4, etc.; and for household holdings of milch sheep and goats 1 - 5, 6 - 10, 11 - 15, etc. (Figures in Chapter 8). The zeros at the bottom of a figure represent the number of households which do not have any animals.

2. These statistics are valid only for the northern or 'pure' Rendille.

Chapter 6

FOLK KNOWLEDGE OF THE RANGE AND LIVESTOCK

Livestock owners and herders have a wealth of knowledge of their natural environment and livestock which includes information on the location of springs and waterholes, the identification and location of numerous plants and their uses, characteristics and needs of their animals, and common diseases to which they are vulnerable. Such folk knowledge should be a point of departure for range and livestock specialists in their assessment of indigenous range and livestock management practices. It should also help in any dialogue between the pastoralists and the livestock specialists in animal husbandry, livestock nutrition and veterinary science.

A. FOLK KNOWLEDGE OF THE VEGETATION

The Rendille identify a large number of vegetation species (Kokwaro and Herlocker, 1982). They know where these species are most likely to be found and how useful they are for the different animal species. Places are classified and sometimes named after the dominant vegetational types found in them: they are also assessed in terms of how easy or how difficult it is to mind grazing/browsing animals. Thus one gathers such statements as:

> 'The foothills *(lalag)* are suitable for use by all species of domestic animal. These areas are particulary known for vegetation preferred by camels such as *khoro* [*Indigofera spinosa*], *gib* [*Sericocomopsis hildebrandtii*], and *hanhanis* [*Indigofera cliffordiana*]. Herders like to graze camels in the foothills because of the ability to observe their grazing animals from a distance.'

Certain connections are also drawn between soil types, vegetational types and the porosity of the soil. The following statements were obtained in interviews:

> '*Harabor/susukh* soils are found on lava pavement. They have the ability to hold water and to support vegetational species such as *lowano* [*Erneapogon desrauxii*], *karkarichis* [*Eragrostis cilianensis*], *maad* [c. 15 species of annual grasses], *daadi* [*Tetrapogon tenellus*], *gib* [*Sericocomopsis hildebrandtii*] and *gayer* [*Cordia sinensis*] ....

> *Yoh* soils are found mainly in the Hedad, are porous and provide a suitable base for the growth of *khasah* [*Acacia reficiens*] , *ramo* [*Commiphora* spp.] , *bilhil* [*Acacia millifera*] , *halthat* bushland .... *Malawa* soils are found mainly around Korole. The soil is salty and is a poor base for vegetation .... *Ilbagasi* [limestone] soils are located between Kargi and the lava plateau and on the eastern side of Lake Turkana. They provide a better base for vegetation than *malawa* soils'.

The Rendille frequently judge the productivity of a range by the amount of milk produced by the animals that are using it. When the milk yields reach unacceptably low levels the animals are moved elsewhere unless other considerations take prominence such as the lack of labour to herd and water stock in more distant places. Overgrazed areas are known as *barbatha*. It is also recognized that overused and degraded range can recover if excluded from use. For example, it is stated that in the early 1960s parts of the Hedad were overgrazed but have since recovered due to little use of the range.

The primary use of the range is for feeding livestock and the principal vegetational preferences of the different domestic animals during wet and dry seasons as perceived by informants are outlined in Table 6.1 - 6.4 The fooder value of *Acacia tortilis (dahar)* pods *(khabdo)* in dry seasons and of the flowers *(fikh)* of some of the *Acacia* species during wet seasons is well known (Kayongo-Male and Field, 1983).

Table 6.1 Vegetational preferences of camels

DRY SEASON

1.	*Lemaruk*	*(Blepharis linariifolia)*
2.	*Khoro*	*(Indigofera spinosa)*
3.	*Hos*	(c. 20 grass species)
4.	*Okomi*	*(Heliotropium albohispidum)*
5.	*Geigeri*	*(Maerua oblongifolia)*
6.	*Hinjim*	*(Indigofera, Crotalaria* and *Tephrosia* spp.*)*
7.	*Suchah*	*(Barleria proxima)*
8.	*Jarda*	*(Indigofera* sp.*)*
9.	*Haich*	*(Salvadora persica)*
10.	*Dume*	*(Maerua crassifolia)*
11.	*Khathu*	*(Cadaba mirabilis)*
12.	*Maad*	(c. 15 grass species)
13.	*Lowano*	*(Enneapogon desvauxii)*

WET SEASON

1.	*Harcha*	*(Blepharis linariifolia)*
2.	*Geigithan*	*(Digera muricata)*
3.	*Hasura*	(5 species of leguminosae)
4.	*Jarda*	*(Indigofera* sp.*)*
5.	*Hinjim*	*(Indigofera, Crotalaria* and *Tephrosia* spp.*)*
6.	*Hanhanis*	*(Indigofera cliffordiana)*
7.	*Saar*	*(Thunbergia guerkiana)*
8.	*Okomi*	*(Heliotropium albohispidum)*
9.	*Kalal*	*(Tribulus* spp. *)*
10.	*Bonbo*	*(Crotalaria deserticola)*
11.	*Dolol*	*(Plectranthus igniarius)*
12.	*Hinadi*	*(Vatovaea pseudolablab)*
13.	*Baya*	*(Plectranthus* spp.*)*

Table 6.2 Vegetational preferences of cattle

DRY SEASON

1.	*Daadi*	*(Tetrapogon tennelus)*
2.	*Maad*	(c. 15 species of annual grasses)
3.	*Lowano*	*(Enneapogon desvauxii)*
4.	*Karkarihis*	*(Eragrostis cilianensis)*
5.	*Murat*	*(Digitaria macroblephara)*
6.	*Lonoro*	*(Dichanthium foveolatum* and *Leptothrium senegalense)*
7.	*Hos*	(c. 20 species of grasses)
8.	*Ririma*	*(Aristida mutabilis)*

WET SEASON

1.	*Maad*	(c. 15 species of annual grasses)
2.	*Murat*	*(Digitaria macroblephara)*
3.	*Hanharis*	*(Indigofera cliffordiana)*
4.	*Chuf*	(c. 17 species of sedges)
5.	*Jarda*	*(Indigofera* sp. *)*
6.	*Daadi*	*(Tetrapogon tennelus)*
7.	*Lowano*	*(Enneapogon desvauxii)*
8.	*Ririma*	*(Aristida mutabilis)*
9.	*Lonoro*	*(Dichanthium foveolatum* and *Leptothrium senegalense)*
10.	*Hos*	(c. 20 species of grasses)

Table 6.3 Fodder preferences of sheep

DRY SEASON

1.	*Hos*	(c. 20 species of grasses)
2.	*Chahai*	(?)
3.	*Fikh*	(Flowers of ?)
4.	*Khabdo*	(*Acacia tortilis* pods)
5.	*Maad*	(c. 15 species of annual grasses)
6.	*Karakarahis*	(*Eragrostis cilianensis*)
7.	*Murat*	(*Digitaria macroblephara*)
8.	*Jarda*	(*Indigofera* spp.)
9.	*Lemaruk*	(*Blepharis linariifolia*)

WET SEASON

1.	*Jarda*	(*Indigofera* spp.)
2.	*Hanhanis*	(*Indigofera* spp.)
3.	*Bukha*	(?)
4.	*Hos*	(c. 20 species of grasses)
5.	*Hasura*	(5 species of leguminosae)
6.	*Harcha*	(*Blepharis linariifolia*)
7.	*Bombo*	(*Crotalaria deserticola*)
8.	*Yabaah*	(*Duosperma eremophilum*)
9.	*Gib*	(*Sericocomopsis hildebrandtii*)
10.	*Lowano*	(*Enneapogon desvauxii*)
11.	*Maad*	(c. 15 species of annual grasses)
12.	*Gei-Bekeila*	(Probably *Euphorbia inaequilatera*)
13.	*Ub*	(c. 20 species of herbs, mostly leguminosae, probably *Rhynchosia* spp.)

Table 6.4 Fodder preferences of goats

DRY SEASON

1.	*Khabdo*	*(Acacia tortilis* pods *)*
2.	*Fikh*	(Flowers of ?)
3.	*Chahai*	(?)
4.	*Hos*	(c. 20 species of grasses)
5.	*Karaharahis*	*(Eragrostis cilianensis)*
6.	*Lowano*	*(Enneapogon desvauxii)*
7.	*Geygen*	(?)
8.	*Hinjim*	*(Crotalaria, Tephrosia* and *Indigofera* species*)*
9.	*Ikho*	*(Canthium* spp. *)*
10.	*Gaab*	*(Ziziphus mauritiana)*

WET SEASON

1.	*Halale*	*(Boswellia hildebrandtii)*
2.	*Jarda*	*(Indigofera* spp. *)*
3.	*Hagar*	*(Commiphora* spp.*)*
4.	*Ub*	(Leguminous herbs)
5.	*Harcha*	*(Blepharis linariifolia)*
6.	*Watha*	*(Coccinia* spp. *)*
7.	*Gayer*	*(Cordia sinensis)*
8.	*Geiseret*	(?)
9.	*Mulehenyo*	*(Grewia tenax)*
10.	*Dowahadado*	*(Commiphora* spp. *)*
11.	*Hanhanis*	*(Indigofera cliffordiana)*
12.	*Bukha*	*(Momordica sessifolia)*

B. FINDING WATER

The Rendille rate water as their greatest development need (Lusigi, 1984) and much time, labour, thought and organization goes into finding and providing water for human use and animals. Priority is given to providing water for human consumption. Since camels can do without water for over 15 days and are able to walk up to 70 km for water they appear at the bottom of the priority list. Cattle need to be watered every second day and are given top priority amongst the domestic animals in water management considerations, while smallstock, which need to be watered every fifth day, are second on the priority list. The laboriousness of herding is related to the frequency with which animals have to be watered. Hence in Northern Rendille, cattle herding is regarded as the most labour consuming herding occupation, and camel herding the least toilsome.

The arrival of the rains is always welcome and marks the end of the toil and care involved in providing water from dug wells until the onset of the next dry season. When the vegetation is green camels and smallstock need to be watered less frequently because of the extra moisture in their food intake. In addition, all animals, in particular cattle, can avail of the surface water which appears. The Rendille distinguish between different types of surface water points. Small and large waterpans, which are known as *haro* and *kuya*, respectively, form principally in the plains. Other significant surface water sources are river pools *(gatab)* and crater ponds *(getim)*, and small and large rock catchments *(wejir/intoltol)*. The location of these natural surface water points is well known. Mud dams are located at Falam and Guthas. The natural surface water allows cattle and smallstock to use parts of the range inaccessible in dry seasons because of their great distance from permanent water points. As the dry season sets in, reliance on permanent water sources - springs, dug wells and boreholes - increases. Table 6.5 outlines the location of these water points and which animals obtain preference.

In the northern part of Rendille country all wells are reserved mainly for cattle and smallstock. For the most part camels use the springs at Korole and Kahi and in drought periods Gus, which is in Gabra country. Camels are only allowed to use the wells at Yel (Hadasihibor Boran and Hadasihidakhan) when for security reasons it is unsafe to use the springs at Kahi. In the southern areas, where there are no large springs, camels (which are owned in smaller numbers there) use dug wells at a number of places, viz. Arsim, Sangal,

Irir, Lesidan, Laisamis, Kamatonyi, Lekipala, Koiya, Nalwo and Kinya. Camels also drink from the boreholes at Loglogo and Halisruwa.

Table 6.5 Dry season water points used by livestock of the Rendille

KARGI AREA

Location	Type	Animal(s) preferred
Korole	Springs	All species
Meidhat	Wells	Cattle and smallstock
Bagasi	Wells	Cattle and smallstock
Kargi	Wells and borehole	Cattle and smallstock
Kurkum	Wells	Cattle and smallstock
Yel	Wells	Cattle and Smallstock

MT. KULAL AREA

Galan	Spring and wells	All species, but difficult for camels because of rocks
Kahi	Spring and wells	Used by all animals
Gus	Spring and wells	All species
Bewana	Wells	Cattle and smallstock

KORR/ILLAUT/NGURUNIT AREAS

Halisruwa	Borehole	All species
Korr	Wells	Cattle and smallstock
Farakore	Wells	Cattle and smallstock
Illaut	Wells	Cattle and smallstock
Arsim	Spring	All species
Ngurunit	Spring and wells	All species
Lamadera	Wells	Cattle and smallstock
Langata Nanyukir	Wells	Cattle and smallstock
Hafare	Wells	Cattle and smallstock
Sangal	-	-
Lenkapina	Wells	All species

Table 6.5 continued.

MILGIS RIVER BASIN

Martidorop	Wells	Cattle and smallstock
Keno	Wells	All species
Irir	Wells	All species
Lesidan	Wells	All species
Nantolyo	Wells	Cattle and smallstock
Soriyo Adi	Wells	Cattle and smallstock
Laisamis	Wells	All species

MERILLE RIVER BASIN

Kamatonyi	Wells	All species
Lekipala	Wells	All species
Sirirwa	Wells	All species
Lodir-kanyat	Wells	Cattle and smallstock
Koiya	Wells	All species
Sebi	Wells	Cattle and smallstock
Nalkoki	Wells	Cattle and smallstock
Nalwo	Wells	All species
Kinya	Wells	All species

OTHER PLACES

Loglogo	Boreholes	All species
Guthas	Boreholes	Cattle and smallstock
Rete (crater)	Wells	Cattle and smallstock
Ilshuta (crater)	Wells	Cattle and smallstock
Ulanula	Wells	Cattle and smallstock
Hogichu	Crater	Cattle and smallstock
Andere	Spring	Cattle and smallstock
Kurungu Stream	Spring	All species
Lake Turkana		All species

C. CAMELS

The camel is regarded as the most reliable of all animals. In drought periods it is able to provide milk when the milk yields of other animals drop drastically. It provides blood and meat in larger quantities and its fat is most edible. It is valued for its ability to do without water for long periods. This and the fact that it is able to cover long distances without flagging enables the camel to use pastures long distances from water. Their qualities as a pack beast are also highly regarded. Socially the possession of large numbers of camels brings high status to the owner and the camel traditionally was the animal given in bridewealth payments.

Its importance is emphasized by ritual taboos which surround actions relating to the camel. Only men who are at the time celibate are permitted to milk camels. The ideal herders are celibate teenage youths. Failure to observe the milking prescription is thought to cause the camel calves to contract a disease known as *sam*. The majority of *sorio* celebrations cannot take place in the absence of the camels from the main camp. Sunday is regarded as the camel's day (*ahade aseri gall*) because it was on that day that the Rendille first came to possess camels. Hence on Sundays camels are brought to water, do not move camp, their milk must be consumed within the camp and they cannot be given to others as gifts or loans. If a camel gives birth on Sunday morning it must stay in its enclosure until the late afternoon and leaves are hung around the mother's and calf's necks *(meydah)*. On Wednesdays and the fifth day of the new moon pack camels may not be loaded. A breach of these prescriptions can bring misfortune. In the past, when to kill an enemy was a highly regarded act, the reward was a gift of a camel.

Inquiries about the physiological characteristics and management of camels produced the following replies. Camels come on heat during wet seasons. The gestation period is approximately twelve months and so the calves are born during wet seasons. Calves dropped in the long-rain season face the harsh prospect of a long dry season, while those dropped in the short rains only face a short dry season before the long rains in April-May. (Dry seasons are a time of hardship for young calves because they may not be suckled on the days the dams are brought to water.) However, the advantage of calving in the short rains is counterbalanced by the fact that the long rains are more reliable than the short rains.

Abortion rates varied from 2 to 5 per ten pregnancies. Trypanosomiasis is a major cause. The rate of calf deaths ranged from 2 to 6 per ten births. Calf mortality was attributed to tick-borne diseases, navel ill known as *gulor* and excessive suckling which causes diarrhoea. Lactation periods varied from 10 to 24 months depending on when the next pregnancy intervened. Calves begin to be weaned between the tenth and twelth month. They are put on water between the eighth and tenth months and are allowed to join their mothers for the first time in grazing between 11 and 18 months. Males are castrated in their fifth year and females first give birth at the same age. The number of breeding males per herding unit depends on its size and varies between one and two (see Chapter 9, Section D). The maximum number of calves born to a female in a lifetime ranges between 12 and 14.

Camels can graze 75 km from water. When they are a medium to long distance from water camels are watered every twelfth to fifteenth day. However, when they are at main camps and closer to water they may be watered every seventh to thirteenth day. This enables them to maintain higher milk yields which are all the more necessary when the milch camels are grazed from the main camps. It is well known that milk yields decline the longer the milch camel is without water.

Camels can use a wide range of the vegetation available on the range. However, when interviewed Rendille informants listed preferred species used by camels in dry and wet seasons (Table 6.1). These species are listed in the order of priority given to them by the informants.

Other species which were mentioned as being utilized by camels in the wet season were: *khanjote* (?),*baar*(*Hyphaene coriaceae/Angraecum erectum*), *sarkhudum* (*Kedrostis gijef*), *watha* (*Coccinea magarrhiza*), *gayer* (*Cordia sinensis*), *dubarar* (*Heliotropium* spp.), *yabaah* (*Duosperma eremophilum*), *yamhiso* (*Zaleya pentandra*) and *kharaano* (*Portulacca* spp.). The following are utilized by camels in dry and wet conditions: *gib* (*Sericocomopsis hildebrandtii*), *hagar* (*Commiphora* spp.), *halle* (*Asparagus*), *mulanyo* (*Grewia tenax*), *dahar* (*Acacia tortillis*), *bilhil* (*Acacia mellifera*), *khasah* (*Acacia reficiens*) and *madek* (*Neuracanthus* sp.).

Table 6.6 lists camel diseases which we recorded during the course of fieldwork.

Table 6.6 Camel diseases

Rendille term	English equivalent
Omar	Trypanosomiasis
Malah	
Dahasi	
Matah Yombob	
Erot	Worms of the eye
Kharfat	
Orokajire	
Harar	Mastitis
Lobhow	Early phase of mastitis
Geed	
Gular	Navel ill
Afturo	Camel pox

Disease symptoms mentioned include weakness of the animal, watery eyes, anorexia and subsequent drop in milk yields in cases of females, the presence of pus in the faeces, difficulty in walking, swelling of the head, difficulty in breathing, swelling of eyes, open sores discharging pus, swelling around the joints, swelling and soreness of the udder. Depending on the ailment indigenous cures include feeding the sick animal with mutton soup and soup made from the leaves of the *Salvadora persica* tree, the feeding of a mixture of milk with a soup obtained from cooking the leaves and branches of *Plectranthus ignarius*, burning the skin of the animal around the swollen parts, preventing the animals from taking the salty water of Korole springs, a mixture of warm ash and water smeared over the sore parts, and smearing the sore parts with sheep's fat.

D. CATTLE

The Rendille frequently point out that one of the reasons why they have invested in cattle is their marketability. This in itself is sufficient evidence to demonstrate that the Rendille pastoralists are to a certain extent

market oriented. The Rendille no longer rely directly on their livestock for subsistence. Hence selling livestock to obtain cash to buy cereals is a well established economic fact (see Chapters 8 - 9). Government policy, at least until recently, has favoured the production of cattle. Even so the northern Rendille still own more camels than cattle (see Chapter 5, Section A). In addition, cattle are best able to utilize the colder and mountain niches of the range. The Rendille value the high fat content of cow's milk and regard it as the most suitable milk for making yoghurt. Nowadays cattle can replace camels as bridewealth animals and their hides are used in the building of houses.

Saturday is regarded as the day of cattle. On this day of the week cattle cannot move camp and it is prohibited to give cow milk to drink outside the camp. Women are allowed to milk cattle. However, they must milk while in a standing posture and are not allowed to sit against their heels. Women are also forbidden to touch bulls with their bare hands. If they wish to discipline them they must use a stick. In general ritual prescriptions relating to cattle are less numerous than those associated with the management of camels. This underlines the relative insignificance of cattle in the ritual life of the Rendille. For exmaple, it is not required that cattle return to the main camps for any of the family celebrations. Cattle are mainly of economic importance.

What follows describes Rendille views of the characteristics of their cattle. As is common to all the animals, cattle mate during the wet seasons. Since their gestation period is nine months calves are born either towards the end of the long dry season or at the end of the short rains and at the beginning of the short dry season. Abortion rates are put at 1 - 4 miscarriages for every ten pregnancies. It is reckoned that between 2 and 4 of every ten calves that are born die. Calf mortality is attributed to diseases known as *ndiss* (contagious hepatitis) and *namunya* (salmonellosis), diarrhoea, tick infection, and paucity of milk from the dam when conditions are dry. Effective lactation lasts for 9 to 10 months and calves are allowed to suckle for that period. No positive steps are taken to wean the calves. Calves are put on water after two months in dry seasons and four months in wet seasons. Calves join their mothers in grazing when they are weaned. Castration of males takes place in the third or fourth year. Depending on the size of the herding unit one to two mature breeding bulls, accompanied by one or two younger bulls, are permitted per unit (see Chapter 9, Section D). In normal circumstances females give birth in their fourth year and can give birth to a maximum of 11 - 12 calves in a lifetime.

Cattle need to be watered every second day. However, in wet seasons, and when they graze close to water points, they are watered daily. At the other extreme, in very dry conditions when cattle graze some distance from water, they may be watered only every third day. Due to the need for regular watering the preferred maximum distance that cattle graze from water is 15 km.

Cattle diseases mentioned in interviews are described below.

Table 6.7 Cattle diseases and conditions

1. *Ilkulub* (Foot and mouth)

Symptoms: Wounds all over the hooves, animal is lame, anorexia, mouth is affected and emits saliva.

Causes: In wet seasons when trampling on infested bomas.

Cure: The crushed seeds of certain shrubs are applied to the wounds after being cleaned with boiling water.

2. *Mboroto*

Symptoms: Swelling of forehead, shivering, anorexia, behaves as if blind, restlessness. After death when the brain is examined a black substance is found.

Causes: Grazing in pastures that have been contaminated.

Cure: The skin of a giraffe or buffalo is burned and the black substance formed is mixed in water and the solution is administered to the sick animal. In other cases rhino faeces is boiled in water and the solution applied.

3. *Namunya* (salmonellosis)

Symptoms: Diarrhoea with loss of blood and postmortem reveals swelling of liver and gall bladder.

Cure: No local cure but it is known that the Veterinary Department has an effective treatment.

4. *Mbene* (toxic poisoning by the plant of this name)

Symptoms: Animal feels pain and becomes weak.

Cure: Blood is drawn.

5. *Sugeri hara* (rinderpest)

It is only common to cattle during the dry season.

Symptoms: Diarrhoea with loss of blood and postmortem shows that the liver, heart and gall bladder are swollen.

Cure: No local cure but the Veterinary Department have an appropriate injection.

6. *Khanid* (black quarter)

Symptoms: Swelling of glands in lower neck area.

Cause: Obtained from infested camp sites and pastures.

Cure: Tobacco is mixed with water and applied to nostrils and eyes of the sick animal. Since it is also believed that members of the Rengumo clan can cause this disease when annoyed by others, girls of this clan are called upon to bless the sick animal with water and milk.

7. *Ndiss* (infectious hepatitis)

Symptoms: Hair becomes stiff and curly, avoids the sun and has no appetite. When slaughtered the meat of the animal has a greenish colour. Calves that are affected lose their hair and find breathing difficult.

Causes: The calves contract it from being bitten by camel flies.

Cure: A fermented solution derived from the berk of the *Acacia nubica* tree is administered to calves. There is no local cure for adult animals.

8. *Dhowoho* (three-day fever)

Symptoms: Shivering and anorexia.

Cure: Blood is drawn.

E. SHEEP AND GOATS

The fat of sheep is used in cooking and mutton soup is administered to sick people and animals, and to give sustenance to women after giving birth. The milk of ewes is second only to cow milk in fat content and hence is also used in the production of yoghurt. Smallstock in general can be sold to meet minor domestic financial needs, although it is recognized that there is a better market for goats because its meat is in higher demand in the wider economy. Smallstock are also used for meat. However, more sheep than goats are slaughtered by the Rendille (see Chapter 8, Section B). Smallstock flocks are valued for their ability to grow much faster than camel and cattle herds.

Smallstock are not given to others on Mondays, and during the two months of Ragar and the celebration of Almadho. Smallstock cannot be moved to a new camp on the fifth day of the new moon, on the first Wednesday of darkness and on Mondays.

The gestation period for sheep is regarded as 3 - 4 months and for goats 4 - 5 months. Hence sheep who breed in the April - May rains drop their lambs between July and September and goats their kids between August and October. These are dry months when there is little to suckle. Ewes which mate in the November - December rains give birth in February - April and similarly does give birth in March - May. The latter parts of these periods are more propitious for the newly born lambs and kids since they coincide with the April - May rains.

Abortion rates for sheep were put at 2 - 3 per ten pregnancies, and for goats 3 - 4 for every ten pregnancies. Mortality rates for lambs are considered to be 1 - 3 per ten lambs born and 2 - 4 per ten kids born. Mortality amongst lambs and kids is attributed to undernourishment and insufficient milk in dry conditions, diarrhoea due to over-suckling, lice, which are a problem mainly in the long dry season (*Nabhai Der*), and tick infection.

Effective lactation lasts for 3 - 4 months in the case of sheep and 3 - 5 months in the case of goats. Lambs and kids are usually allowed to suckle during effective lactation. However, during drought they may be weaned earlier. Lambs are first brought to water in their second or third month, while kids are 3 - 4 months old when watered for the first time. Lambs are allowed to graze with their mothers for the first time when 2 - 4 months old, kids when 4 - 5 months. However, if there is a shortage of labour they may join their mothers earlier.

Males are castrated in their second year. It is thought that there are 1 - 2 rams and 1 - 2 buck goats per flock (see Chapter 9, Section D). Frequently one will be a mature breeding animal, the other younger. Females of both species can give birth for the first time in their second year. On average ewes give birth to 10 - 15 lambs and does 10 - 15 kids in a lifetime.

In dry conditions when smallstock are close to water they are watered every 3 - 4 days; however, when further away they are watered every 5 - 6 days. In wet seasons their need for water is much reduced by the moisture they obtain from succulent vegetation. On average the maximum distance they graze and browse from permanent water in dry seasons is 30 km.

The fodder preferences of sheep and goats as assessed by Rendille informants were given in Tables 6.3 and 6.4.

Diseases and conditions of smallstock are listed in Table 6.8.

Table 6.8 Diseases and conditions of smallstock

Sirgo	*T. multiceps (Caenurus cerebralis)*
Ilkibei/Churr	(Contagious caprine pleuro-pneumonia)
Hado	Mange
Gulub	Foot and mouth
Kinyote	Helminthiasis (*Haemonchus contortus*) (Bottle neck)
Konkoro	Affects mainly older kids
Remti anyilan	Animals are affected when using cold and dirty areas
Ilbus	Poisoning of sheep mainly from a toxic plant of that name

Note

I wish to acknowledge my gratitude to Dr. Chris Field who read this chapter and made some helpful comments apart from providing scientific names for numerous plants known only to us in indigenous terms. I also wish to acknowledge assistance from Dr. Rutagwenda who provided us with scientific terms for animal diseases and conditions. I am also grateful to Mr. Tubei who provided information on vegetation species and Dr. Omara-Opyene who supplied information on animal diseases.

Chapter 7

RENDILLE HERD AND RANGE MANAGEMENT PRACTICES

A. HERDING UNITS

It is common practice for households to combine their herds and flocks to form herding or grazing units. This form of co-operation is referred to as *iskatharnan* and since households possess fewer large stock than smallstock co-operation in the herding of large stock occurs more often than in the case of smallstock. Thus a number of brothers who reside together in a camp may join their camels and cattle to create one camel and one cattle herding unit while each brother herds his smallstock separately. To illustrate how this practice of *iskatharnan* operates at camp level we outline how the households of Galbor Camp co-operate in herding. In Chapter 3, Section G the kin interconnections between household heads were outlined. This camp has 18 households. Table 7.1 illustrates how these households co-operate in herding with reference to diagram 3.

Table 7.1 Herding partnerships of the Galbor Camp

Herding unit type and no.	Co-operating houses	No. of stock in household unit	No. of herders
Forr camel (1)	1, 2, 3 & 4	24	1
Forr	5,7,8,9,10 & 11	42	
Forr	12, 14 & 15	18	1
Forr	16,17,18,19, 20, 21, 22 & 23	44	1
Local camel (1)	1, 2, 3, & 4	22	1
Local camel (2)	5	4	1
Local camel (3)	7,8,9,10 & 11	6	1
Local camel (4)	12, 14 & 15	6	1
Local camel (5)	16, 17, 18, 19, 20, 21, 22 & 23	6	1

Table 7.1 continued.

Herding unit type & no.	Co-operating houses	No. of stock in household unit	No. of herders
Forr smallstock (1)	1, 2, 3, & 4	355	2
Forr smallstock (2)	5 & 6	226	2
Forr smallstock (3)	7 & 8	243	2
Forr smallstock (4)	9	203	2
Forr smallstock (5)	10 & 11	74	1
Forr smallstock (6)	12 & 13	106	3
Forr smallstock (7)	14 & 15	162	1
Forr smallstock (8)	16 & 17	91	1
Forr smallstock (9)	18, 19 & 20	255	3
Forr smallstock (10)	21	144	1
Forr smallstock (11)	22, 23 & 24	256	2

At the time of the livestock census of this camp (mid-May to early June 1983) all the smallstock were at satellite camps. However, a certain percentage of milch camels and their young were at the main camp; the rest of them were at *forr*. All the cattle of the camp were stolen in a raid in the late 1970s at Baragoi and since then the camp has made no effort to rebuild cattle herds.

The camp's average size of household camel herd is 10.9 (s.d. 7.8) and this is significantly below the overall mean for household camel herds (see Chapter 5, Section A). The camel herding units of the camp are also relatively small. On average there are 32 (s.d. 13) and 8.8 (s.d. 7.4) camels per unit for *forr* and local camel units, respectively. Only one herder per unit is required. Co-operation between houses is widespread and corresponds roughly with compound family units. For example, the partners of *forr* camel herding unit number 1 all belong to the same compound family. The same holds true for the partners of *forr* camel herding unit number 3. The partners of the other two *forr* camel herding units come from compound families which reside adjacently.

The camel holdings of houses 6 and 13 are unknown and house 24 has no camels. Houses 6 and 13 are occupied by affines. Frequently men who live with their affines prefer to leave their camels with their own agnates unless strained relations prevent them from doing so.

There are times when all the camels are at satellite camps and then the sizes of the camel grazing units are 46, 53, 24 and 50. This gives an average of 43.3 (s.d. 13.1) camels per herding unit.

Large-scale co-operation in smallstock herding is not possible because of the greater number of smallstock owned by each household. For example, in Galbor Camp the average size of household sheep and goat flocks is: 68.7 and 71.4, respectively. The average size of a herding unit of smallstock is 192.3 (s.d. 85.6). Six of the smallstock herding units have 200 or more animals and all these require at least two herders: one to care for the adult animals, the other to manage the kids and lambs. Frequently extra labour is required for watering and milking. Herders of herding units which have less than 200 animals may either co-operate with herders of units of similar size or seek assistance from other herders who are at the satellite camp. For example, herding unit 6 has 3 herders and hence surplus labour, part of which is used to assist herding unit 7 which has 162 animals and which cannot be managed by one herder.

For the most part households herd their own smallstock and there is little joining of flocks. Co-operation exists mainly in watering and milking them.

It is considered that on average one herder can take care of up to 40 camels when grazing. Herding units of 40 - 80 require two herders, particularly in wet seasons when one person is required to prevent breeding bulls from fighting and the other herder concentrates on keeping the animals together when grazing/browsing. The number of herders required may increase when camels are using thick bushland. It is said that one person can manage a herding unit of 250 smallstock, particularly in open range where animals are easily visible to the herder. Greater numbers of smallstock require two or three herders. Our data bear out this fact. Herding smallstock in thick bushland of the Hedad poses problems of visibility and requires an extra herder or two. It also requires at least one adult to be present since children fear being attacked by lions. For households which lack the necessary labour the increased labour requirements of the Hedad range can be an important consideration in a decision to avoid grazing that area.

The study of cattle herding units is here confined to one camp. In this camp the average size of household cattle herd was 10.2 (s.d. 12.8). A small number of households had their cattle in another camp and information on how they formed herding units is not available. The rest of the households

formed 7 *forr* herding units and 2 local herding units. The average size of *forr* herding units was 52.3 (s.d. 21.4) head of cattle and of the local units 42 (s.d. 4.2). The size of herding units varied from 27 to 91 head of cattle. All had only one herder except for two whose sizes were 91 and 55 head respectively.

Although the focus in this section, and in section B and C of Chapter 4, has been on those who are full-time herders the importance of the role of those who assist herders in watering livestock should not be understimated. Frequently these collaborators dig and maintain waterholes, and are usually present when their livestock come to water to supervise and assist with watering. At times they also supervise the herding itself.

B. HERDING ROUTINES

Grazing, watering and milking routines vary with the season: and the frequency of suckling depends on the maturity of the young and the condition of the mother. In relation to milch animals a distinction must be made between those who have newly born young and those whose young are older and hence need to be suckled less. The routines discussed below are taken from one or more camps.

(i) Dry season camel herding routines

Young calves are permitted to sleep at night with their mothers for eight to nine hours. They are placed in their mothers' pens between 9.30 p.m. and 10.00 p.m. and are withdrawn in the morning between 6.30 a.m. and 7.00 a.m. This night arrangement facilitates night suckling. The same mothers are later milked and suckled between 8.30 a.m. and 9.00 a.m. All adult camels leave the camp for grazing between 9.00 a.m. and 9.30 a.m. unaccompanied by the younger calves and the few older calves which are in the camp at the time. The young calves are released to graze around the main camp with minimum attention from herders between 9.50 a.m. and 10.00 a.m. The older calves are not suckled and are released for grazing around 8.55 a.m. In other instances older calves leave for grazing after the adults have departed from the camp. The older calves in one camp received only cursory attention while grazing.

The older calves which may have strayed further away from the camp than the younger calves are driven home around 7.00 p.m., while the young calves who keep relatively close to the main camp all day return home around 6.30 p.m. The adult camels arrive back between 7.10 p.m. and 7.15 p.m. Milking and suckling begin about an hour later, between 7.50 p.m. and 8.35 p.m.

In one camp the adult camels were usually watered every 12 to 15 days at the Korole Springs which were some 50 km away. On one occasion they left the camp for Korole at 8.10 a.m. to return two days later at 7.58 a.m. While away their milk is missed and this explains why they return to the camp early in the morning of the second day for milking and suckling. Young calves are not brought to water and the old calves used local waterpoints and the journey only took a day. On watering day they left the camp at 7.00 a.m. and returned at 5.45 p.m.

(ii) Dry season cattle herding

Bovine calves do not sleep with their mothers at night. Cows are milked between 6.30 a.m. and 7.15 a.m. The young calves but not the old calves are suckled then. However, in some instances the old calves join their mothers in grazing. Cattle leave for grazing between 7.30 a.m. and 8.00 a.m. Where the cattle are few and labour scarce they may be herded close to the camp with minimum care.

The cattle return in the evening between 6.25 p.m. and 7.05 p.m. The old calves are separated and put in their own pens. Milking begins some time after 7.00 p.m. and the young calves are also suckled then.

Cattle are watered every second day and in one camp they left at 6.55 a.m. and returned at 6.50 p.m. Local water points within a 15 km radius are used. In some cases the old calves are also brought to water. However, some owners draw water for their calves so as to reduce the stress of walking to and from water.

(iii) Dry season smallstock herding

Only young lambs are permitted to sleep with their mothers at night. Older lambs and kids of all ages sleep separately from their mothers. Milking takes place between 7.00 a.m. and 7.30 a.m. Older kids and lambs are not suckled then but are allowed to join their mothers when they leave for grazing between 8.00 a.m. and 8.30 a.m. In camps where the distance to grazing is great flocks may leave a little earlier. Smallstock return in the evening between 6.30 p.m and 7.00 p.m. Milking takes place between 7.30 p.m. and 8.00 p.m. and the young kids and lambs are allowed to suckle then.

Smallstock are brought to water every 4 - 5 days. In the case of a camp located at Ogicho the smallstock were watered locally. On a day on

which they were watered we noted that they left the camp at 6.40 a.m. and returned in the evening at 6.55 p.m. Approximately five hours of that period were spent at the watering point.

(iv) Wet season herding

There are not many differences between the seasons in the times that camels are milked and suckled, and when they depart and return from grazing. The main difference noted was the tendency of allowing the young calves a much shorter period with their mothers at night time. Normally in wet conditions calves are only permitted to spend periods of 15 to 60 minutes with their mothers around midnight. Adult camels return from grazing a little later, usually between 7.30 p.m. and 8.00 p.m. This also delays evening milking and suckling, sometimes until 9.00 p.m. Watering of camels is less frequent because of the number of surface water points available and the extra moisture obtainable from the vegetation. Where range conditions are particularly succulent and the camels are being herded from a main camp, they are brought back at noon - as described for smallstock below - for milking and suckling.

No records were kept on wet season cattle herding schedules amongst the Rendille.

At the beginning of wet seasons when the vegetation is particularly succulent the Rendille make certain adjustments in the herding schedule of smallstock. Milking takes place earlier in the morning between 5.45 a.m. and 7.00 a.m. Only very young kids are suckled in the morning. There is no need to suckle very young lambs then since they normally spend the night with their mothers. Young but not older kids and lambs are suckled later in the day, at noon. Departure for grazing is also earlier ranging approximately between 7.00 a.m. and 7.30 a.m. and the young kids and lambs which are not grazing with their mothers follow later between 7.40 a.m. and 8.15 a.m. It should be mentioned that there are times when kids and lambs are divided into three separate groupings: the very young, young and old. The very young or youngest are those recently born and totally dependent on their mothers' milk for nourishment; the young are those which still depend on their mothers' milk for part of their diet but have begun to graze/browse separately from the adult animals; and the old are those which are weaned and can do without suckling and usually join the adult flock at grazing.

The young kids and lambs arrive home approximately between 10.20 a.m. and 10.50 a.m. The adult animals arrive a little later (11.00 a.m. to 12.30 p.m.) to be suckled by the young and yonger kids and lambs and milked. The adult animals depart again for grazing between 2.20 p.m. and 4.15 p.m. to return home between 6.30 p.m. and 7.00 p.m. The young kids and lambs also graze in the afternoon leaving the camp a little later than the adult animals and arriving back earlier. Milking and suckling of the young kids and lambs takes place after 7.15 p.m. Only the very young lambs sleep with their mothers throughout the night. One of the reasons why animals are allowed shorter periods in grazing/browsing is to prevent bloat.

As the wet season proceeds and the vegetation surrounding the camp becomes less succculent the Rendille revert back to dry season schedules. Town camps which are surrounded by extensive degraded rangelands rarely bring their smallstock back at noon.

C. TRUNCATED USE OF THE RANGE

Over an area of 11,300 sq km of Rendille country the following mean livestock densities have been calculated (IPAL, 1982):

Camels	1.65 per sq km
Cattle	2.17 per sq km
Smallstock	9.52 per sq km

It has been estimated for the IPAL study area that 16 - 21% of the area is overstocked and 11% of usable rangeland contained no domestic livestock between July 1976 and August 1979 (Field *et al.*, 1983).

This imbalance in the grazing use of the range is paralleled by a similar imbalance in the utilization of the range for building material and livestock enclosures, and for firewood. The areas surrounding trading centres have long lost an adequate tree cover due to local demands for firewood and fencing material. In addition, areas surrounding regularly used sites for main and satellite *(forr)* camps are greatly denuded of tree cover.

The uneven grazing use of the range is related to two main factors. Firstly, the Rendille follow the line of least effort when seeking out dry season grazing sites and thereby overuse certain areas year in year out. For example, in dry seasons they tend to opt for sites which are close to either springs (viz. Korole), relatively shallow waterholes (viz. Bagazi) or waterholes in or close to settlements (viz. Korr). This strategy makes the task of watering all the more easy. For example at Korole no labour is

involved in watering beyond the supervision of animal traffic to and from the springs. At Bagazi shallow waterholes lighten the work load of the herders and livestock owners. In settlements such as Korr livestock owners who normally reside there and are not themselves herders add their labour to that of the herders in establishing waterholes and in watering livestock from them. Herders only move their livestock to areas where waterholes are deep and where they themselves must contribute most of the necessary labour when their stock have used up the forage at grazing sites with easy access to water. At present the Rendille cannot financially afford to install and maintain more advanced water technology which would find water at deeper levels and make their task of watering livestock easier.

Another major concern of livestock owners and herders is providing security for themselves and their animals. In this they also opt for the easier way. They continue to remain in areas that are least likely to be attacked by raiders and will only move to areas more vulnerable to attack when either the water or forage supplies of the former areas become inadequate.

Pre-occupation with how best to provide water and security is heightened in households who for one reason or another rely mainly on girl or women herders. In many instances labour migration and schools have taken boys and young men away from herding to be replaced by girls and young unmarried women (see Chapter 4).

The emergence of permanent settlements is the second factor which has contributed to the uneven use of the range. The celebration of family rituals such as the *sorio* and *almadho* are important events for the Rendille. Usually they involve bringing back to the settlements most of the livestock for periods of one to four weeks (see Chapter 3, Section E). At other times, where possible, livestock owners like to keep some milch animals near at home in the settlement. These two practices lead to the overuse of the range surrounding the settlements. The damage to the range is all the more devastating when the settlement is also a major water source for livestock. This in part explains why the range surrounding Korr is more extensively denuded than that which encircles Kargi. However, the Rendille minimize the adverse ecological effects of sedentarization by sending most of their stock to satellite camps for the greater part of the year.

In Rendille country there are four major permanent settlements, namely, Kargi, Korr, Loglogo and Laisamis and 47.6% of the Remdille live in or close to these settlements (see Chapter 3, Section C). Minor settlements exist at

Ngurunit and Illaut. These settlements are a permanent feature of the landscape and can be construed as mixed blessings. On the one hand they provide their inhabitants with easy water which lightens the task of women who are primarily responsible for drawing water for domestic use, shops at a time where reliance on shop-bought food is increasing, and schools and dispensaries (or health centres). In addition major settlements are important centres for Government and church administration and this provides town residents with security from attack and a promise of food in drought years. The latter consideration is very important to destitute and poor households who have few stock and are unable to live solely off their drought-depleted herds.

Chapter 8

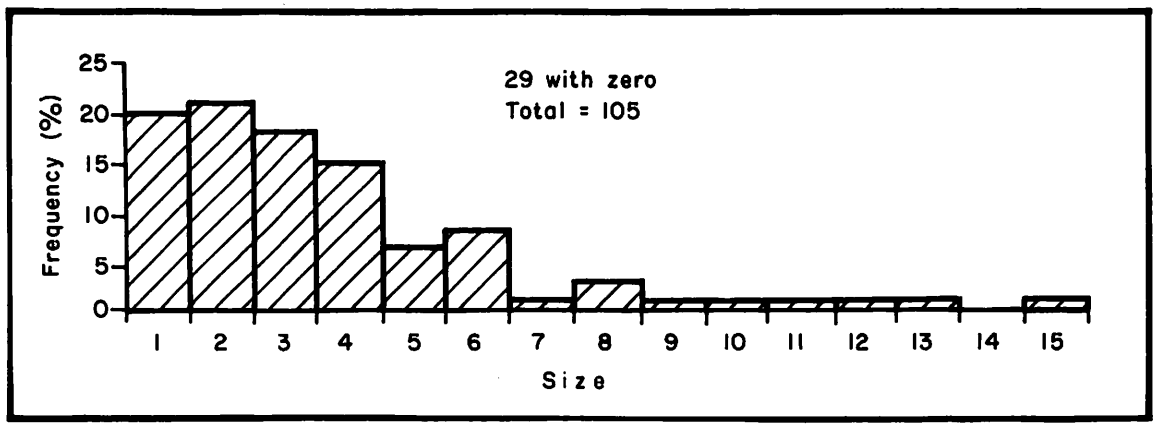
THE ECONOMIC VALUE OF LIVESTOCK

In this chapter the emphasis is on husbandry, i.e. what the Rendille obtain from their herds in terms of food (milk and meat). The Rendille also bleed their camels and cattle for blood but it was not possible to obtain substantial data on this source of food which is particularly important in dry and drought conditions. We recorded the number of milch animals households had. In the course of our research spot checks were made on the milk yields of the different animal species as a means of assessing the amount of milk which was available for human consumption. A perennial problem for the pastoralist is deciding how much milk should be reserved for the young animals and how much for the family. Records were kept on the extent to which households slaughtered animals for meat and sold them to obtain cash. We also kept a record on sales of skins and hides. Finally in this chapter the role of the camel as a baggage animal is examined.

A. MILK

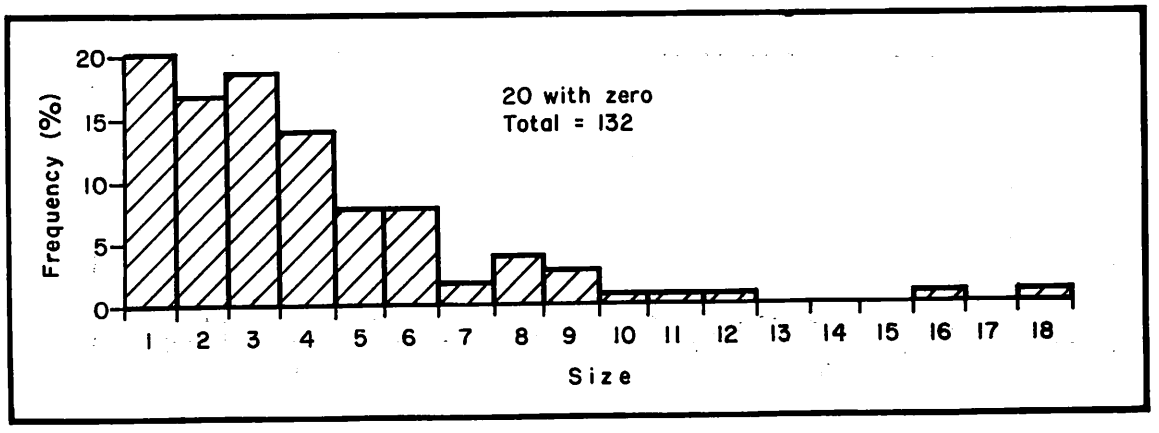
Figures 8.1 to 8.8 outline household holdings of milch animals of each species.

Figure 8.1 Number of milch camels per household (town)



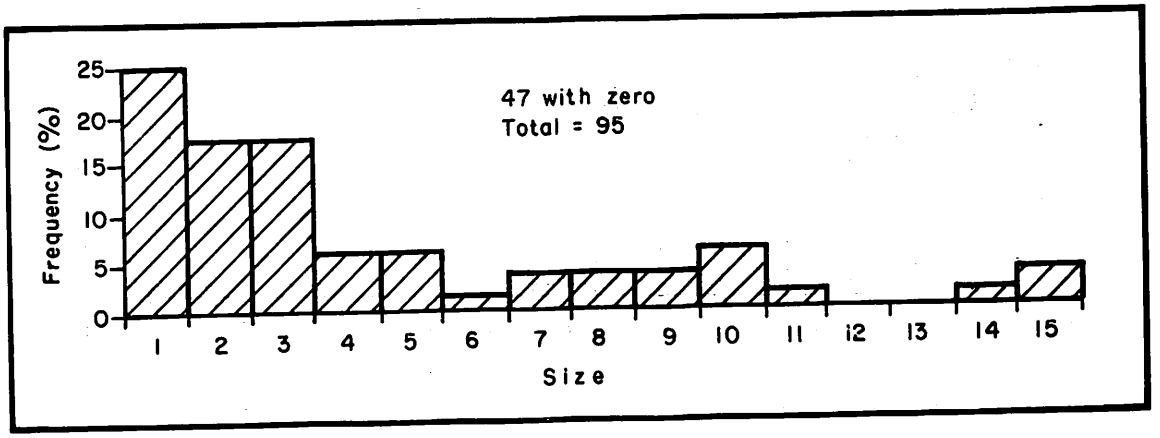
Mean: 2.7
Standard deviation: 3.0

Figure 8.2 Number of milch camels per household (country)



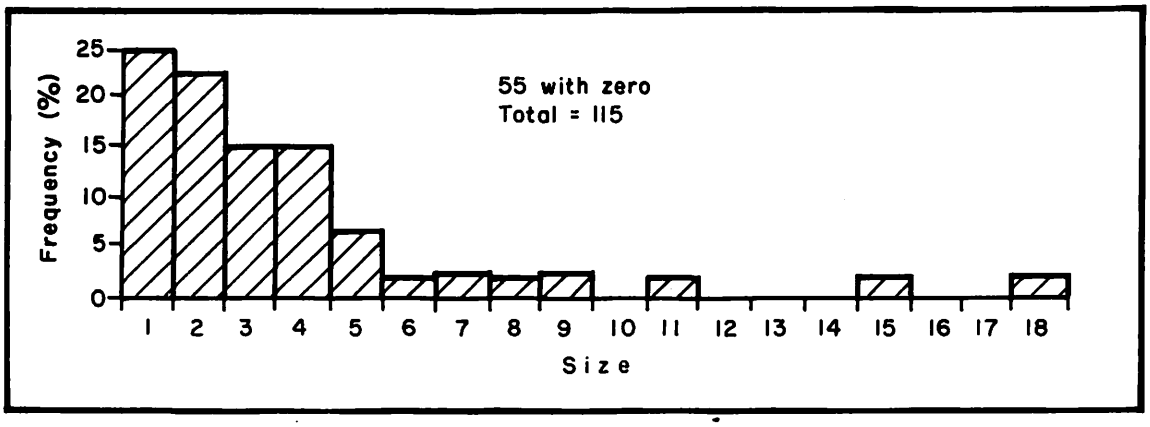
Mean: 3.3
Standard deviation: 3.1

Figure 8.3 Number of milch cows per household (town)



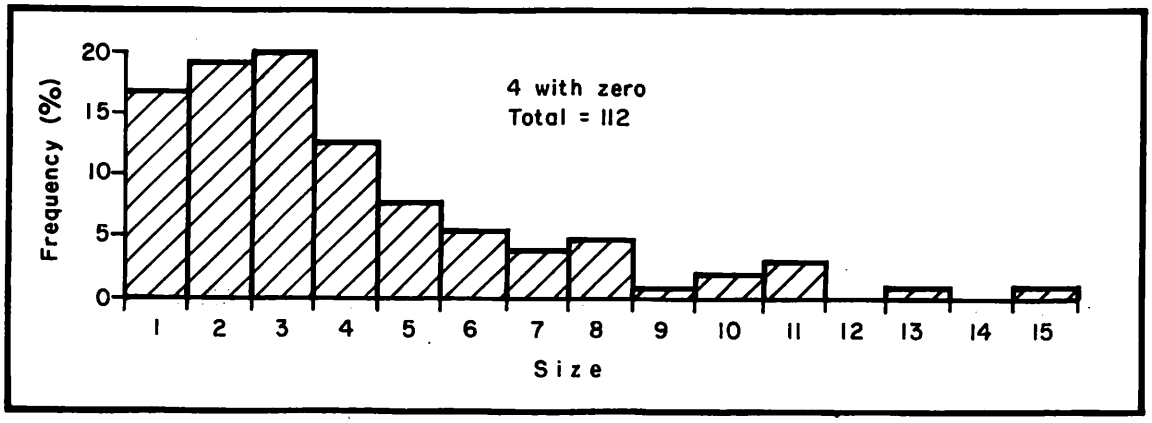
Mean: 2.3
Standard Deviation: 3.6

Figure 8.4 Number of milch cows per household (country)



Mean: 1.9
Standard deviation: 3.0

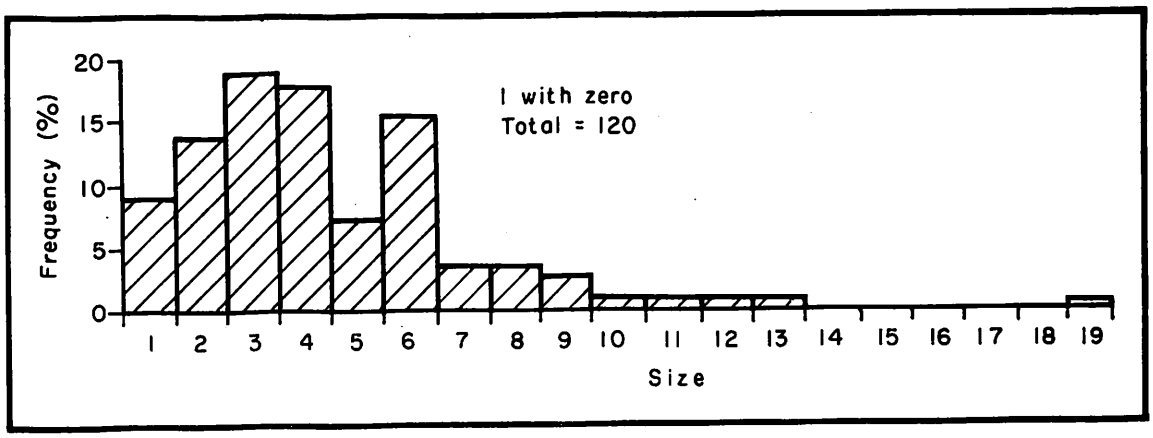
Figure 8.5 Numbers of milch ewes per household (town)



Zeros: 4

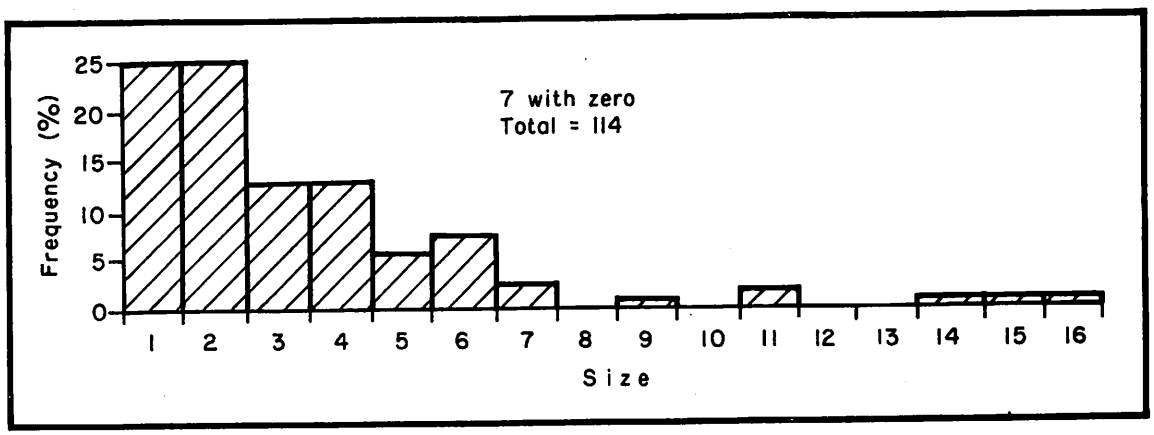
Mean: 17.3
Standard deviation: 14.4

Figure 8.6 Number of milch ewes per household (country)



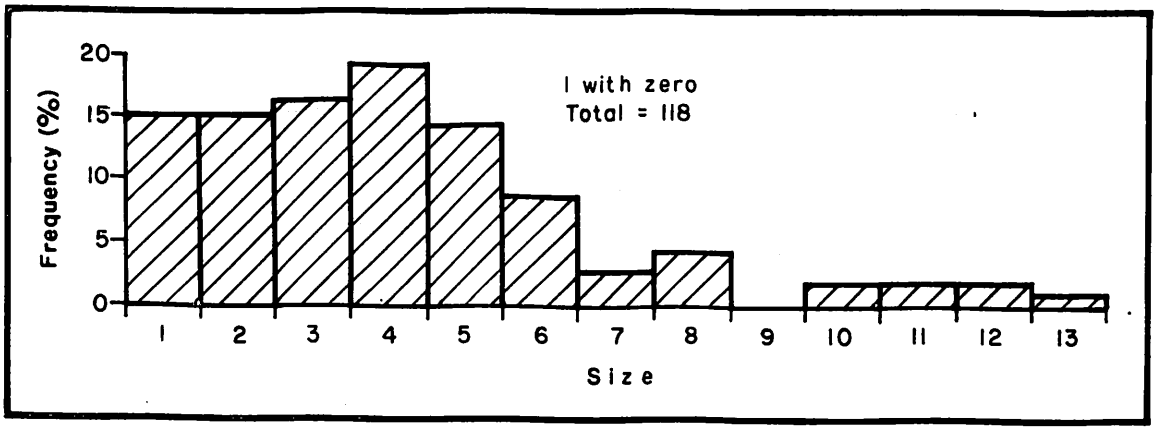
Mean: 20.3
Standard deviation: 13.9

Figure 8.7 Number of milch does per household (town)



Mean: 14.2
Standard deviation: 14.3

Figure 8.8 Number of milch does per household (country)



Mean: 18.2
Standard deviation: 13.2

Differences between the number of milking animals owned by town and country households reflect differences in livestock holdings. For example, country camps on average own more camels, sheep and goats and hence have more milch animals of these species. Town households own more cattle and hence on average have more milch cows.

A household may possess milch animals but its members who reside at a main camp may not necessarily be guaranteed a supply of milk. This is due to a number of practices. Milking animals are only kept at the main camp as long as the surrounding grazing is adequate, otherwise they are sent to *forr* camps. However, the dispatching household must have access to the necessary labour to herd livestock at satellite camps or be able to come to agreement with other households to assist with this. Secondly, in instances where the grazing adjacent to the camp is sufficient, a household may still send milking animals to *forr* if it already has an ample supply of milk. Thus a household which has a number of milch cows at the main camp may decide to send away all its camels and smallstock, including milking animals, to satellite camps which are close to much better grazing.

Camel satellite camps are occupied mainly by youths and young men who are warriors *(moran)* (see Chapter 2, Section B and Chapter 4, Section C). Warriors strictly adhere to the code of sharing in food consumption and it is forbidden for one to eat on his own. This means that at camel camps all milk is shared between the herders of all herding units using the same satellite

camp. Smallstock and cattle satellite camps are occupied not only by warriors but also girls and married men. The practice of sharing also occurs in these camps but to a lesser extent.

Since most milking animals are away from main camps for the major part of the year those who herd them benefit most from the milk reserved for human consumption. In Chapter 4, Section C we indicated the age/sex of the herders at *forr* camps. Some households try to rectify this imbalance which favours the herders by either bringing their wife and young children to stay at *forr* camps during wet seasons when milk is abundant, or transport - usually on donkeys - milk from the *forr* camp to the main camp if the distance is not too great. The milk of cows and ewes is converted to yoghurt which can be consumed later by the residents of main camps.

Tables 8.1 to 8.4 give the monitored milk yields according to animal species, length of time the monitored animal had been lactating and whether dry or wet conditions prevailed. In most cases wet conditions are considered to exist between November and mid-January and April to mid-June. Obviously this categorization is not completely accurate since there can be a great variation in the distribution of rains between years. However, for our purpose it is moderately satisfactory.

Table 8.1 Camel milk yields

Yield (litres/day)	Length of lactation (months)			
	1 - 3	4 - 6	7 - 9	10 - 12
Wet conditions	*2.81	-	1.84	2.07
	(0.48)		(0.24)	(0.45)
Dry conditions	1.52	1.51	0.92	
	(0.22)	(0.33)	(0.05)	

* Yield of animals with no young

Table 8.2 Cattle milk yeilds

Wet conditions	1.63	1.78
	(0.29)	(0.47)
Dry conditions	1.34	1.00
	(0.33)	(0.32)

Table 8.3 Sheep milk yields

Yield (cc/day)	Length of lactation (months)		
	1 - 2	3 - 4	5 - 6
Wet conditions	206	228	
	(71)	(48)	
Dry conditions	61	127	88
	(21)	(35)	(04)
	*107		
	(16)		

Table 8.4 Goat milk yields

Yield (cc/day)	Length of lactation (months)		
	1 - 2	3 - 4	5 - 6
Wet conditions	255	208	205
	(68)	(41)	(12)
Dry conditions	59	146	132
	(04)	(61)	(08)
	*159		
	(23)		

Note: Standard deviations are given in brackets.

The data for the above statistics were derived by monitoring camels and cattle individually and smallstock in groups of 4 - 5 for a run of five to six successive days at all milking times. Only the amounts of milk actually derived from milking were recorded.

In wet conditions milking camels lactating 10 - 12 months have significantly higher yields than those lactating 7 - 9 months. This reflects the practice of weaning calves in their 10th - 12th months (see Chapter 6, Section C) and hence more milk can be reserved for human consumption. The yields of camels lactating 7 - 9 months are significantly lower in dry conditions than in wet conditions. This is due to the fact that people tend to reserve more milk for the calves when conditions are dry as well as an overall drop in milk yields due to dry conditions. In dry conditions there

is no significant difference between the milk yields of camels lactating 1 - 3 months and those in their 4th - 6th month of lactation. However, those in their 7th - 9th month of lactation produce significantly smaller amounts of milk for human consumption. The milk yields of unsuckled camels were recorded in wet conditions and varied greatly between as little as 2.1 litres daily to 3.3 litres.

People obtain significantly less milk for human consumption from their cattle in dry conditions than in wet conditions, which is to be expected. In wet conditions there is no significant difference between milk yields of cows in their 1st - 3rd month of lactation and those in their 4th - 6th month. However, in dry conditions the milk yields of those in the early stages of lactation are significantly higher. Milk yields recorded from unsuckled cows are greater than from those with suckling calves.

Irrespective of range conditions, milking ewes who have been lactating for three to four months gives significantly higher milk returns than those with younger lambs. This is due to the fact that young lambs are allowed to suckle more than older lambs. The milk yields of ewes is much less in dry conditions than in more favourable conditions. This is because the total milk output is lower and in the case of ewes with young lambs a higher percentage of milk is reserved for the young animals. There is a sudden drop in the milk yields of ewes who have been lactating for more than four months under dry conditions. Ewes which are in their first to second month of lactation but which are not sucked give an average of 107 cc per day in dry conditions.

In wet conditions - unlike the case of milking ewes - milch does give significantly less milk as the lactation period goes beyond the two-month mark. This indicates that although a higher percentage of total milk output is reserved for human consumption as the kid grows older, the total output declines as the lactation period advances beyond the second month. The reverse is true in dry conditions. At such times 1 - 2 month old kids are given a higher percentage of the milk and hence milk yields are low (59 cc daily). The daily milk yields of does lactating more than two months are much higher because of restricted suckling. As is to be expected, milk yields are much lower when conditions become dry because of the reduction in the total milk output and the practice of allowing the kids to suckle a higher percentage of available milk output.

A comparison of goat and sheep milk returns is revealing. In wet conditions milking does in their first or second month of lactation provides

significantly more milk to the milker than ewes at the same stage of lactation. This is due to the fact that in wet conditions young lambs are permitted to suckle a higher percentage of their mothers' milk than are young kids. However, in dry conditions when milch smallstock of both species have less milk, a high percentage of it is left to young kids and lambs. Hence the statistics show no significant difference in the low milk yields of ewes and does with young kids and lambs during dry periods.

A number of factors are taken into account by the Rendille in deciding how the milk of milch animals is to be divided between young animals and household members. Firstly, as the young grow they are allowed to suckle less until weaning occurs. In the case of camel calves weaning begins after their ninth month. Bovine calves are not usually weaned since their dams have very little milk, particularly in dry conditions, after the sixth month of lactation. For lambs weaning begins after the second month and for kids after the third month. Weaning may be delayed in the case of camel calves, kids and lambs if conditions are dry and the young animals are weak and need all the nourishment they can get. In general in dry conditions as much as possible of the milk is left for the young animals. However, if the drought is severe and the mother's health is at risk young male kids and lambs are slaughtered to ease stress on the nursing does and ewes.

Secondly, when offspring are weak and sick they are allowed to suckle more.

Thirdly, the number of milking animals which a household owns is another consideration. Households which have many milking animals need to reserve less milk for domestic use from individual animals and they may not milk some animals at all. The reverse is true in the case of households which have few animals in milk.

Fourthly, the availability of alternative food supplies such as shop-bought cereals, meat from slaughtered animals and even powdered milk supplied for school-going children and pregnant and lactating women, eases the pressure on households to obtain maximum supplies of milk from their own animals.

B. MEAT

Apart from drought periods - when camels are slaughtered - the Rendille regularly slaughter smallstock, and more sheep than goats. It is said that since there is a better market for goats they reserve sheep for home consumption.

We recorded the number of sheep and goats slaughtered in a year taking note of the occasion or reason for the slaughter, the age/sex of animals slaughtered and the season of the year in which the slaughter took place. Data were obtained from over 30 houses.

Table 8.5 Annual slaughter of smallstock per house

No. slaughtered	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Frequency	2	4	-	11	5	2	1	2	6	1	1	-	-	1

Mean: 7.5
S. D. 3.1

Table 8.6 Age/sex of animals slaughtered

SHEEP

Age in years	0 - 1/2	1/2 - 1	1 - 2	3 - 4	5 - 6	7+	Total
Male	6	1	52	48	21	8	136
Female	5	3	17	11	6	8	50

Total 186

GOATS

Male	4	5	23	16	4	-	52
Female	-	1	9	17	7	7	41

Total 93

Of the total number of smallstock slaughtered 67.7% were sheep. Of the sheep 73.1% were male and of the goats 55.9% were male. The bulk of male animals which were butchered belong to the 1 - 2 and 3 - 4 year age categories. However, the majority of male sheep slaughtered were three years or older, while the slaughtered male goats were younger. Half of the female sheep slaughtered were three years old or above, while the bulk of female

goats butchered were three years or older. Female animals are slaughtered for a variety of reasons. The poor who frequently have either sold or slaughtered most of their males have little choice but to select one of their female animals to slaughter. All animals, female or otherwise, which contract *Taenia multiceps (Caenurus cerebralis)* are immediately slaughtered. The older and the less fecund a female animal is the more likely it is to fall to the butcher's knife.

Animals are butchered for a variety of reasons: ritual celebrations, the need to supplement the household diet, hospitality towards visitors, to enrich the diet of the sick and of women who have given birth, and when animals become afflicted with *Caenurus*.

Table 8.7 Occasions when smallstock are slaughtered

	Wet Seasons	Dry Seasons	Total
Ritual occasions	109	27	136 (48.7%)
For food	27	54	81 (29.0%)
Hospitality	13	14	27 (9.7%)
To treat the sick	7	5	12 (4.3%)
Post-natal sustenance	4	6	10 (3.6%)
T. multiceps	5	8	13 (4.7%)

In wet seasons the most important occasions for slaughtering animals are family rituals or festivals. This is to be expected since the majority of important festivals take place during wet seasons. On the other hand, in dry seasons the need to supplement the household diet is the major reason for slaughtering. Overall, family festivals are the most important occasions for slaughtering animals, followed by the need to feed household members when there are food shortages and thirdly the obligation to be hospitable to visitors.

C. LIVESTOCK AS A SOURCE OF CASH

We obtained data from over 30 households on the number and species of animals sold over a period of twelve months taking into account whether the sale took place in a dry or wet season. In the majority of cases it was also possible to record the age/sex of the animals which were sold.

Table 8.8 Age/sex of animals sold

CATTLE

	Age (years)						
	0 - 1	1 - 2	3 - 4	5 - 6	7+	Age	Not known
Male:							
Wet season	-	1	5	-	-	6	12
Dry season	-	1	4	-	1	4	10
Annually	-	2	9	-	1	10	22
Female: None							

GOATS

Male:							
Wet season	-	8	26	6	-	7	47
Dry season	-	10	27	12	1	17	67
Annually	-	18	53	18	1	24	117
Female:							
Wet season	-	2	4	1	3	2	12
Dry season	-	3	4	5	6	2	20
Annually	-	5	8	6	9	4	32

SHEEP

Male:							
Wet season	1	13	7	6	-	8	35
Dry season	-	15	14	2	-	18	49
Annually	1	28	21	8	-	26	84
Female:							
Wet season	-	-	4	1	-	-	5
Dry season	-	-	4	3	1	5	13
Annually	-	-	8	4	1	5	18

We recorded the sale of only three male camels from all the houses monitored. Camels are exchanged for smallstock or cattle but are rarely sold because there is no market established for them. However, a Rendille would never countenance selling a female camel. In the case of cattle we recorded no sale of females. Seventy-nine per cent of goats sold were male and 82% of sheep. The majority of does sold were five years or older while the majority of ewes were three years or older.

In the case of cattle there is little difference between the numbers sold in wet and dry seasons. This may be due to the small size of the sample. However, 58% of the goats were sold in dry seasons and 61% of the sheep. This is due to the greater need for cash to buy food in dry seasons. The majority of bucks sold were 3 - 4 years old, while the majority of male sheep sold were slightly younger, belonging to the 1 - 2 and 3 - 4 year age categories. This may reflect the fact that sheep mature faster than goats. Overall more goats than sheep were sold. This is due to the greater overall demand for goats in the wider economy. Occasionally buyers for the Saudiya Livestock Agency - one of the few groups who export to the Middle East - purchase both goats and sheep. The Livestock Marketing Division (LMD) (which is no longer in operation) concentrated on buying cattle of specified weights (Njiru, 1983). There was only one exception to this rule when the LMD organized auctions after President Moi's visit in February 1983 in which they bought smallstock by weight and offered what were regarded as exceptionally good prices. Large goats fetched over Shs 400, prices which were never heard of before in the District amongst the ordinary pastoralists. However, the event was a one-off affair and such auctions have been discontinued.

Table 8.9 Average prices obtained for animals sold (Shs)

CATTLE

	Age (years)					
	0 - 1	1 - 2	3 - 4	5 - 6	7+	Age not known
Male:						
Wet season	-	200	526	-	-	675
	-	-	(155)	-	-	(325)
Dry season	-	400	403	-	900	685
	-	-	(142)	-	-	(145)

Table 8.9 continued.

GOATS

	Age (years)					
	0 - 1	1 - 2	3 - 4	5 - 6	7+	Age not known
Male:						
Wet season	-	58	105	153	-	125
	-	(26)	(25)	(43)	-	(31)
Dry season	-	68	110	167	200	143
	-	(21)	(30)	(33)	-	(61)
Female:						
Wet season	-	65	89	100	87	95
	-	(29)	(21)	-	(6)	(7)
Dry season	-	73	94	96	73	85
	-	(21)	(11)	(13)	(15)	(21)

SHEEP

Male:						
Wet season	20	64	119	150	-	96
	-	(22)	(14)	(18)	-	(38)
Dry season	-	57	118	170	-	82
	-	(20)	(23)	(14)	-	(17)
Female:						
Wet season	-	-	84	70	-	80
	-	-	(13)	-	-	-
Dry season	-	-	(12)	(39)	-	(8)

Note: The standard deviations are given in brackets

For the most part there is no significant difference between seasons in prices offered for smallstock. The only exceptions are prices for does seven

or more years old, and male sheep in the 5 - 6 age category. But even in these cases differences only occur at the 0.20 level of significance.

In addition there are few significant differences between the prices given for bucks and rams. The only exceptions were the prices offered in wet seasons for male goats and sheep which belong to the 3 - 4 age category, and even in these instances differences are only recorded at the 0.20 level of significance.

As is to be expected, prices fetched by male goats and sheep are significantly higher in all age categories and seasons than those offered for their female counterparts. Peak prices for male smallstock are fetched in the 5 - 6 age category, followed in second place by males in the 3 - 4 age category.

Table 8.10 Numbers of livestock sold by houses annually

CATTLE

No. of stock sold	0	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of houses	19	13	2	-	1										

Mean: 0.6 cattle
S. D.: 0.8

(two houses share 1 animal)

SMALLSTOCK

No. of houses	1	-	3	2	1	4	1	4	2	6	3	4	2	2	1

Mean: 7.9 smallstock
S. D.: 3.7

Table 8.11 Annual income derived by houses from the sale of livestock annually

CATTLE

Income (Shs)	0	1 - 500	501 - 1,000	1,001 - 1,500	1,501 - 2,000	2000+
No. of houses	19	8	7	2	-	1

Mean: Shs. 339
S. D.: Shs. 471

Table 8.11 continued.

SMALLSTOCK

Income (Shs)	0	1 - 500	501 - 1,000	1,001 - 1,500	1,501 - 2,000	2,001+
No. of houses	1	8	14	13	1	-

Mean: Shs. 811
Standard deviation: Shs. 417

ALL STOCK (including camels)

No. of houses	1	1	13	16	1	5

Mean: Shs. 1,199
Standard deviation: Shs. 658

There is no significant difference between the number of smallstock slaughtered and sold by households (Tables 8.5 and 8.10). Judging from the incomes derived from cattle and smallstock it is quite clear that smallstock are a more important source of cash than are cattle. Houses which earn little from the sale of livestock are either poor or have other sources of income such as wage employment and hence are under less pressure to sell livestock in order to provide for domestic needs.

D. HIDES AND SKINS

In our census of 37 houses only seven had sold skins over the previous twelve months.

Table 8.12 Annual sale of skins

No. of skins sold	0	1	2	3	4	5	6	7	8	9
No. of houses	30	-	1	-	-	1	1	1	2	1

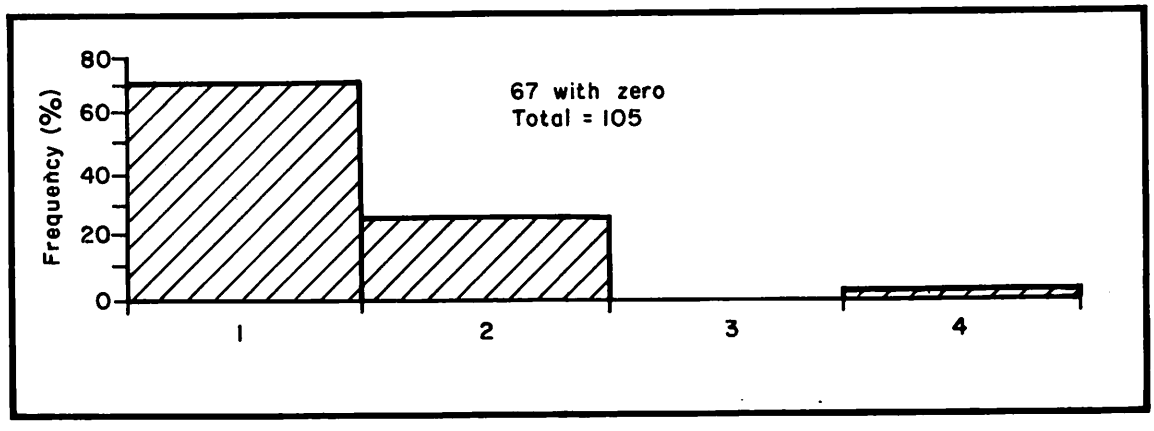
Mean: 1.2
Standard deviation: 2.7

Although houses had slaughtered an average of 7.9 smallstock during the same period (Table 8.5) only a small portion of the skins were sold. In general the prices of goat skins are higher than the prices for sheep skins. Frequently prices of skins are so low that the Rendille opt to use them domestically instead. Skins are used for a variety of purposes such as material for women's dresses, sleeping mats and roofing material. In our census the average price offered for the skins was Shs 3.7 (S. D. 1.4). Only one house covered in the census had sold a cow's hide in the previous twelve months and the price fetched was Shs 70.

E. THE CAMEL AS A TRANSPORT ANIMAL

The pack camel is needed to transport houses, household goods, very young kids and lambs, and young children and invalid adults when moving camp. The camel is also used to transport water for household use from water point to camp. Figures 8.9 and 8.10 give information on the number of pack camels per household.

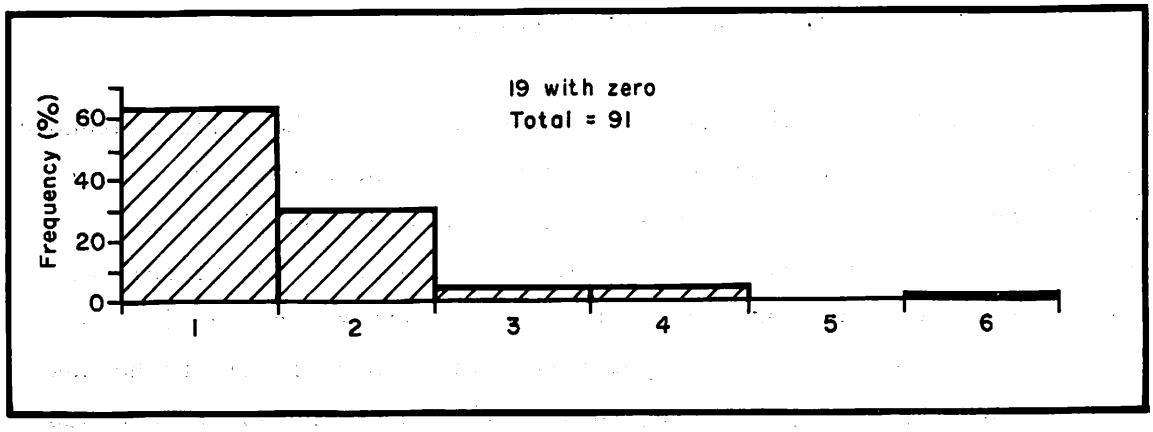
Figure 8.9 Number of pack camels per household (town)



7

Mean: 0.5
Standard deviation: 0.7

Figure 8.10 Number of pack camels per household (country)



Zeros: 19

Mean: 1.2
Standard deviation: 1.0

Some workers argue that the lack of pack camels has forced households to settle at one of the trading centres (Schwartz, 1979). This is a half truth and more applicable to pastoral groups such as the Gabra whose camps are small (i.e. averaging 4 - 5 houses per camp), highly mobile and frequently located some distance from water. There are a number of Rendille households who decide to settle although they own enough pack camels to remain nomadic. In these cases the decision to settle is not due to a lack of pack camels. There are a number of households in country camps which possess no camels. Moving camp is done in stages and a person may not move all his load in one trip. Those without pack camels may own donkeys or obtain a loan of baggage camels from within his/her own camp or from neighbouring camps. There is a similar sharing of pack animals for drawing water for household use. Where the distance between camp and water point is not far those camel owners who own donkeys opt to use the latter. Donkeys are also useful pack animals for those living at smallstock and cattle *forr* camps (see Table 5.13).

Chapter 9

SUBSISTENCE AND HERD STRUCTURE

In the previous chapter certain features of the economy of Rendille households - the extraction of milk and meat from livestock and the sale of stock for cash - were discussed. In this chapter cash income and expenditure are analysed. Rendille houses obtain cash from sources other than the sale of livestock and its products, for example from wage remittances and gifts of money. It will be shown that a high percentage of cash available to houses is channelled annually into purchasing food. Other house needs are clothes, footwear, jewellery, tobacco, etc. In Chapter 5, Section A we outlined the household holdings of livestock and in Chapter 8, Sections B and C we examined the off-take of animals by slaughter and sale. In Section C and D of this chapter we examine the structure of camel, cattle, sheep and goat herds and the impact of off-take on herd structure. This enables us to predict potential off-take from the present herds. The latter issue is important to both the environmentalist who wishes to minimize livestock pressure on the range and to the developer who also aims to improve the income and standard of living of the Rendille pastoralists as well as to develop their pastoral economy. As we hope to show in Chapter 10, environmental degradation can arise from practices associated with poverty and an underdeveloped local economy.

A. HOUSE INCOMES

Houses are divided into those that are regarded as being poor and those that are 'better-off'. This categorization is based on the animal wealth of the houses and the general opinion of the community about who is poor and who is not. The poor houses have an average income of Shs 1,126 per annum (S.D. 536) while the better-off houses have an average annual income of Shs 1,778 (S.D. 1,056).

The annual income of better-off houses is significantly greater than that of poor houses. Better-off houses also obtain a significantly greater income from the sale of livestock and its products. However, there is no significant difference between richer and poor houses in incomes obtained from wage remittances and gifts. Overall the better-off houses obtain 79% of their income from the sale of livestock and its products, and poorer houses 77%. This indicates that the bulk of house income is derived from livestock production.

Table 9.1 Sources of annual income

	Poor houses	Better-off houses
	Shs	Shs
Sale of livestock and products, including milk	867	1,401
	(237)	(692)
Wage remittances	149	208
	(346)	(430)
Gifts	99	132
	(140)	(202)

B. HOUSE EXPENDITURE

On average the better-off houses spend Shs 1,646 (S. D. 1,044) per annum which is significantly greater than the cash expenditure costs of poor houses Shs 1,010 (S. D. 323). Table 9.2 outlines how houses spend their money.

The better-off houses spend significantly more per annum than poorer houses on all items except for miscellaneous and gift-giving expenditures. On average poor houses spend 63.5% of their cash outlay on food (cereals, sugar and tea), better-off houses 57.5%.

C. HERD STRUCTURES

The Rendille divide their male and female camels into classes according to the maturity of the animal. The classification of adult females is based on the number of animals to which they have given birth. A female camel that has given birth to three or more calves is termed *ayu*, a female with two calves *lamadel*, and a female with one calf *urhal*. The latter term is also used for a mature heifer capable of conceiving and giving birth. An immature heifer is termed *khalim*. Female calves are divided into old *(nyirkho ha deyahe wawen)* and young *(nyirkho ha deyahe nunuchul)*. Males are divided

Table 9.2 Annual expenditure patterns of houses

	Poor houses	Better-off houses
	Shs	Shs
Cereals	406	544
	(126)	(272)
Sugar	156	277
	(35)	(132)
Tea	79	126
	(18)	(46)
Clothes	78	122
	(83)	(59)
Footwear	28	44
	(14)	(28)
Jewellery	11	38
	(20)	(53)
Tobacco	77	108
	(21)	(32)
Giving gifts	48	67
	(63)	(61)
Miscellaneous	127	227
	(118)	(475)

Note: Standard deviations in brackets.

into castrates and non-castrates. The latter are subdivided into mature breeding bulls *(or)* and immature *(khalim)*. Castrates are classed either as mature *(dufan)* or immature *(folas)*. Male calves are divided into old *(nyirkho ha labe wawen)* and young *(nyirkho ha labe nunuchul)*. Table 9.3 shows the results of research on the herd structure of 3,289 camels.

Table 9.3 Herd structure of Rendille camels

Female	Number	Percentage of total herd	Percentage of adult herd (2)
Ayu	958	29.1	38.1
Lamadel	181	5.5	7.2
Urhal	248	7.5	9.9
Urhal	218	6.6	8.7
Khalim	210	6.4	8.3
Old calves	199	6.1	
Young calves	203	6.2	
		67.4	72.2
Males			
Or	82	2.5	3.3
Durfan	115	3.5	4.6
Falas	244	7.4	9.7
Khalim	261	7.9	10.4
Old calves	178	5.4	
Young calves	192	5.8	
Total	3,289	32.5	28.0

The Rendille classify their cattle into 13 maturity classes. Cows that have given birth to three or more calves are termed *saho hi wawen*, those with 1 - 2 calves *urhal* and heifers *(urhal siidelin)*. A mature bull is termed *or*, a young bull *sitima*, and an immature but uncastrated male *ilbolei*.

Castrates are divided into mature *(heriwen)*, not fully mature *(heri gaben)* and immature *(heri nunuchul)*. Calves are divided into old female calves *(Maro hi deyahe wawen)*, old male calves (*maro hi labe wawen*), young female calves (*maro hi deyahe nunuchal*) and young male calves (*maro hi labe nunuchal*) Table 9.3 gives the maturity categories of 1,674 head of cattle.

Table 9.4 Herd structure of Rendille cattle

Female	Number	Percentage of adult herd	Percentage of total herd
Saho hi wawen	499	29.8	42.4
Urhal	231	13.8	19.6
Urhal sidelin	207	12.4	17.6
Old calve	117	7.0	
Young calves	142	8.5	
		71.5	79.6
Male			
Or	31	1.9	2.6
Sitima	16	1.0	1.4
Heriwen	32	1.9	2.7
Heri gaben	50	3.0	4.3
Heri nunuchul	45	2.7	3.8
Ilbolei	65	3.9	5.5
Old calves	120	7.2	
Young calves	119	7.1	
Total	1,674	28.7	20.3

Sheep are classified into twelve maturity classes. Ewes that have given birth to three or more lambs are referred to as *lah;* those with one or two lambs as *suben* and immature females as *subenti idelin*. A mature breeding ram is known as *helemki ore*, an immature but uncastrated ram as *helemki khodo khabo*, a large mature castrate as *warab*, a medium size castrate as *helemki adi hi lame*.

and immature castrates as *helemki subenet*. Lambs of both sexes are divided into young and old age categories. Table 9.5 outlines the maturity categories of 20,255 sheep.

Table 9.5 Herd structure of Rendille sheep

Female	Number	Percentage of adult herd	Percentage of total herd
Lah	7,311	36.1	48.2
Suben	2,423	12.0	16.0
Suben tiidelin	1,950	9.6	12.8
Old lambs	1,194	5.9	
Young lambs	1,278	6.3	
		69.9	77.0
Male			
Helemki ore	213	1.1	1.4
Warab	613	3.0	4.0
Helemki adi hi lame	721	3.6	4.8
Helemki subenet	840	4.1	5.5
Helmohi khodo khabo	1,106	5.5	7.3
Old lambs	1,211	6.0	
Young lambs	1,395	6.9	
Total	20,255	32.2	23.0

The Rendille divide their goats into twelve maturity classes. Does with three or more kids are termed *rihiy*, does with one or two kids *urhal* and immature females *urhal idelin*. A mature breeding buck is known as *orgei*, an immature but uncastrated buck as *wahari khodo khabo*, a large castrate as *keleh*, a medium size castrate as *wahari adi hi lame* and a small size castrate as *wahari urhalet*. Kids of both sexes are divided into young and old age categories. The following table outlines the herd structure of 16,357 goats.

Table 9.6 Herd structure of Rendille goats

Female	Number	Percentage of adult herd	Percentage of total herd
Rihiy	5,902	36.1	49.1
Urhal	1,965	12.0	16.3
Urhal idelin	1,454	8.9	12.1
Old kids	1,094	6.7	
Young kids	1,093	6.7	
		72.4	77.5
Male			
Orgei	175	1.1	1.5
Keleh	514	3.1	4.3
Wahari adi hi lame	478	2.9	4.0
Wahari subenet	615	3.8	5.1
Wahari khodo khabo	917	5.6	7.6
Old kids	1,057	6.5	
Young kids	1,093	6.7	
Total	16,357	29.7	22.5

D. SOME IMPLICATIONS ARISING FROM THE HERD STRUCTURE DATA

The data on herd structures enable us to draw some conclusions relating to herd management and husbandry practices of the Rendille and the performance of their herds.

(i) Breeding males

The ratio of mature camel bulls to adult females (i.e. camel cows and heifers) is 1:20 (Table 9.3). The Rendille distinguish between mature and less mature bovine bulls. Overall there is one bull for every 20 adult females. However, the ratio of mature bulls to adult females of 1:30 and the corresponding ratio for less mature bulls is 1:59 (Table 9.4). The ratio of

mature rams to adult females is 1:60 (Table 9.5) and the ratio of mature breeding bucks to adult female goats is 1:53 (Table 9.6). These figures for sheep and goats do not take into account the fact that younger rams and bucks can also be active (Dahl and Hjort, 1976).

(ii) Sex ratios

Female camels constitute 67.4% of the total herd and 72.2% of the adult herd (Table 9.3). Corresponding figures for cattle, sheep and goats are 71.5%/79.6%, 69.9%/77% and 70.4%/77.5% respectively (Tables 9.4 - 9.6).

(iii) Fertility

Camel cows make up 42.1% of the herd. If heifers are included breeding females constitute 48.7% of the herd. Calving rates vary between 11.5% and 12% of the total herd per annum. Put differently, 1,387 females produce an average of 395.5 calves yearly. This gives an average rate of 0.29 calves per cow/heifer per annum or 0.86 calves every three years or 1.14 calves every four years. A three-year cycle for a camel cow allows for one year gestation and two years suckling/milking before the next pregnancy.

Cows make up 43.6% of cattle herds. Cows and heifers constitute 56% of the bovine herds. Calving rates for the year of study were 29.8% of the total herd (Table 9.4). In other words, 730 females produced 498 calves in a year. This gives an annual rate of 0.68 calves per cow/heifer or 1.36 calves every two years.

Ewes (which have given birth) form 48.1% of sheep flocks and lambs constitute 25.1% of the flock (Table 9.5). This means that 9,734 ewes produce 5,078 lambs in a six-month period - assuming that young and old lambs are in the 0 - 6 month age range. It follows that in a twelve-month period the same number of ewes would produce 10,156 lambs. This gives an annual rate of 1.04 lambs per ewe.

Does (which have given birth) form 48.1% and kids 26.6% of goat herds (Table 9.6). Put differently, 7,867 does produce 4,337 kids in a six-month period - assuming that young and old kids are in the 0 - 6 month age range. In a year 7,867 ewes would produce 8,674 kids. This gives an annual rate of 1.1 kids per doe.

The statistics on herd structure were gathered in non-drought years and hence should be adjusted to incorporate the impact of drought on fertility

rates and the overall herd structure.

(iv) Actual off-take rates

Our data on the off-take from camel herds through sale and slaughter are inconclusive (Chapter 8, Section B and C). There are two reasons. The Rendille rarely sell camels because there is little or no market for camels. The slaughtering of camels for meat takes place mainly in drought periods and we were unable to observe this. However, the sex ratios of camel herds (Section D, above) indicates a male off-take.

The average annual off-take per house from cattle herds through sale is 0.6 (Table 8.10). This corresponds to 0.78 head of cattle per household (since there are approximately 1.3 houses per household). All animals sold were male (Table 8.8). The average size of household cattle herd is 7.9 (Figure 5.6). It follows that the annual off-take of 0.78 male cattle per household represents an off-take of 9.9%.

The average annual off-take per house from smallstock flocks through sale and slaughter is 15.4 (Tables 8.5 and 8.8). Given that there are approximately 1.3 houses per household the average off-take from household flocks is 20 sheep and goats. On calculations based on tables 8.6 and 8.8 the percentage of goats (male and female) and of sheep (male and female) slaughtered and sold are as follows:

Goats male	40.9%
Goats female	12.4%
Sheep male	32.9%
Sheep female	13.8%

This means that, given that the average off-take from the household flock is 20 sheep and goats, the composition of the off-take is as follows:

Goats, male	8.2	(= 11.7% of the average household goat herd)
Goats, female	2.5	(= 3.6% of the average household goat herd)
Sheep, male	6.6	(= 7.6% of the average household sheep herd)
Sheep, female	2.8	(= 3.2% of the average household sheep herd)

(v) Potential off-take rates

Statistics on camels indicate that mature castrates form 3.5% of camel herds and younger castrated animals constitute 7.5% of the herds. This means

that castrated animals form 10.9% of the herd. Given that altogether there are 160 (or 4.9%) pack camels in the group studied (Figures 8.9 and 8.10) and assuming that all pack camels are castrates (this is the ideal although a number of households are forced to use female animals as pack animals) it follows that potentially marketable castrates represent 6.0% of present herds. However, it would not be possible to maintain such an off-take rate annually. Immature males, i.e. those in their third and fourth years, constitute 7.9% of the herd. This would imply an annual replacement rate of 3.95% for all males sold or slaughtered - assuming that none of the males die. The statistics on male camel calves (attributable to better rainfall years) suggest higher annual replacement rates varying between 5.4% and 5.8% (Table 9.3).

Male calves constitute 14.3% of cattle herds (Table 9.4). This suggests that an off-take of a similar size made up of male animals is possible, at least after good years. Similarly off-takes of rams and bucks at the 25.8% and 26.4% levels, respectively, are also possible (Tables 9.5 and 9.6).

E. HOW TO INCREASE THE PASTORALISTS' INCOME

A comparison of actual and potential off-take estimates for male cattle, sheep and goats shows that in all cases potential off-take figures are not realized. As already noted, camels are rarely sold and are slaughtered only in drought periods. Assuming that at present the pastoralists slaughter sufficient numbers of animals for home consumption it follows any increase in off-take should come from the sale of animals. There are a number of reasons for the pastoralist's tendency to limit involvement with the present livestock and cereal markets. The cereal markets are unstable and are not always able to provide cereals in drought periods when the pastoralist most needs to purchase cereals. Hence the pastoralist must always keep a reserve of males, particularly camel castrates, as a standby in drought periods. In addition, it is believed that the terms of trade between livestock and cereals are disadvantageous to the pastoralist and this also legitimizes limited involvement with the market system. Swift (1979) writing on the Somali notes:

> 'Since the sale of pastoral (or hunted and gathered) products is the pastoralist's only source of income, with which he buys essential food grains, clothing and luxuries such as tea and sugar, the relationship between the prices at which he sells his own products and the prices at which he buys these goods determines how well-off he is.'

Increasing the price of livestock is essential if the standard of living of the Rendille is to improve. It would also induce them to sell more of their animals, particularly if the pastoralists could be guaranteed an adequate supply of cereals at all times. Such matters are primarily the stuff of Government policy decisions and can never be satisfactorily and permanently solved by a project working at grass-roots level without the necessary political leverage in top-level Government circles.

It is our opinion that a substantial increase in livestock prices and adequate marketing facilities will only lead to an increased off-take if linked with the establishment of stable cereal markets and credit and savings facilities. All this will have the effect of increasing the pastoralist's income, some of which could be invested in veterinary treatment of his animals - if this service was made available to him - and in improving and extending watering facilities for his stock - if the materials and know-how were provided. This in turn would increase the productivity of his stock and require the implementation of range mangement practices such as those suggested in the management plans of IPAL (Lusigi, 1984).

Chapter 10

THE ECONOMY AND THE ENVIRONMENT: SOME CONCLUSIONS

A. RESOURCE MANAGEMENT PERSPECTIVE/ANTHROPOLOGICAL APPROACH

On the one hand those who view affairs mainly from a resource management perspective can quickly point to how the truncated use of the range is devastating the vegetational cover of over-used areas, particularly those which surround settlements (permanent or semi-permanent) and/or permanent water points (Chapter 7, Section C). In this perspective the Rendille pastoralist can be easily viewed as a villain and his actions towards his natural resources as irrational. On the other hand, one can attempt to view matters through the eyes of the Rendille and assess how rational his choices and actions are from his point of view. This may be referred to as the anthropological approach. It has nothing to do with paternalism (kind or unkind) and does not in any way question the concerns of those committed to the proper management of natural resources. Rather it casts a different light on these concerns (1). Outside of the question of sedentarization the main problem is to ascertain the rationality (or irrationality) of the herding strategy of pursuing 'the line of least effort' (Chapter 7, Section C). Since this brings up issues relating to the nature of the Rendille pastoral economy and its links with the wider economy, as well as the impact of national policy on pastoral societies, these must be dealt with first.

B. THE PEASANTIZATION OF THE RENDILLE PASTORAL ECONOMY

In a sense it is mystifying to refer to the Rendille pastoral economy as a subsistence economy. It begs the question and releases the researcher all too easily from the task and responsibility of examining the conditions which maintain the Rendille at subsistence level (or at a low standard of living). It is more illuminating to view their economy as a peasant economy. A peasant economy has the following characteristics: a heavy reliance on household labour in production, production for home consumption as well as for the market, variation in household land and livestock holdings and hence a variation in household wealth. Peasant economies are not isolated entities but are linked with national economies and politics which normally dominate them.

The day when the Rendille could totally and directly depend on livestock production for their livelihood has long past. The decline in the livestock/human population ratio first moved them to an indirect reliance on their stock. In other words livestock were sold on the open market in order to purchase cereals. This shift in their economy took place in the 1940s. Nevertheless they continued to rely totally (although indirectly) on livestock and its products. However, this indirect mode of reliance proved inadequate in the late 1960s and early 1970s when the livestock/human population ratio further declined. Supplementary sources of livelihood were sought in labour migration, cultivation, the sale of milk and firewood particularly to the residents of Marsabit Town, the District headquarters.

Since the Rendille depend greatly on the wider economy (both District and national) for their livelihood it is necessary to examine the nature of their links to it. Lack of education ties the majority of Rendille job seekers to low paid jobs. Poor market facilities frequently condemn them to selling cattle and smallstock at unfavourable prices (Table 8.9). The Rendille have no market outlets for their camels (Chapter 8, Section C). They have to pay for foodstuffs at price levels similar to that pertaining in urban areas, while at the same time they are forced to sell their own products at price levels much lower than those which exists in urban markets. In other words, terms of trade with the wider economy are unfavourable to the Rendille. Under such circumstances they refrain from placing their livestock on the wider market except as a last resort and in times of great need for cash. This reluctance to sell is primarily caused by the state of the market and not by cultural considerations. Those who say that pastoralists are reluctant to sell because their needs are few are putting the cart before the horse. In a situation where the market is uncertain and prices low the pastoralist learns to aim only for a subsistence standard of living, otherwise he would risk the very livelihood of his household. Sufficient evidence exists to indicate that once pastoralists are guaranteed a stable market and good prices they do not hesitate to sell (Galaty *et al.*, 1981) and indeed improved marketing can cause major changes in the lifestyle, social organization, herd management practices and economy of pastoralists (Barfield, 1981).

The tendency for pastoralists to maximize their herds is motivated mainly by the desire to reap gains in good years as a buffer to losses in drought years. It is encouraged in circumstances where market facilities are inadequate and alternative sources of investment are lacking (Chapter 9, Section E). Where rich pastoralists can invest in agricultural land, trade, permanent

property, etc. they do so (Dahl, 1979; Barth, 1961). Already there are signs that the Gabra and Rendille are investing in agricultural land on Marsabit Mountain. This gives them an opportunity of investing other than 'on the hoof'. However, as long as livestock prices remain low this tendency will be inhibited due to lack of ready cash.

C. GOVERNMENT POLICY

It is unnecessary here to examine colonial policies towards pastoral groups in northern Kenya. Between 1963 and 1967 the newly independent Kenya Government was preoccupied with quelling guerilla activity in northern Kenya. It could only concentrate on development activities after 1967 when the Dar es Salaam Agreement brought the conflict to a formal end. Somali and Maasai pastoralists have benefited to some extent from the First Livestock Development Project (1968 - 1973) and the Second Livestock Development Project (1974 - 1982). However, the main focus in these national projects was on ranching and cattle production. The development needs of the pastoral economy of the Rendille were not considered. Its only role in the national plan was to contribute immature cattle to the ranching community, and even this operation was conducted on an irregular basis and sometimes even in an haphazard fashion. Little cognizance was taken of the fact that the Rendille kept mainly camels and smallstock, animals which are most suited to their arid lands. The exclusion of the Rendille from the main thrust of the livestock projects means that they still lack adequate veterinary services and a suitable network of water points. While the Kenya Government has assisted in establishing marketing facilities for agricultural products such as coffee and tea (export crops), and maize and beans (subsistence crops) it has yet to assist in creating adequate marketing facilities for livestock in spite of the finance invested in the Livestock Marketing Divison (L.M.D.) which at present is not operating (2). A restrictive policy towards the export of livestock, coupled with a cheap meat policy for home consumers, keeps livestock prices low and denies the Rendille adequate returns on what they produce and sufficient funds to develop their livestock economy.

D. LACK OF INCENTIVE IN THE LOCAL ECONOMY

This study of the pastoral economy of the Rendille and its linkages with the wider economy and polity sets the context for understanding their herding strategy of pursuing a line of least struggle (see Chapter 7, Section C).

Increasing livestock numbers rather than maximizing in terms of meat and milk production of individual animals or of the whole herd is his primary goal. No doubt he is concerned with the condition of his animals but he knows that this is subject to seasonal fluctuations. As long as the lactating animals' supply of milk is close to average and is adequate to sustain their young, leaving some milk for home consumption, he finds it unnessary to move to better grazing sites which involve an increased watering work load and greater risks of losing animals to raiders. In his view the law of diminishing returns applies. Under present marketing conditions the marginal improvement in the condition of his animals does not justify the increased work load or the greater risks involved.

In conclusion, poor market facilities and low prices have stunted growth in the Rendille pastoral economy and prevented any take-off above subsistence level. As a result the economy is poorly monetized and little specialization occurs. There are no in-built incentives to maximize production through investing extra labour in opening up new water points and grazing sites, and in investing in veterinary services other than in a limited way. Their economy is unable to afford specialists in non-herding occupations such as tradesmen to build cement lined and permanent wells, mechanics to maintain water pumps, commercial wood-cutters capable of transporting fuel and building material long distances, etc.

E. DEPENDENT OR SELF-SUSTAINING DEVELOPMENT

The above arguments lay the basis for reconciling and integrating the management of natural resources viewpoint with the anthropological approach. The adherents of both perspectives aim at a more rational use of the range. The problem is how best to achieve this goal. One solution is to forbid the Rendille from using over-grazed range and to open up alternative grazing for them by extending the present network of water points. Wood harvesting could be regulated and limited to those areas with sufficient woodland, and the wood transported to major Rendille settlements. This solution would undoubtedly have a measure of success, but it puts an emphasis on having an outside agency

do things for them and hence perpetuates dependency. What happens when the agency withdraws, as it eventually must?

An alternative way suggests going beyond an examination of the symptoms of range mismanagement and sets the problem in a wider context. It recommends that the Rendille be provided with a functional market system which would guarantee good prices on a regular basis. In the long run this would maximize production by providing livestock owners and herders with incentives to go beyond a strategy of least effort in seeking suitable grazing sites, in extending the network of water points, and in treating sick and weak animals. It would also greatly monetize their economy, improve their standard of living, and open the door for specialists such as tradesmen, veterinary technicians, mechanics, commercial wood-cutters and hauliers. In such a setting the Rendille could mobilize local resources while having the wherewithal to operate according to principles of proper livestock and range management. This would also enable them to relate to the wider economy not as dependents but as equal trading partners. This solution has the advantage of being self-sustaining and is workable even after the external agency has left.

Notes

1. A number of authors refer to the adverse effect on range management policy and planning when issues are viewed mainly in physical terms to the exclusion of the concerns of the people who use the range (Hjort, 1982; Johnson, 1980).

2. Indeed numerous reports submitted to the Government of Kenya have pointed out the need to develop proper pricing and marketing facilities for livestock (Chemionics, 1977; Gulf Development Consortium, 1980; Devres Inc., 1979; Matthes, 1979).

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THE GABRA

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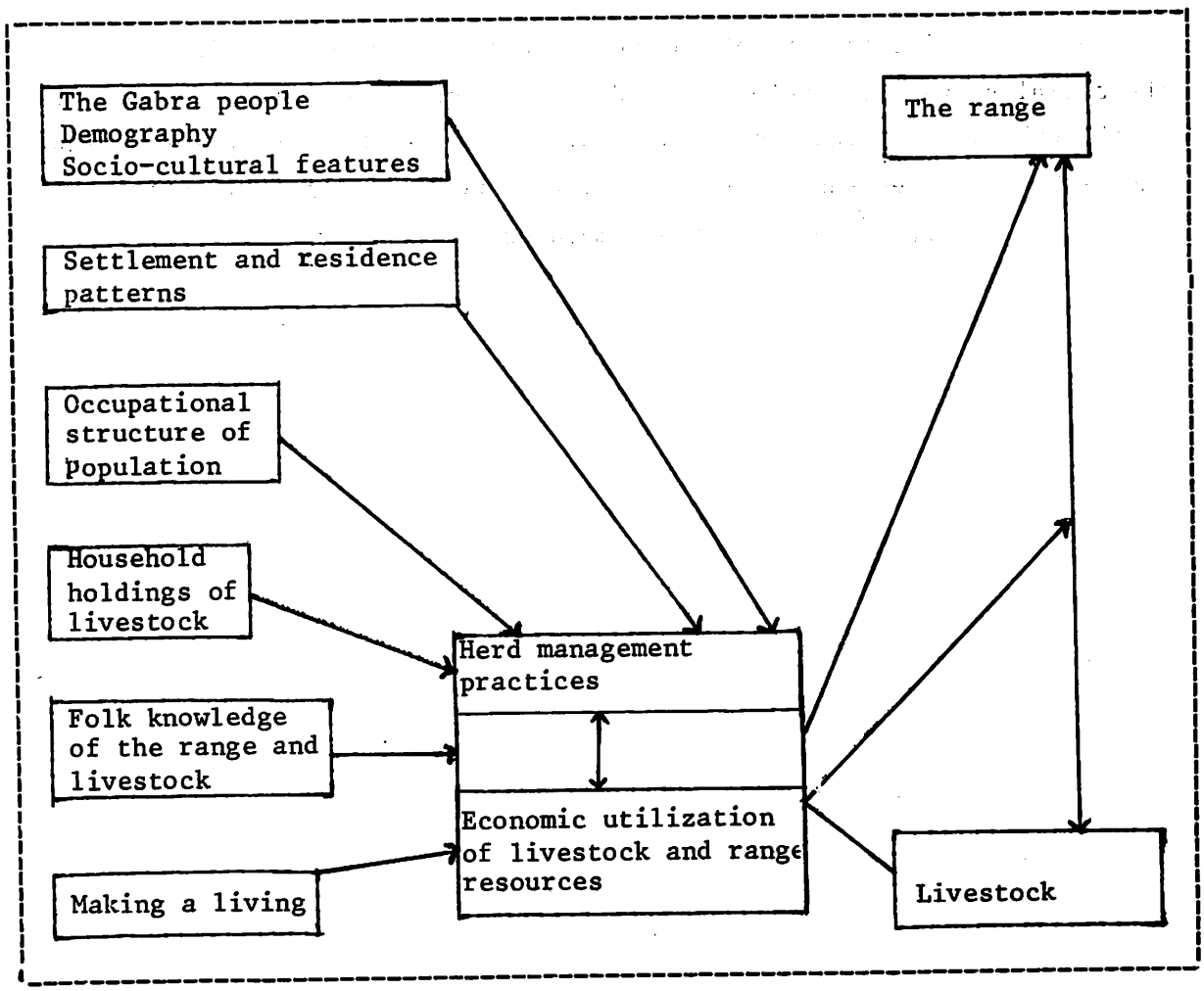
Chapter 1

INTRODUCTION

This is a preliminary report on the Gabra livestock production system. The time factor did not permit me to compare my findings with those of other anthropologists. The main focus was on producing a preliminary analysis of the data which the human ecology team collected in the field.

Figure 1.1 illustrates key factors in understanding how the pastoral system of the Gabra operates. This report concentrates on analysing these factors and some of the interconnections. Time did not allow me to write in detail on the impact of drought and outside contact (with the wider economy and Government) on the Gabra production system.

Figure 1.1 Key factors of the Gabra pastoral system



Time was insufficient to consider learning the Gabra language as is the normal practice of anthropologists. However IPAL gave me the resources to employ three full-time field assistants, namely Messrs Paul Guyo Wata, Dominic Dabasso and Denge Dokata. All are fluent in three languages: Gabra, English and Swahili. Much time was spent in training them in anthropological approaches. Mr. Hussein Yusuf also spent some time working as a senior field assistant with the human ecology programme.

To assist me in the analysis of my data I bought at my own expense an Apple II Europlus and IPAL provided financial resources to employ on a part-time basis Dr. Frank Damm, Department of Physics, Kenyatta University College. He prepared computer programmes which accepted and analysed much of my data.

An interesting feature of the human ecology programme of IPAL was the aerial surveys conducted to study the movement and settlement patterns of the Gabra. Dr. Hugh Lamprey initiated me into the necessary techniques and he and Mr. Stephenson acted as pilots. We conducted four aerial surveys over certain parts of the homelands of the Gabra.

Chapter 2

THE GABRA PEOPLE

A. THE GABRA CLANS

The Gabra are divided into five sections (*gosa*) which will be referred to as clan sections. These are Algana, Gara, Galbo, Odola and Sharbana. The first three are the major clan sections and in a manner they have their own home ranges. However, the association between clan, section and territory is not well defined and does not imply land ownership nor the exclusion of non-members. The Algana are linked with rangelands in the North Horr area, the Gara with rangelands in the Hurri Hills and Kalacha, and the Galbo frequent the area of Maikona. On the ground the Sharbana mix mainly with the Algana and the Odola move with the Galbo. Clan sections are ranked according to the following order of ritual seniority - Sharbana, Odola, Gara, Galbo and Algana.

Clan sections are divided into clans (*balballa*) and these are further segmented into subclans and lineages (*wora*) of shallow depth. Within each clan section clans are grouped into two moieties, referred to as senior clans (*yiblo*) and junior clans (*losa*) (1)

The functions of clans are various. Clan mates procure livestock for impoverished households and for the poor who lack sufficient bridewealth stock, and clan members give easy access to each other's wells. Ideally a man marries within his clan section but from a clan other than his own. Clan elders are custodians of good behaviour and clan morality, and settle disputes. Clan elders also arrange schedules to regulate the use of waterholes. In general the 'model' Gabra is one who acts responsibly in matters concerning his clan and lineage and never disowns a clan mate who is in need.

B. THE GABRA GENERATION SET SYSTEM

The Gabra generation set system is a complex one to explain (Torry, 1973, 1978) and is made all the more complex because of variations in practice between different clan sections. The following description applies to the Algana. All members of this clan section are divided into three named generation sets (*luba*) - Dhadhu, Haro and Galgallo. A man whose father belongs to the Dhadhu generation set will himself be born into Haro, and his son in turn will belong to Galgallo. The generation set system acts as a timing mechanism to ascertain when individuals (male) move from one social grade to another. Amongst the Algana there are two principal grades: political leader, and *dabella* (ritual leader) and two pre-grades, children and young men. A social grade implies a certain set of rights and obligations. Members of the political grade are primarily responsible for every-day juro-political affairs and the *dabella*, as suggested by the term, are ritual functionaries.

Every eight years members of one generation set celebrate the Jilla rites (2). All members of the generation set of the participants are promoted one step in the social grade scale. Those who are promoted to the political grade select amongst themselves a number of political functionaries known as *jallaba*. The most senior of these political positions is the *hayu*. One *hayu* from each moiety is chosen. Each *hayu* with the *jallaba* who represent their respective clans usually take up residence in a common camp known as the *yaa* camp which 'constitutes a a mobile administrative and spiritual hub' of the clan section (Torry, 1978). Three other functionaries live at the *yaa* camp - the custodians of the firestick, horn and drum. The custodian of the firestick always belongs to the Ario subclan, the custodian of the horn is a member of the Diisa subclan, and the custodianship of the drum is the prerogative of one of the following four clans - Baruga, Alano, Utho, and Dosila. The *yaa* camp performs as a high court of the clan section and daily rituals and prayers are conducted for the welfare of the people and stock of the clan section.

Clan leaders are influential people and determine in many instances what clan policy ought to be towards major issues such as for whom should the clan vote in local and national elections. Candidates in elections are keen to court their support directly or indirectly. The Gabra belong to the North Marsabit constituency which also includes residents of Marsabit Town who belong to a variety of ethnic backgrounds: Gabra, Boran, Burji, Somali, Rendille and others. However, the Gabra are in the majority. The first M.P. from North Marsabit was a member of the Gara clan section and the second was a member of the Galbo clan section. Competition between Gabra candidates was mainly responsible for the election of a Burji candidate as the North Marsabit M.P. between 1974 and 1979. The incident was a warning to the Gabra that the number of Gabra candidates in future elections had to be reduced. In 1979 the former Galbo M.P. was re-elected. The present M.P. is a member of the Algana clan section. Certain Gabra observers note the fairness in rotating the parliamentary seat between the three major clan sections.

C. POPULATION STATISTICS

The national population census of 1979 gives the following breakdown of the Gabra population:

Table 2.1 Gabra population figures

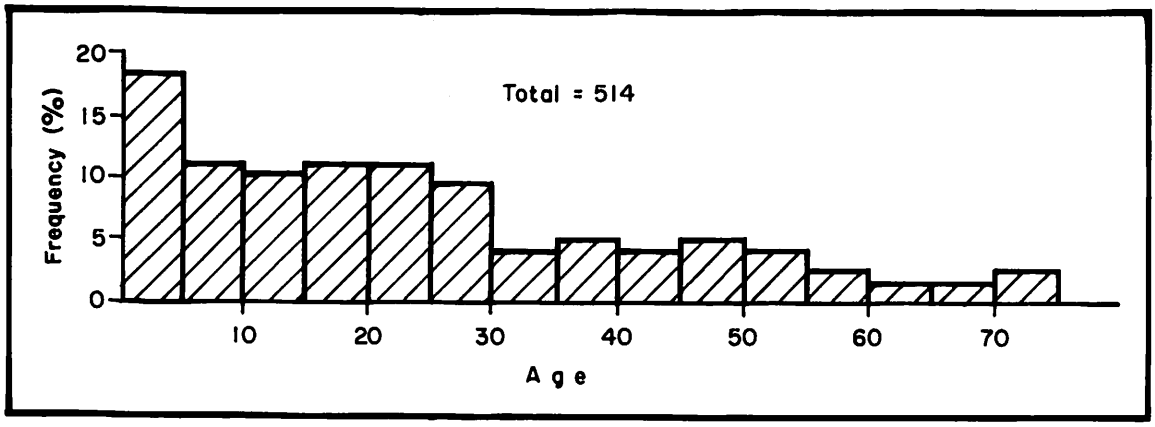
Area	Male	Female	Total
Kenya	15,467	15,086	30,553
Marsabit District	11,949	11,461	23,410
Gabra homelands	11,262	10,473	21,735
North-Eastern Province	3,147	3,339	6,486

Source: Kenya Population Census, 1979. Volume 1, pp.71, 131, 150 and 156.

These figures indicate that 71.1% of the Gabra live in their Kenyan homelands, 5.5% elsewhere within Marsabit District and 21.2% reside in the North-Eastern Province, particularly in Wajir District, while 2.2% live elsewhere in the Republic.

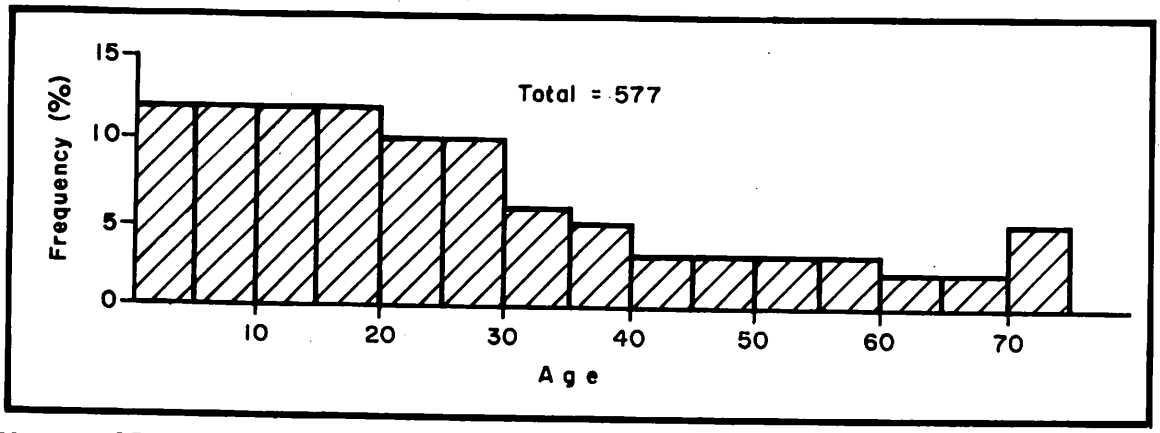
From our own data on the age/sex of 1,091 people the following tables and histograms were derived.

Figure 2.1 · Ages of females



Mean: 24.8
Standard deviation 19.8

Figure 2.2 Ages of males



Mean: 25.5
Standard deviation: 19.4

The above figures indicate a bias towards males in the population. For example, the sex ratio for the total population studied is 100:89 (i.e. 89 females to 100 males). This is a demographic feature of nomadic societies. Table 2.2 outlines the sex ratios of the population when divided into age categories.

Table 2.2 Sex ratios according to age categories

Age category	Sex ratio
0-4	100:132
5-9	100:77
10-14	100:75
15-19	100:79
20-24	100:102
25-29	100:75
30-34	100:57
35-39	100:79
40-44	100:100
45-49	100:141
50-54	100:120
55-59	100:70
60-64	100:109
65-69	100:122
70-	100:65

Sex ratios vary between age categories. Although there is an overall majority of males in the population, there is a numerical predominance of females in the 0-4, 20-24, 45-49, 50-54, 60-64 and 65-70 age categories. The male bias weakens in the older age categories. For example, the sex ratio of the population younger than 40 years is 100:89, while amongst people 40 years or older the ratio is 100:98.

The male bias cannot be explained by the fact that more care may be given to male infants and children, because greater incidences of male infant and child deaths were recorded. The Gabra do not admit to any discrimination between the sexes in the care of young children.

Another demographic feature gleaned from the tables is the youthful structure of the population. Those under the age of twenty constitute 48.8% of the population, those under the age of twenty-five 59.1%, and those under thirty, 68.7%.

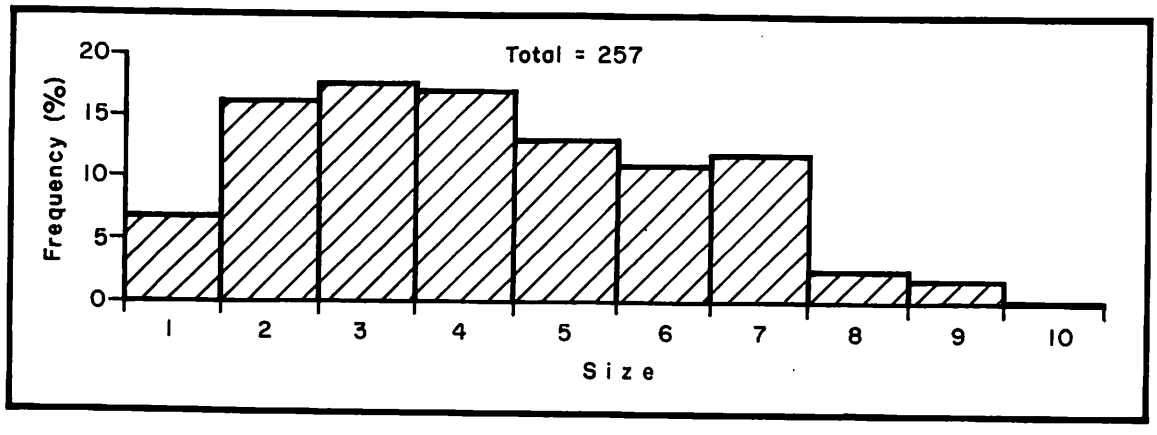
D. HOUSES AND HOUSEHOLDS

By a house we mean the group of people attached to a dwelling house or a tent. Each house normally has an adult woman who is either married (and hence under the care of her husband) or widowed. Included in the house are all the unmarried children of the woman of the house, and those who have been adopted or hired in.

The household is defined as the smallest domestic group which owns its own independent smallstock herd (Dahl, 1979). The household may consist of one or more houses depending on how many wives the household head has, and whether he still lives with his widowed mother, married brothers and sons and depends on a shared herd. Our concept of household differs with Dahl's concept in so far that she defines it as 'a residential local unit'. We define it primarily as an ownership unit irrespective of whether all its members reside together at any particular time.

The following figure shows the distribution of house size.

Figure 2.3 House size

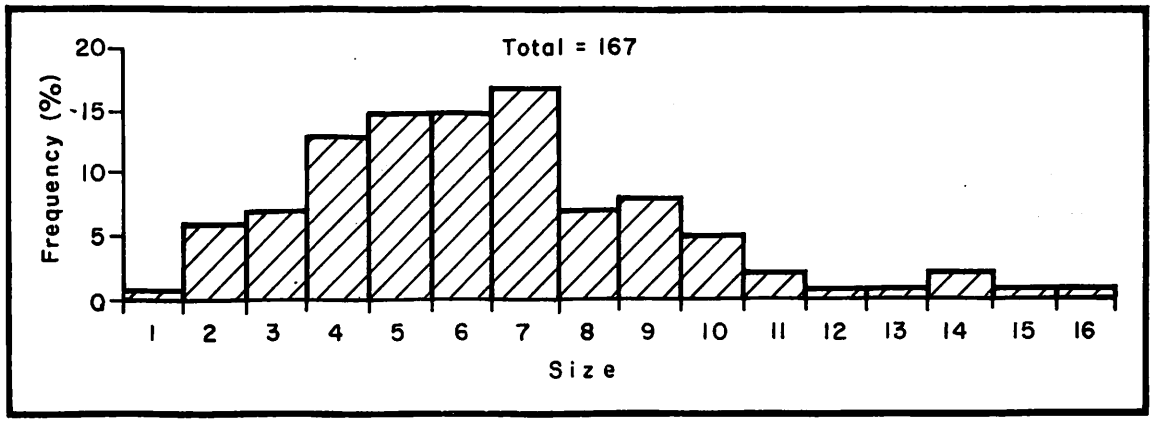


Mean: 4.2

Standard deviation: 2.1

Figure 2.4 shows the distribution of household size.

Figure 2.4 Household size



Mean: 6.3
Standard deviation: 2.7

The Gabra household is relatively large because of the tendency of men to stay with their fathers and brothers and share a common herd until they have at least teenage children of their own.

E. THE DEVELOPMENTAL CYCLES OF HOUSEHOLDS

The developmental cycles (or paths) of typical households incorporate one to four of the five phases outlined below, and these phases are linked in a variety of ways. Phase 4 applies only to polygynously based households.

Phases in developmental cycles

Phase 1

Households containing one man, his wife or wives, unmarried children, married sons and sometimes his widowed mother.

Phase 2

The same as above but from which at least one married son has departed before his father's death to set up an independent household or where at least one of the wives of the father resides elsewhere while he is alive.

Phase 3

Sons remain in common residence after their father's death under the authority of the eldest son when at least one of them is married; when all sons are minors, co-widows decide to remain together, while the single widow lives on her own with her son(s).

Phase 4

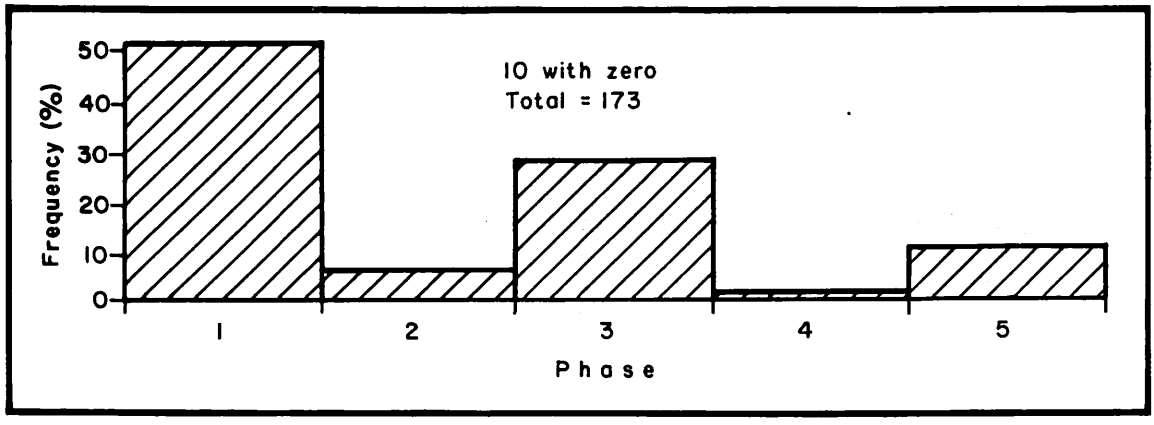
Half-brothers begin to separate while full-brothers share a common residence; when all sons are still minors co-widows separate to establish distinct households.

Phase 5

Full-brothers begin to separate, and also includes the case where the widowed mother is left on her own.

Among one group of agro-pastoralists it was found that where land is available married brothers who depend mainly on the local economy for their livelihood tend to separate and establish independent households on their own land. On the other hand, where brothers depend greatly on labour migration they tend to place their wives back at home in a common homestead where a stay-at-home brother takes care of their wives and supervises their interests in livestock and cultivation (O'Leary, 1983 and 1984). Amongst pastoralists who depend mainly on livestock for their livelihood it is expected that in many instances a brother will delay his permanent departure from his other brothers until he is assured that he has access to sufficient livestock and labour to support his household. He may well be middle-aged before he achieves this.

Figure 2.5 Phases of households



Note: Zero in this instance means house phase is unknown.

Forty-four percent of houses belong to households constituted by at least two brothers residing together. This indicates a high degree of co-operation between brothers since most brothers who reside together also share a common herd.

Elsewhere (Chapter 5, Section B) it will be shown how a man can build up his own independent herd. Here it is sufficient to state that the oldest son inherits the greater part of his father's herd. He is responsible for all the stock of his brothers as long as they reside with him. Serious conflicts over how he exercises this responsibility can cause a rift between him and younger brothers which eventually leads to them separating. The Gabra custom which prescribes that young married couples should reside with the bride's family for at least two to three months immediately after the wedding provides disgruntled younger brothers with an opportunity of making a final break with their oldest brother if they so wish and if their affines agree.

F. ADOPTION AND HIRING

Adopting (*gudhis*) of children is common and may take place within a household which is constituted by two or more houses. For example , a woman who has sons may be expected to offer one for adoption to a co-wife who is without sons. In Gabra society women long to have sons because a son gurantees them security in old age. Sons have the right to inherit their father's livestock. In this way mother/widows can lay claim to stock, otherwise they are only entitled to their own dowry stock and the offspring of these stock. However, many of these stock may have been either slaughtered or sold and hence may be insufficient to support a widow in her old age. She depends primarily for the rest of her livelihood on the person who inherits the animals of her deceased husband. Such a person is regarded as a reliable source of livelihood only when he is her own son.

In other instances of adoption poor households with many children may allow close kin who have large herds and who are in need of herding labour to adopt children. Where adoption is permanent the Gabra say that the adopted child assumes the same rights as the other children of the household. Thus an adopted boy will expect his foster father to obtain bridewealth for him when he marries. Genuine orphans are also adopted, usually by close kin. Children are viewed not as liabilities but as assets adding to the

labour of the household. In addition boys will eventually provide security in old age and girls bridewealth when marrying.

Children can be temporarily 'loaned' to a household which is experiencing a shortage of labour. This practice is known as *erga*. Hiring on a more permanent basis also occurs. However in such cases remuneration is not specified beyond the generalized right of the hired to receive gifts of lambs and kids.

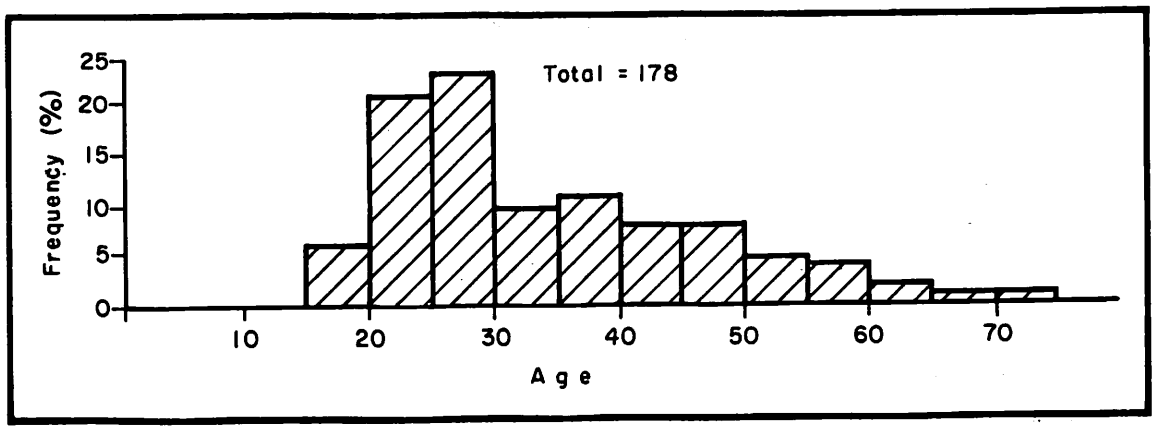
G. MARRIAGE STATISTICS

Bridewealth ideally is paid in camels: two uncastrated males and one young female animal. However cattle can be substituted for camels. The bride obtains dowry stock from her family and kin. These stock help the young couple to build up a subsistence herd. The groom also obtains gifts of stock from close kin.

A number of factors delay marriage for men. Men can only marry when their mothers have reached menopause. Younger brothers have to wait until their older brothers have married. The head of the household must be assured that the household herd is sufficient to support yet another son who wishes to marry.

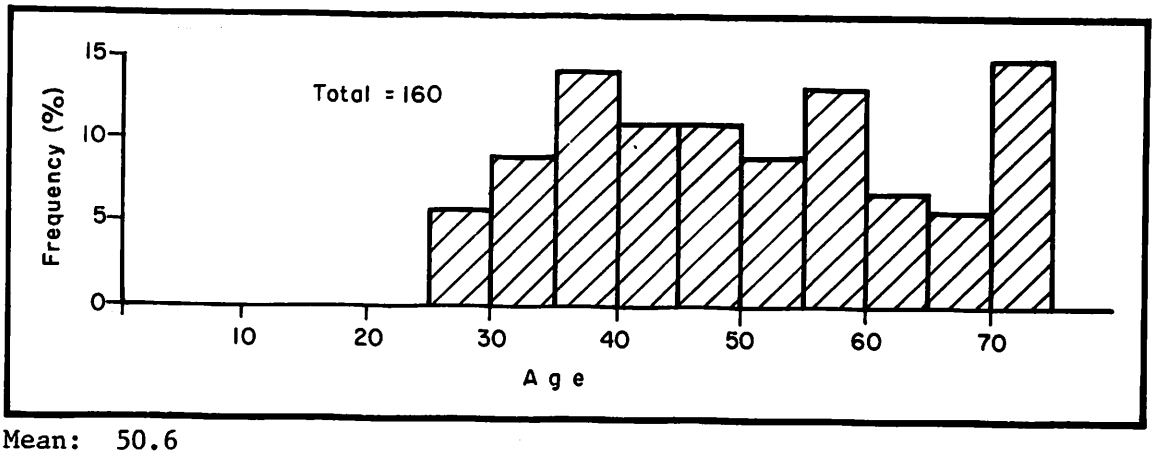
The following figures illustrate the ages of married men, married women and the age differences that exist between them.

Figure 2.6 Ages of married women



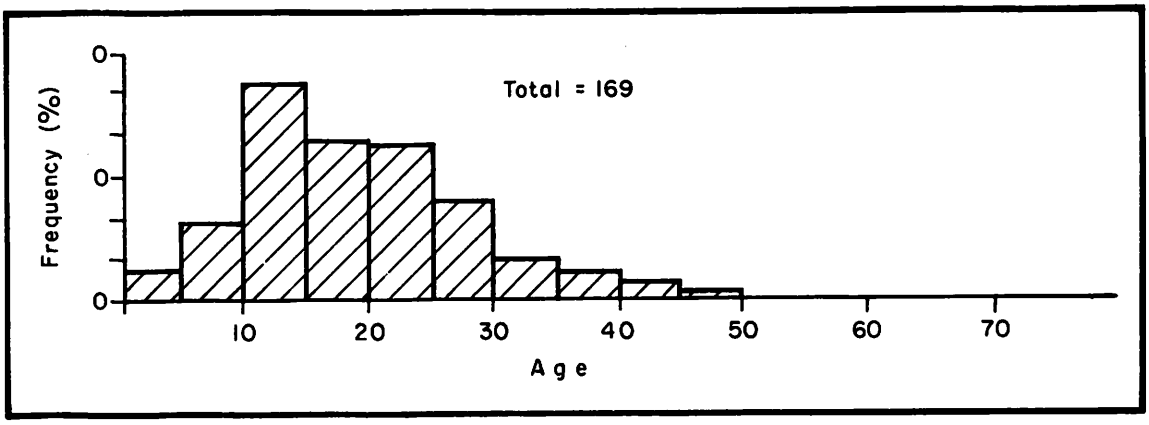
Mean: 34.1
Standard deviation: 12.5

Figure 2.7 Ages of married men



Mean: 50.6
Standard deviation: 14.1

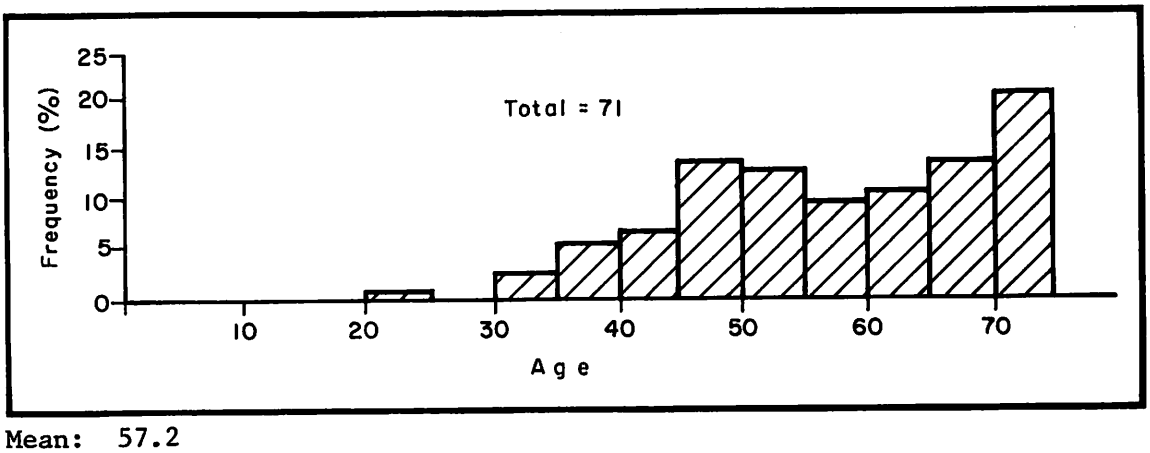
Figure 2.8 Age differences of married couples



Mean: 18.7
Standard deviation 8.9

In a society where men are frequently much older than their wives it is expected that a sizeable percentage of adult women are widows. This is illustrated by Figure 2.9. Overall 44% of women over twenty-nine years of age are widows, while 61.5% of women forty-five or older are widowed.

Figure 2.9 Ages of widows



Mean: 57.2
Standard deviation: 12.5

Table 2.3 outlines the number of wives married men have. Polygynous marriages only account for 10.6% of all marriages recorded and few men have more than two wives.

Table 2.3 No. of wives per married man

1	143
2	15
3	2

Mean: 1.1
Standard deviation: 0.4

Notes

1. For a comprehensive list of Gabra clans see Torry, 1973.
2. The sites for these rites vary with the clan section. The Gabra hold their *jilla* rites at Melbana, Algana and Gobso, the Galbo at either Forole or Melbana Daviti, the Sharbana at Nagayo, and the Odola at either Uruburo or Torbi. Except for Torbi, which is in Kenya and Forole which is on the Kenya-Ethiopia border, all the other places are in Southern Ethiopia. This underlines the extent to which Ethiopia is still culturally important to the Gabra.

Chapter 3

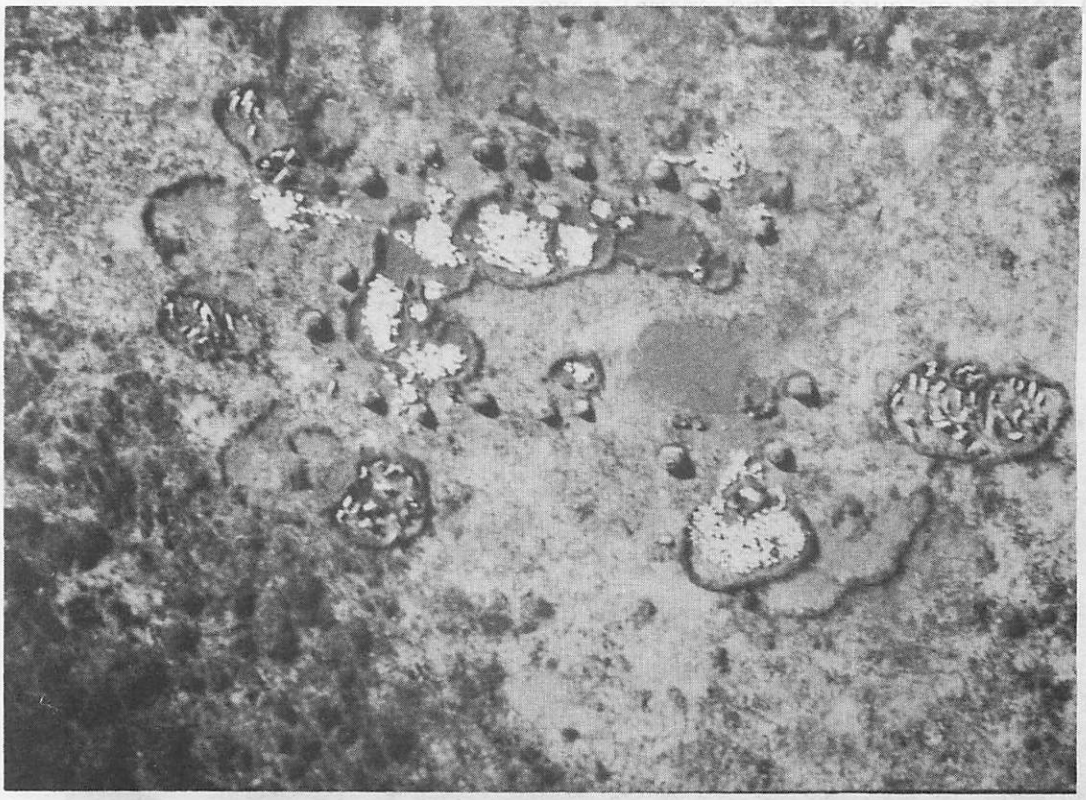
GABRA SETTLEMENT AND RESIDENCE PATTERNS

A. GABRA PASTORAL CAMPS

Settlement refers to the layout of pastoral camps, their size (i.e. the number of houses or tents to each camp), location and movement. It is what one observes from an aircraft. The study of residence goes a step further and focuses on how the people who occupy settlements are grouped and what principles govern these groupings. Such information can only be obtained by living in camps and observing and interviewing residents and becomes essential when studying the patterns of co-operation between households in penning and herding livestock.

The Gabra have two different types of settlements: main camps (*hawicha*) and satellite camps (*fora*). Figure 3.1 is an aerial photograph which illustrates the layout of a Gabra main camp.

Figure 3.1 Aerial photograph of a Gabra main camp



Gabra houses face in a westerly direction. This means that the backs of the houses face the prevailing winds which come from an easterly direction. In some instances houses are arranged in a crescent shape, in other cases they follow almost a straight line. Smallstock are penned directly in front of the houses. This enables the house dwellers to keep an eye on them at night time because they are easy prey for hyena. Camels are penned behind the houses, while cattle pens are frequently located in front of the houses. Calves, kids and lambs are kept separate from the adult animals and have their own special pens near or within the pens of the adult animals. Young kids and lambs are kept separate from the older ones. However, in some instances kids and lambs are divided into three categories - those just born, those 2-3 months old and those 4-5 months old - and each category is penned separately. The quality of fencing depends on the availability of wood and whether predators are known to be in the area. Usually the camp itself is not surrounded by a fence. The main exceptions are the large camps (known as karatina) at Dukana built for the purpose of defence against raiders.

The satellite camps are circular in shape and consist principally of pens for the animals and a small enclosure for the herds which may be located inside or outside the animal pens.

Figure 3.2 Aerial photograph of a Gabra camel satellite camp



B. THE SIZE OF MAIN CAMPS

The table below gives the frequency of camp size (i.e. the number of houses attached to a camp) over four different aerial surveys. Three of the surveys were conducted in dry conditions, while the fourth (May 1982) took place in a wet season. All camps surveyed were country camps(i.e. located on the range).

Table 3.1 Camp size in Gabra country

No. of houses per camp	Frequency			
	January 1982	March 1982	May 1982	August 1982
1	19	22	20	9
2	21	40	28	33
3	24	29	31	29
4	17	42	31	35
5	23	27	26	30
6	10	20	22	16
7	11	11	8	15
8	8	15	11	20
9	4	4	7	4
10	2	5	3	8
11	5	4	3	5
12	6	3	3	2
13	6	2	1	4
14	1	2	5	8
15	1	1	1	2
16	1	2	1	5
17	0	0	0	2
18	0	0	1	0
19	1	2	1	0
20	1	1	0	1
22	1	0	1	0
23	0	1	0	0
30	0	0	0	1
31	0	0	1	0
32	1	0	0	0
Total no. of houses observed	916	1,157	1,065	1,366
Total no. of camps observed	163	233	205	229
Mean size of camp	5.6	5	5.2	6
S.D.	4.6	3.7	4	4.2

C. GEOGRAPHICAL DISTRIBUTION OF HOUSES/MAIN CAMPS

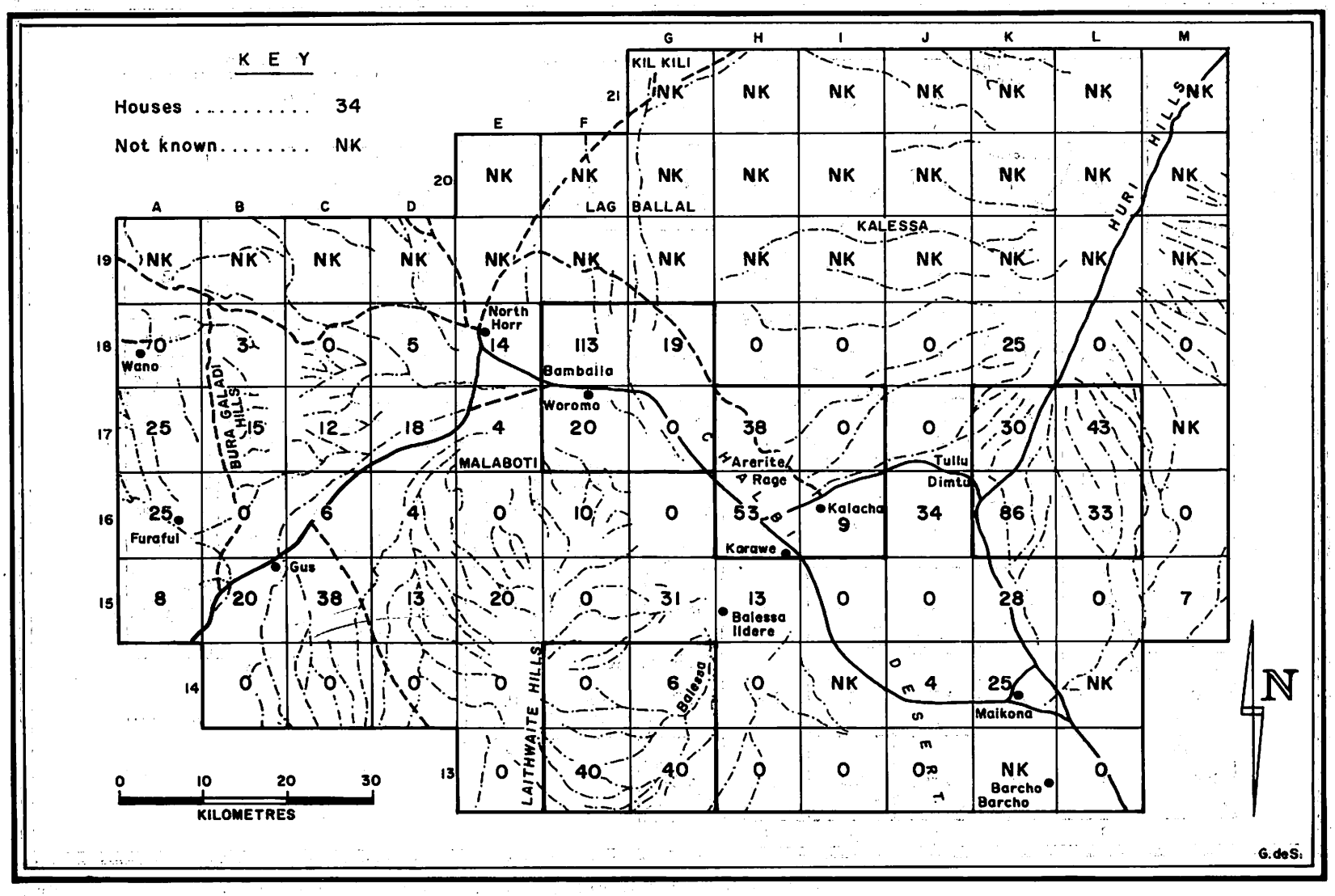
Maps 3.1 - 3.4 demonstrate how Gabra houses were distributed over the range in January, March, May and August 1982. Table 3.2 categorizes the map quadrants - each represents 100 sq km of rangeland - according to the number of houses they contain and the month in which the aerial survey was conducted.

Table 3.2 Density of settlement per 100 sq km of range (1982)

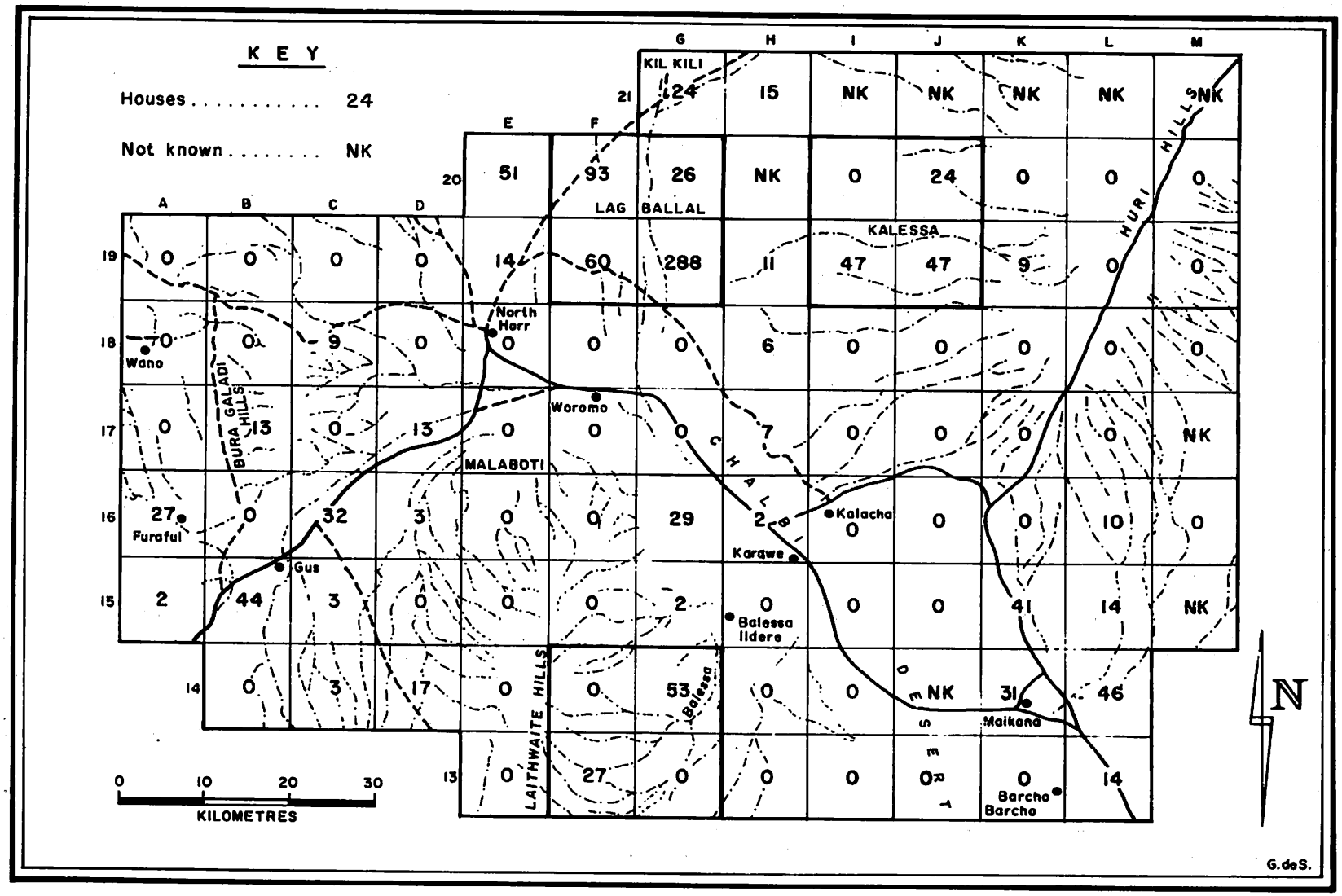
No.houses per 100 sq km	Frequency			
	January	March	May	August
0	29	54	47	45
1-19	18	19	21	22
20-39	14	8	9	10
40-99	5	9	8	10
100-199	1	0	1	3
200-299	0	1	0	0
N.A.	33	9	14	10
Total no. of quadrants occupied	38 (56.7%)	37 (40.7%)	39 (45.3%)	45 (50%)

A number of conclusions can be dervided from these data. There are seasonal changes in settlement distribution. In January 1982 the Gabra who resided in main camps (within the area of the survey) occupied 56.7% of their rangelands. This declined to 40.7% in March and increased to 45% and 50% respectively in the months of May and August 1982. In other words the geographical spread of Gabra settlements was at a maximum in January and at a minimum in March.

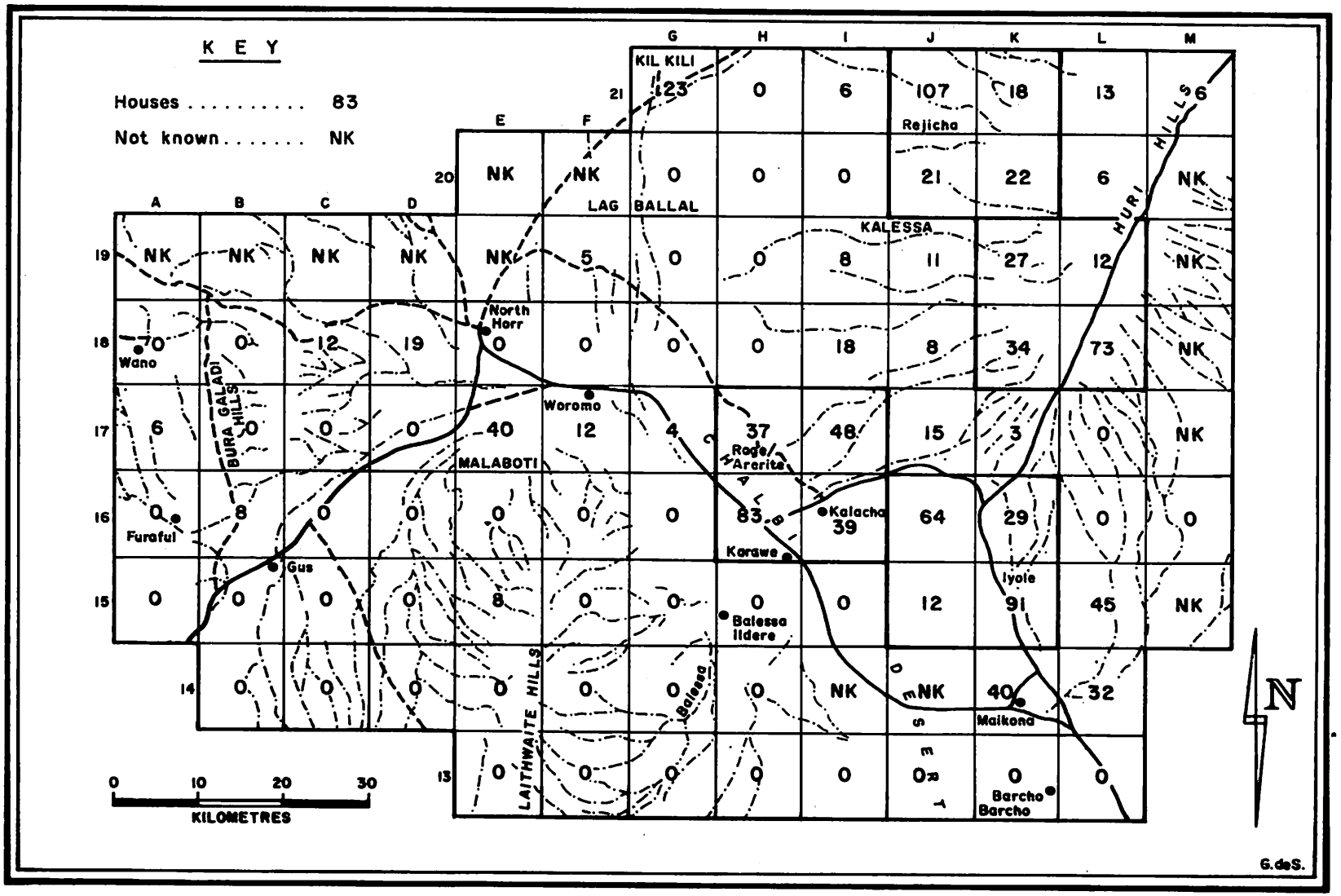
Map 3.1 The geographical distribution of houses in January 1982



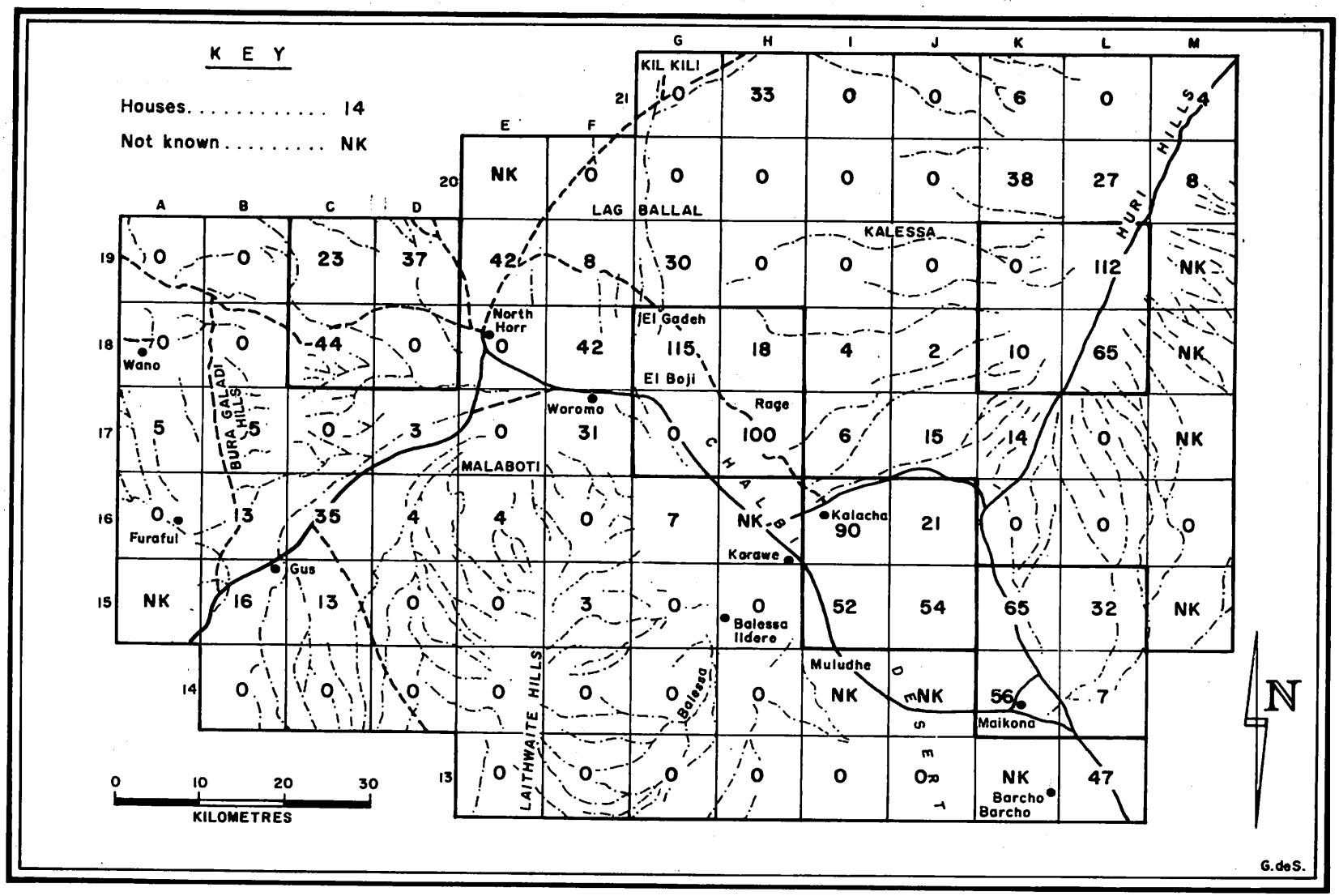
Map 3.2 The geographical distribution of houses in March 1982



Map 3.3 The geographical distribution of houses in May 1982



Map 3.4 The geographical distribution of houses in August 1982



The month of January 1982 came at the end of a long dry period beginning in June/July 1981. Some localized rain fell in the vicinities of Tullu Dimtu and Balessa Ildere in December 1981. These rather light rains attracted a certain number of pastoralists who remained on in these areas until at least January 1982 as Map 3.1 shows. In January 1982 the rest of the nomadic community resided at Bamballa (where there was a high concentration of camps), Arerite/Rage or elsewhere but thinly spread on the ground. There were a number of reasons for this settlement pattern. Bamballa was not used much in the Easter 1981 rain season and contained sufficient dry-season grazing even in January 1982. In addition smallstock and camels using the area could be watered at the North Horr springs. Furthermore the El Gadeh waterholes were nearby and could provide water for domestic use and cattle. A salient feature of the January 1982 geographical distribution of camps is that very few of them were located near the permanent springs of the Chalbi which are major water points. The Gabra tend to come close to these springs in the early stages of the dry seasons so as to use the range close to them first. As the dry season progresses, and the vegetation cover in ranges close to the springs thins out, the majority perforce move further away. Parts of the Gabra rangeland which are some distance from the springs are serviced by dug waterholes in such places as Rage, El Gadeh, El Boji, Balessa Ildere, etc. Other parts of the range such as the mid-range slopes of the Hurri Hills lack any local sources of permanent water and therefore are not suitable for herding cattle in dry seasons. However, they are accessible to smallstock and camels, although the task of bringing livestock to water and of drawing water for domestic use and young animals (unable to walk to water) is a formidable one. Hence pastoralists using such areas in dry seasons are very keen to move away immediately to any area which receives rain.

In February 1982 out-of-season downpours occurred at Lag Ballal and Kalessa (Map 3.2). As soon as the news spread the Gabra pastoralists abandoned most of their dry season areas and flocked to the rain. This explains the relatively high concentrations of settlements in March 1982 at Lag Ballal and Kalessa (Map 3.2). Lag Ballal was the preferred place because it is closer to permanent water than Kalessa. The latter attracted mainly people with camels. Tullu Dimtu and Bamballa, which had high

concentrations of people in January, were totally abandoned in March (Maps 3.1 - 3.2). Most of the people who resided at Arerite and Rage in January also moved towards the rain (Maps 3.1 - 3.2). The opportunity of being able to provide fresh vegetation for animals during the end of a long dry period was irresistible. The majority of nomads living at Balessa Ildere decided against moving because of the long distance between their place and where the rain had fallen. It was perceived as too risky moving animals long distances in dry conditions. The decision to stay was taken in spite of the fact that at the time Balessa Ildere was an area of high security risk because of clashes which took place there in December 1981 between Rendille and Gabra.

The Easter rains eventually came in April 1982. At the beginning there was uncertainty about the exact location of the heaviest downpours and this in itself caused some confusion in the nomadic community. The people at Lag Ballal divided: some went northwards towards Kil-Kil, others moved south-westward across the Chalbi to their normal grazing areas near Malaboti, but the majority moved south-eastwards away from the Dassanetch who are feared. We were in Lag Ballal at the time and the following notes are taken from our fieldwork observations.

> 'In April 1982 at Lag Ballal a shooting star was spotted and a rumbling sound heard. These signs were interpreted by a local diviner (*yub*) as portending a raid and the slaughter of people. This interpretation played on the genuine fear of attack from the Dassanetch in areas north or north-east of North Horr. A group of Dassanetch had indeed been discovered in early April 1982 north of North Horr and a contingent of police had been dispatched to assess the security situation.
>
> This fear of the Dassanetch was real and affected people's decisions about where to move. Only those who were willing to take risks moved northwards towards Kil-Kil - a possible target for Dassanetch raids - where rain was reported. The majority moved south-eastwards away from possible raids.
>
> People made movement decisions with an eye to later moves they wished to make. For example people who moved southwards would be best positioned to move to the southern slopes of the Hurri Hills at a later date. Those who moved northwards would probably head later towards the western slopes of the Hurri Hills. It was realized that decisions taken today affect later options.

> In general people opted for grazing sites which would support all species of animals since they wanted all household members and stock to be present at the main camps for the celebration of the Gana Sorio which was to take place in May. Most camps - but not all by any means - sent out scouts to ascertain where the downpours were heaviest. However, some scouts failed to come to clear-cut assessments. Much information was distorted so as to keep secret from others - at least for a while - the location of optimal grazing sites.
>
> Some large livestock owners plan to avoid areas of high concentration of livestock and people, and instead opt for quiet secluded spots and consequently they try to shake off others from following. Some people intended to move in the direction taken by the Yaa camp which was in the locality, since they like to keep in close association with it.
>
> Others, particularly the aged camp leaders, opt to localize as much as possible their movements and reduce to a minimum distance in moves to new grazing sites.
>
> Women can also influence the decision (*mari*) of where to move. One man in the area was known to be under the influence of his wife. In general women have a negative impact by emphasizing to their menfolk that such and such a place will not be good for the welfare of the young children or young animals, etc.'

The above observations indicate that the factors which influence decisions regarding movement are multiple, complex and interrelated. The relative weight of any one factor varies from household to household, and within households from season to season. Movement is deeply embedded in the nomad's culture and mirrors all the concerns, likes, and fears of a variegated group of people - finding forage for the animals, some minimize security risks others don't, some heed the wisdom of diviners, others don't, most aim to have all the camp's personnel and stock together for the celebration of *sorio* festivals and weddings, some heed their wives others don't, the loners who are frequently the successful ones, avoid overcrowded grazing sites, some, particularly those who are no longer young, avoid travelling long distances, etc.

By May the Gabra pastoralists had finally settled into their rain season grazing sites. The largest conglomerations of camps existed in areas where most rain fell - Hurri Hills, Rage/Arerite, Iyole and Rejicha (Map 3.3). By August the Gabra nomads began to move towards permanent springs (Maikona, Muludhe, Karawe, Kalacha and Gus) and waterholes (El Gadeh, El Boji, Rage and dry river beds west of North Horr). The only exception was the large

encampment of people on the Hurri Hills (Map 3.4) The vegetation towards the eastern slopes of these hills was still green in August. This enabled smallstock to graze there without water; and camels who were using this area could make the long trek to Kalacha springs for water once or twice a month.

D. THE LOCATION OF SATELLITE (*FORA*) CAMPS

The Gabra frequently send away all their cattle from the main camps to satellite camps. Households with large numbers of smallstock and camels divide them into home-based herds (*hawicha*) and satellite herds (*fora*). The majority of the former herds are frequently milking females, while the majority of the *fora* stock are usually male or non-milking females. However a number of milking females are assigned to the *fora* herd to supply the herders with some milk. In drought periods when the survival of stock is a high priority the tendency is to send more and more of the home-based stock to join the *fora* herds.

There are a number of reasons for the spatial division of herds and flocks.

1. By moving substantial numbers of stock away from the main camps the rate of use of the pastures surrounding the main camps is minimized. This has the effect of reducing the frequency with which main camps have to move.
2. The rangelands show an inherent variation with respect to temperature, terrain, type of vegetation, availability of water and the prevalence of disease vectors. The effort to match the needs and characteristics of the different animal species with suitable range niches frequently necessitates the spatial division of herds not only into home-based herds and satellite herds, but also into separate camel, cattle and smallstock herding units.

This practice facilitates the utilization of a variety of rangeland niches at any one time and hence maximizes production. The extent to which any particular household divides its animals depends on the size of its herd and the amount and quality of labour available to it.

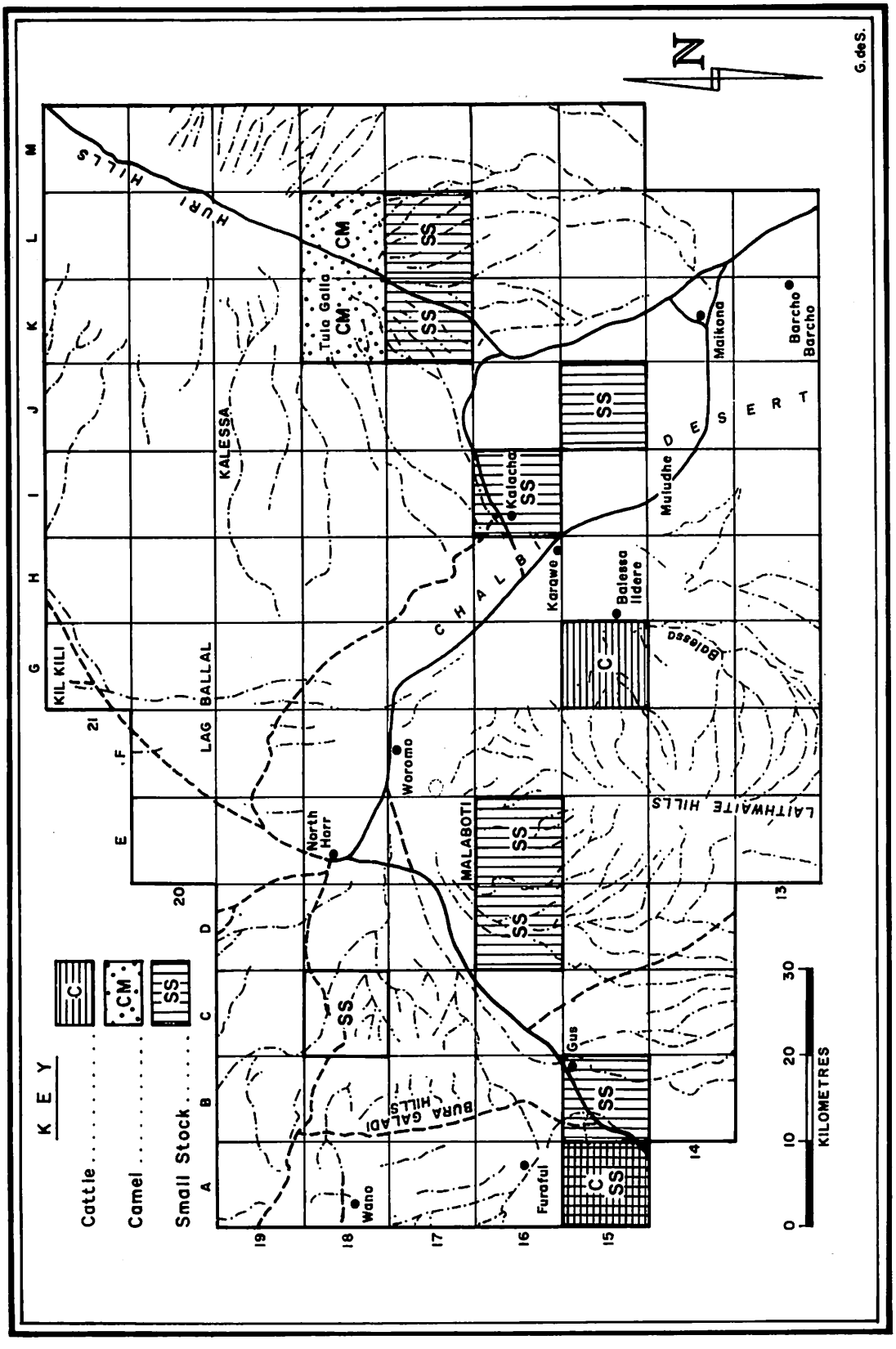
Maps 3.5-3.8 outline the distribution of satellite camps in Gabra country in January, March, May and August 1982. The aerial survey data on which these maps are based indicate seasonal variations in the occurrence of satellite camps. The number of satellite camps which are organized for all species of animals is at a maximum in dry seasons and at a minimum in wet seasons. When the rains come the household head aims to bring all the members and stock of his household back for the celebrations of *sorio* if they happen to occur then. However, the practice of having *fora* stock back in the main camp in wet seasons depends on the distribution and volume of rain and the species of animal in question.

In good wet seasons most households have all their camels back. No camel satellite camps were observed in May 1982 (Map 3.7). Smallstock may or may not be brought back depending on the distance they have to travel to reach home and the quality of grazing surrounding the main camp. This explains why some smallstock *fora* settlements were observed in May 1982 (Map 3.7). The Gabra household - whose cattle are normally away in *fora* in dry seasons - generally relish the prospect of having them back in the main camp when the rains arrive so as to enjoy cow milk. Then it is frequently heard said 'If we cannot enjoy the milk of our cows now we will never do so'. However, in opposition to the above practices, some households keep their cattle away permanently in places as far away as southern Ethiopia. Some of those who have their cattle back at the main camps for wet season festivals frequently dispatch most of them to *fora* camps soon after the celebrations. This explains why a number of cattle *fora* settlements were observed in May 1982 (Map 3.7). In fact in April and May 1982 the Hurri Hills attracted *fora* cattle from both sides of the Kenya-Ethiopia border (Map 3.7).

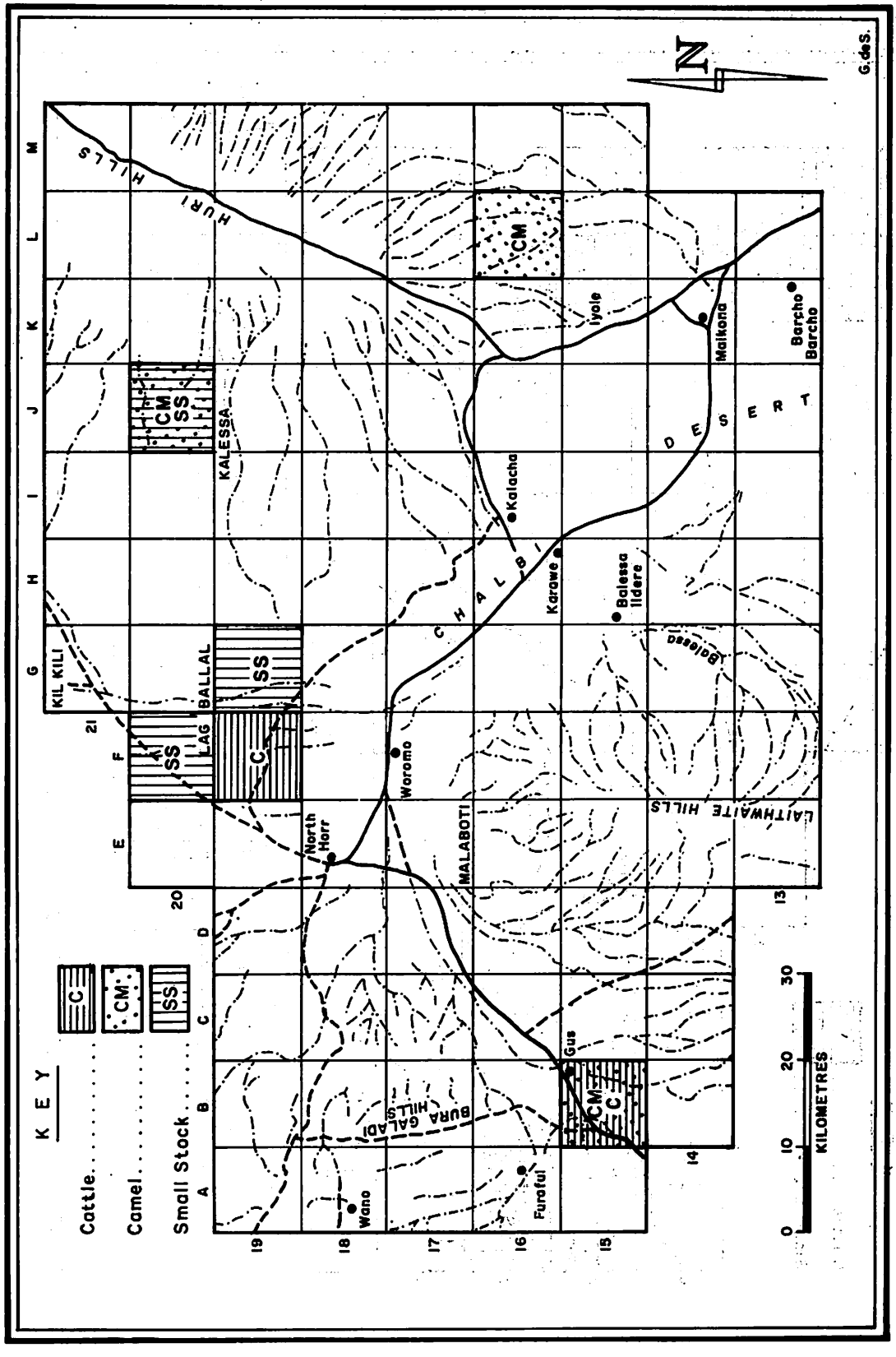
E. INDIVIDUAL CAMP ITINERARIES

Much of the discussion so far has focused on the size and movement of camps at a macro level. Here some attention is paid to movement at the level of the individual camp. In the course of fieldwork the itineraries of individual camps over a two-year period were collected. Gabra pastoralists

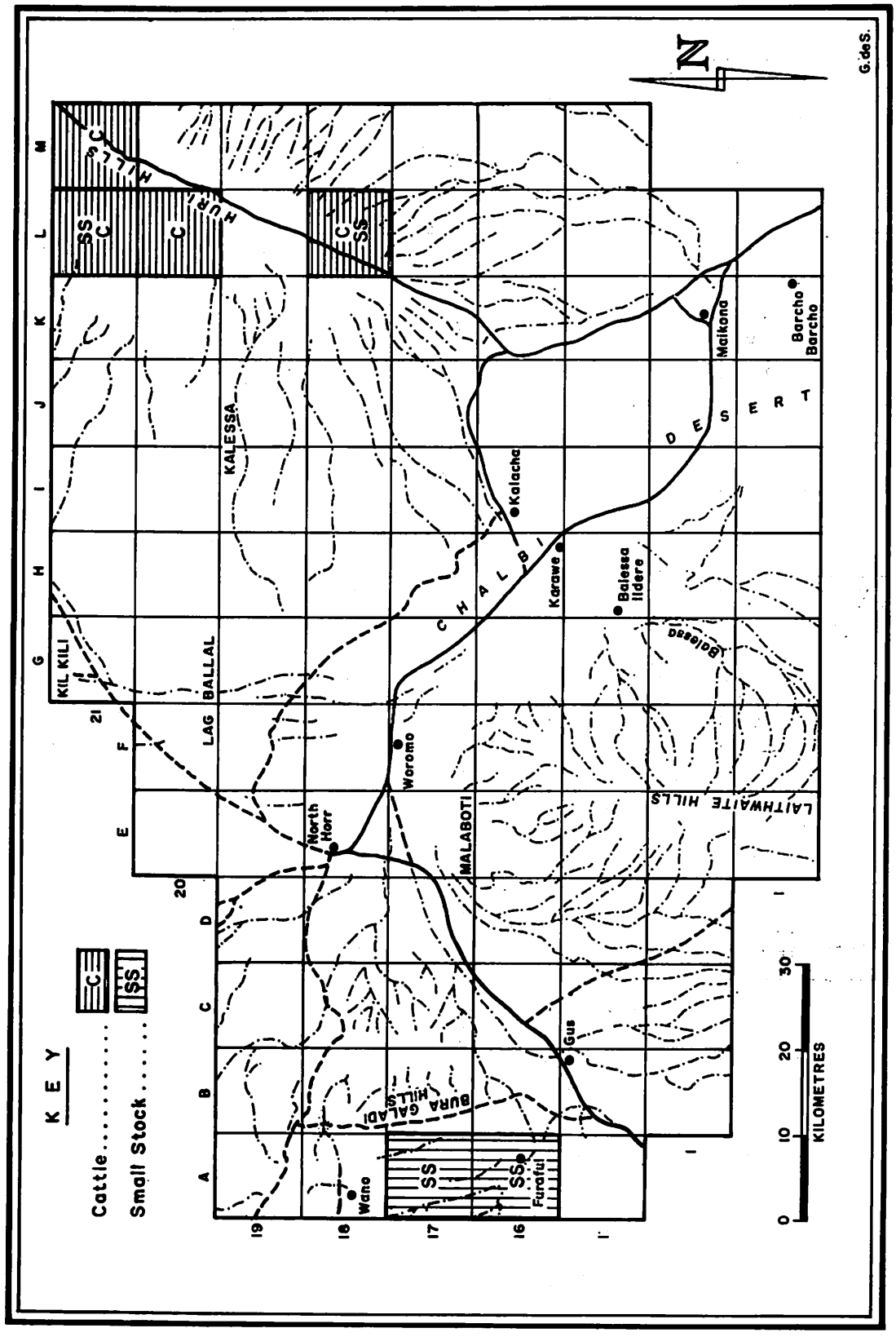
Map 3.5 The location of *fora* camps in January 1982



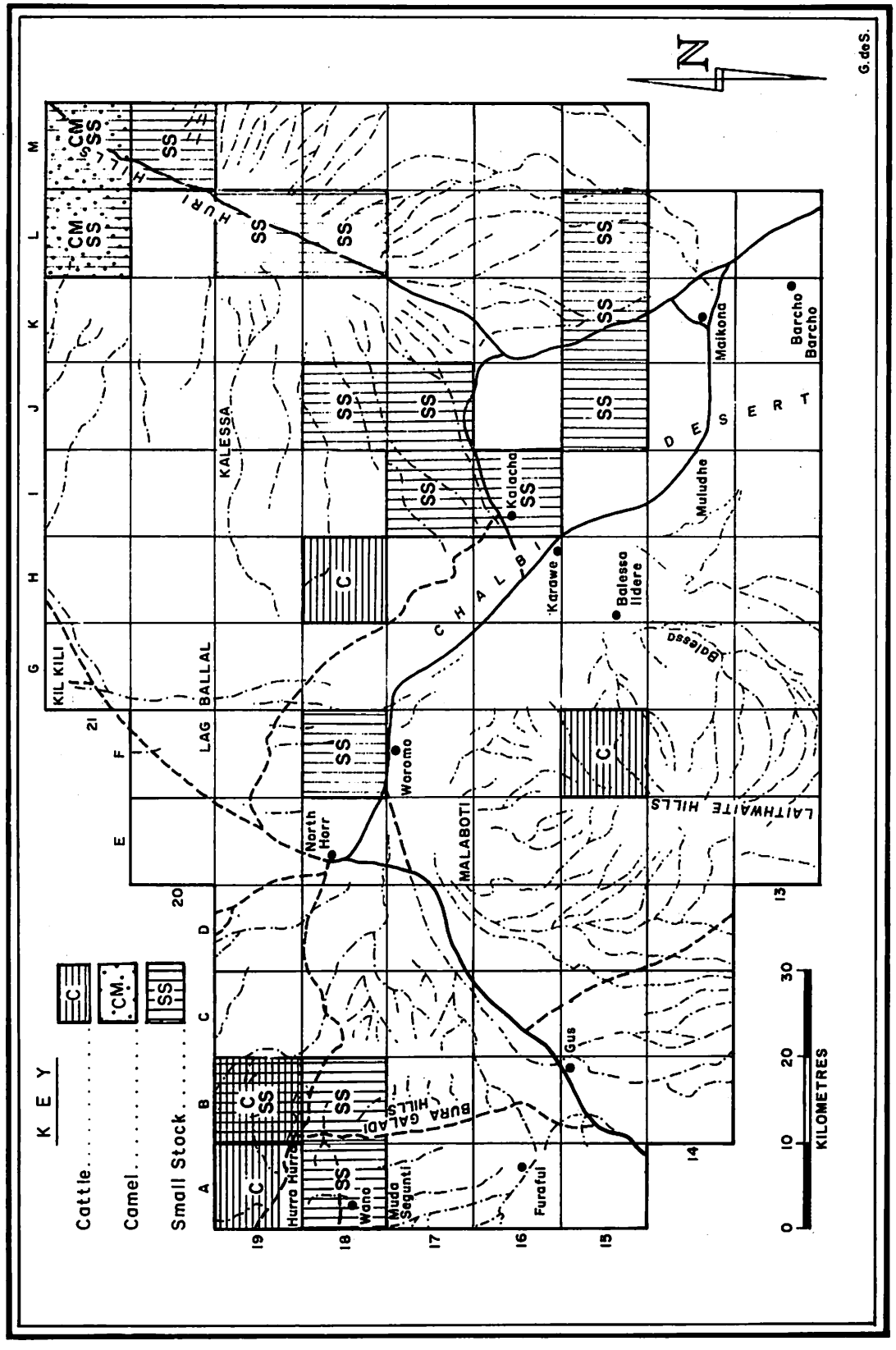
Map 3.6 The location of *fora* camps in March 1982



Map 3.7 The location of *fora* camps in May 1982



Map 3.8 The location of *fora* camps in August 1982



distinguish between a major move from one locality to another and minor moves within a locality caused when sites become over-infested with flies and parasites due to an accumulation of dung from the stock pens. Here only major moves are considered. The data reveal a great variation in the annual orbits of individual camps. Some move as little as 10 km in a year, others travel as much as 300 km. To illustrate this we give examples of the movements of two camps over a two-year period.

1. Table 3.3 and Map 3.9 illustrate the principal moves of Galgallo's camp between April 1980 and March 1982. The long rains of 1980 failed and the camp responded by moving towards rangelands adjacent to Buro Galadi Hills (Madho Siginte), a popular dry season range. As the drought persisted the camp moved further westwards towards rangelands east of Lake Turkana (Koronto). These are, in practice, used as drought reserves.

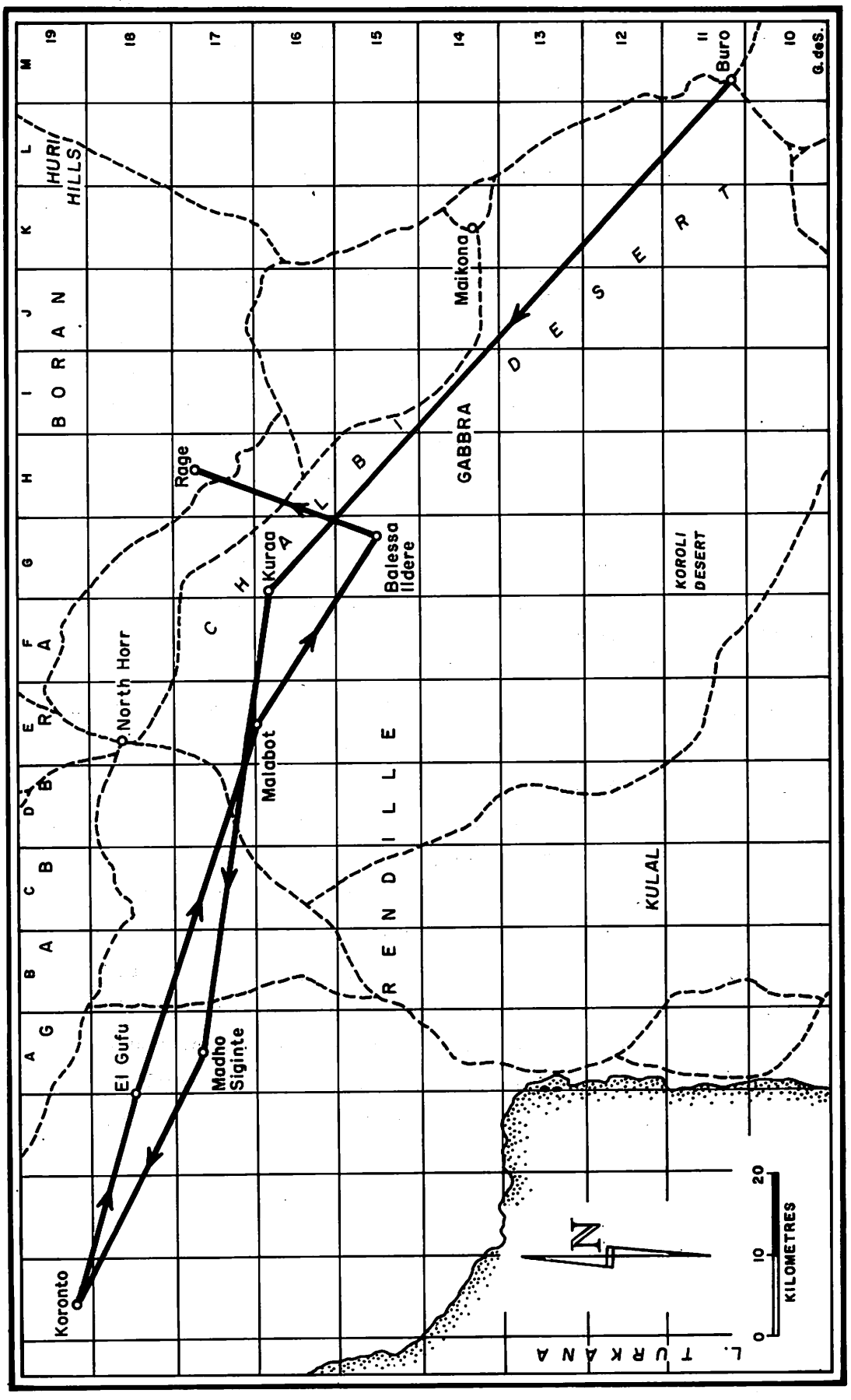
Table 3.3 The itinerary of Galgallo's camp, April 1980-March 1982

From	To	Season	Distance (km)
Buro	Kuraa	Long rain season 1980	85.00
Kuraa	Madho Siginte	Long rain season 1980	57.50
Madho Siginte	Koronto	Long dry season 1980	34.50
Koronto	El Gufu	Long rain season 1981	27.70
El Gufu	Malabot	Long rain season 1981	47.00
Malabot	Balessa Ildere	Long dry season 1981	28.75
Balessa Ildere	Rage	Short dry season 1982	25.00

Distance travelled in the first year: 177 km.
Distance travelled in the second year: 128.25 km.

Three of the four households constituting the camp have only young children who are unable to take stock to *fora* camps. This in part explains why all the stock remained at the main camp for most of the time. The only exceptions were

Map 3.9 The itinerary of Galgallo's camp.



when cattle and smallstock were sent to *fora* camps which were located close to Lake Turkana. However when the long rains of 1981 arrived the *fora* stock rejoined the main camp at El Gufu and remained with it as it moved southwards towards Balessa Ildere. When the main camp later moved to Rage the *fora* stock remained behind at Balessa Ildere.

2. The second example as illustrated in Table 3.4 and Map 3.10 provides a contrast.

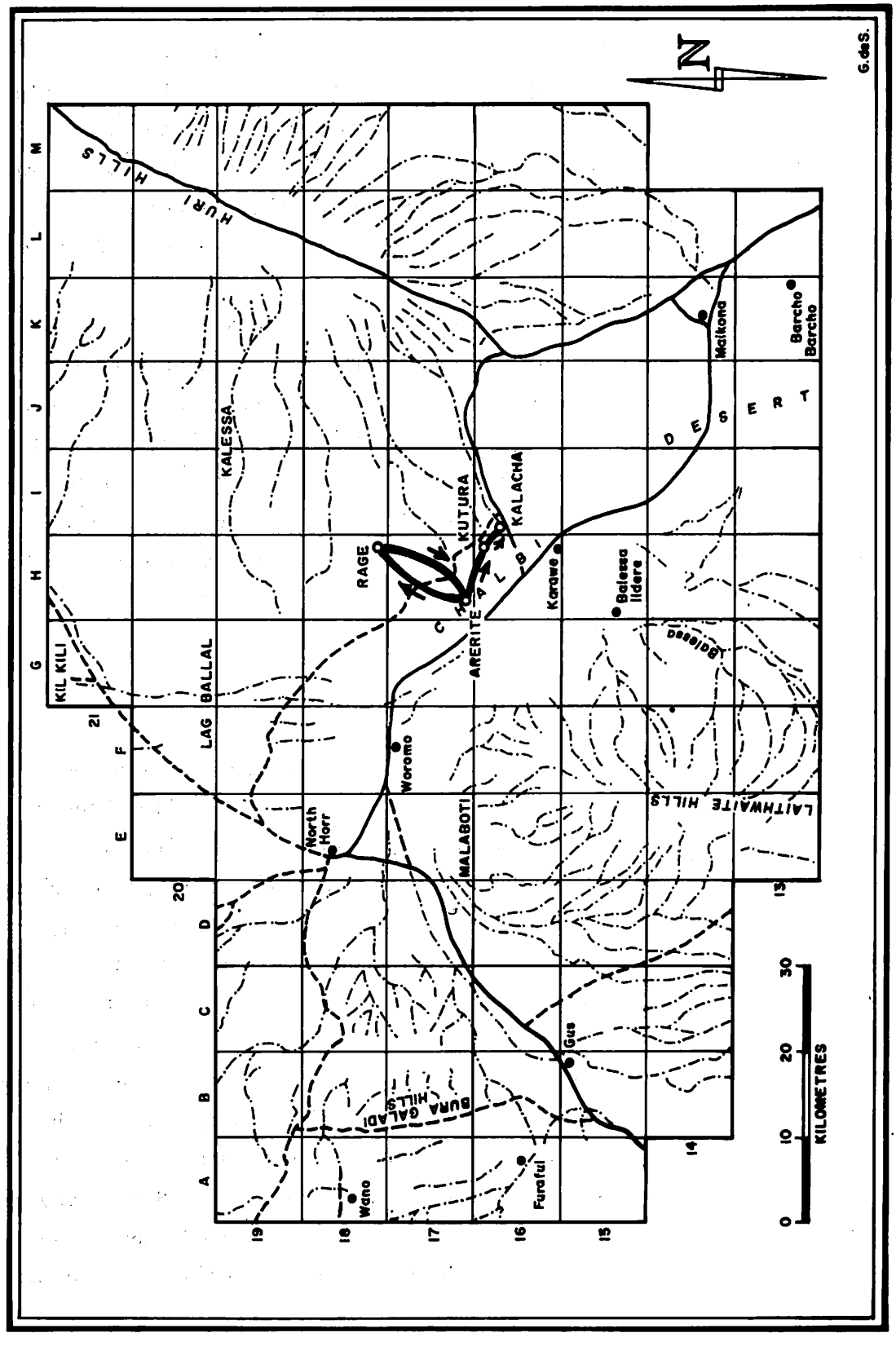
Table 3.4 The itinerary of Dabasso's camp, April 1980-March 1982

From	To	Season	Distance (Km)
Arerite	Rage	Long rain season 1980	12.5
Rage	Arerite	Long dry season 1980	12.5
Arerite	Kutura	Long rain season 1981	6.5
Kutura	Kalacha	Long dry season 1981	3.25

Distance travelled in the first year: 25 km.
Distance travelled in the second year: 9.75 km.

The camp leader is an elderly man in his sixties and like many ageing nomads opts to limit the frequency of and distances involved in camp moves. However, he has some young active paternal nephews attached to his camp who, in practice, have the power to override his decisions about when and where to move stock to satellite camps. For example, in the long rain season of 1980 they moved the *fora* cattle and smallstock northwards and by the short dry season of 1980/81 had reached Gorai which is in southern Ethiopia. In the long wet season 1981 they returned to the Hurri Hills and eventually rejoined the main camp at Kutura. In the long dry season of 1981 they moved *fora* smallstock and camels to Arano, some 40 km from the main camp, and the *fora* cattle to Balessa Olom over 20 km away. In this example the lack of movement of the main camp was compensated for by the wide ranging itineraries of the *fora* stock.

Map 3.10 The itinerary of Dabasso's camp



People who limit the movement of their main camps tend to orbit around primary and secondary water sources. By primary water sources we mean springs or lakes which are able to yield water easily for large numbers of livestock of all species. Examples are the springs at North Horr, Kalacha and Maikona, and Lake Turkana. Secondary water sources refer to minor springs, and permanent and temporary waterholes. These sources provide water only for limited numbers of mainly smallstock and cattle, as well as water for domestic use. Examples are the waterholes at Rage, El Gadeh and El Boji and the springs at Muludhe.

A perennial source of conflict arises between fathers and sons about when and where *fora* stock ought to be sent. Young men frequently prefer to reach richer pastures even though it involves travelling great distances from the main camps and high security risks. Their fathers frequently opt to minimize risks. Sons sometimes defy their fathers and move stock without permission. In other instances sons refuse to herd for their fathers any longer because of major disagreements over where the *fora* stock ought to be sent. Mothers also fear allowing their sons to herd *fora* stock in areas where the risk of being raided is high.

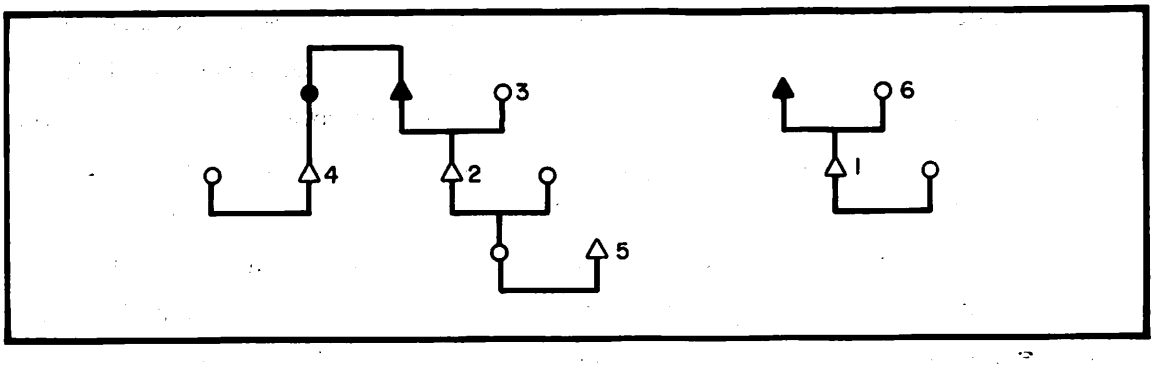
F. RESIDENCE

The social composition of pastoral camps (i.e. the structure of kin and other ties which exist between heads of houses of a camp) usually changes with time. A number of factors influence camp composition. Firstly, members of clan sections tend to utilize common stretches of range (Chapter 2, Section A). This has the effect of generating camps in which the majority of members belong to a common clan section. Secondly, it is common practice for a newly married man to live with his wife's people for the first months of marriage. Many young married men stay much longer with their affines. These practices generate affinal links within camps. Thirdly, since in many instances fathers and married sons share common herds, and married brothers likewise, close agnatic ties are a major feature of some camps. Fourthly, members of other ethnic groups such as the Boran, Rendille and Somali may be incorporated into the Gabra tribe. We came across a number of poor Boran who after years of service to Gabra households are given Gabra girls to marry.

Fifthly widowed women usually reside with their eldest married son who is primarily responsible for their upkeep. Sixthly, people not only share common clan sections, or are kin or affines to each other, they are also livestock owners and hence herding considerations play an important role in deciding who reside together. Younger brothers frequently remain living with their older brothers because they lack the necessary labour to manage on their own. A man with the necessary labour may leave even the camps of his clan section and join those of a different clan section simply because his cattle will do better by moving on to the range of his new camp mates. A rich and powerful stock owner may arrange to adopt his widowed sister's children in order to increase the labour pool of his camp.

The following examples illustrate some of these principles in action.

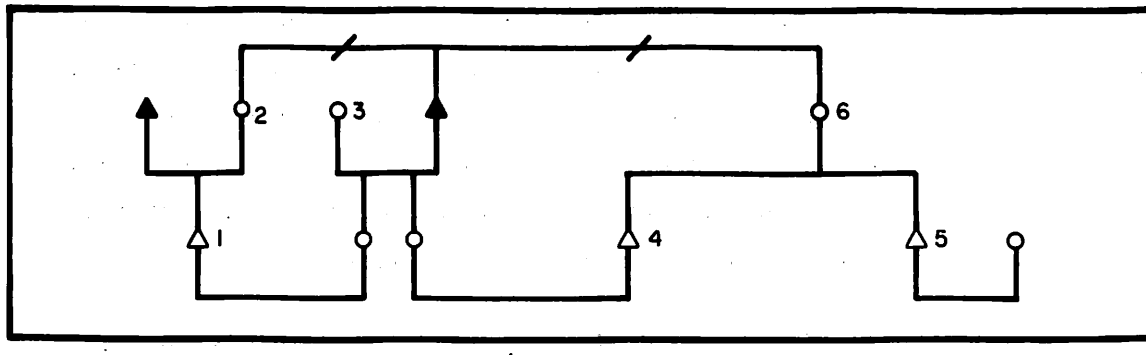
Figure 3.3 The social composition of Adano's camp (2)



Number 2 is the camp leader and is the only living son of his widowed mother (3). His son-in-law (5) who has two young children and his paternal cross cousin (4) also reside with him. Numbers 2,4 and 5 are members of the Algana clan section but belong to different clans. Number 1 is a member of the Odola clan section and his wife is a daughter of the same clan and clan section as Number 5. His eldest brother resides in North Horr separate from the family and hence his widowed mother resides with Number 1 instead. One of the reasons

why Number 1 resides in the camp is that he relies on the labour of young men belonging to house 3 to herd some of his stock.

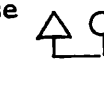
Figure 3.4 The social composition of Guyo's camp



All members of the camp belong to the Algana clan section but not all belong to the same clan. Number 1 is an eldest son and his widowed mother (2) resides with him. She and Number 6 are daughters of the same patrilineage as the deceased husband of Number 3. It follows that Numbers 1 and 4 married from their mother's patrilineage and clan, a preferred marriage in Gabra custon (Torry, 1973). Number 3 is poor and her eldest son who is over 40 years of age is unmarried. She relies particularly on the support of the camp leader. Numbers 4 and 5 are full brothers, possess few stock and need each other's support. Their widowed mother (6) resides with them.

Notes

1. In the January survey six camps consisting of 21 houses are not included in the table since the exact number of houses per camp is unknown. However, these camps and their houses are included in estimating the mean and standard deviation.

2. The triangle demotes a male and the circles a female. When these symbols are filled in and darkened it denotes dead people.  denotes a married couple and  siblings. Where there is one stroke cutting the joining horizontal line it indicates that the linked pair belong to the same patrilineage.

Chapter 4

GABRA OCCUPATIONAL PATTERNS

A. INTRODUCTION

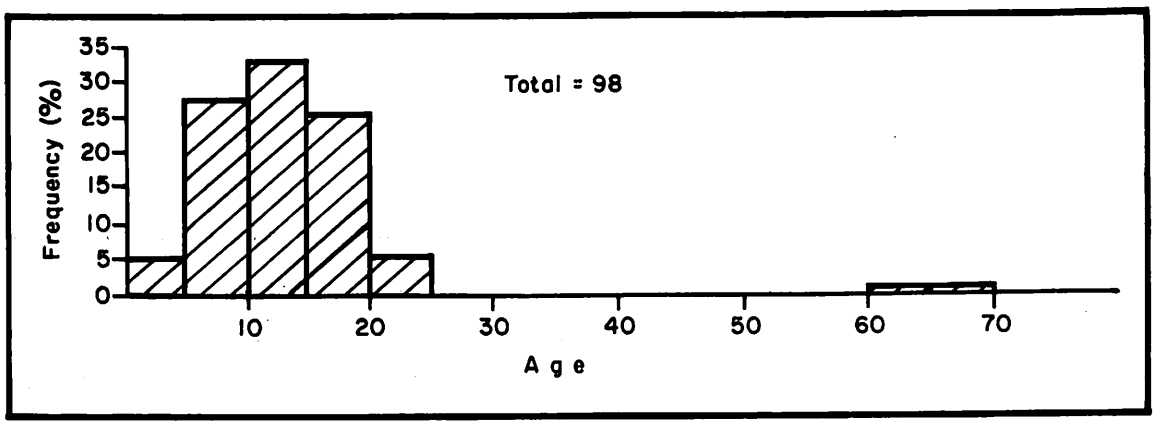
In this chapter the extent to which the Gabra are employed in livestock keeping is examined. Herding occupations are divided into six main categories: camel herding (local and *fora*), cattle herding (local and *fora*) and smallstock herding (local and *fora*). Only those who are regarded as being full-time in these activities were recorded. Data were collected also on the extent children herd camel and bovine calves, and kids and lambs from main camps. It needs to be mentioned that full-time herders receive assistance from those not in full-time herding when animals are watered and milked. In addition the elders, most of whom are not full-time herders, have overall responsibility for the management of their herds. Married women play an important role as milkers of cows and smallstock.

Wage employment and attending school are becoming increasingly important as the Gabra pastoral economy moves away from self-reliance towards a greater dependency on the wider economy. We distinguish between employment within and outside the district, and between casual, low-paid and better paid employment.

B. HERDING

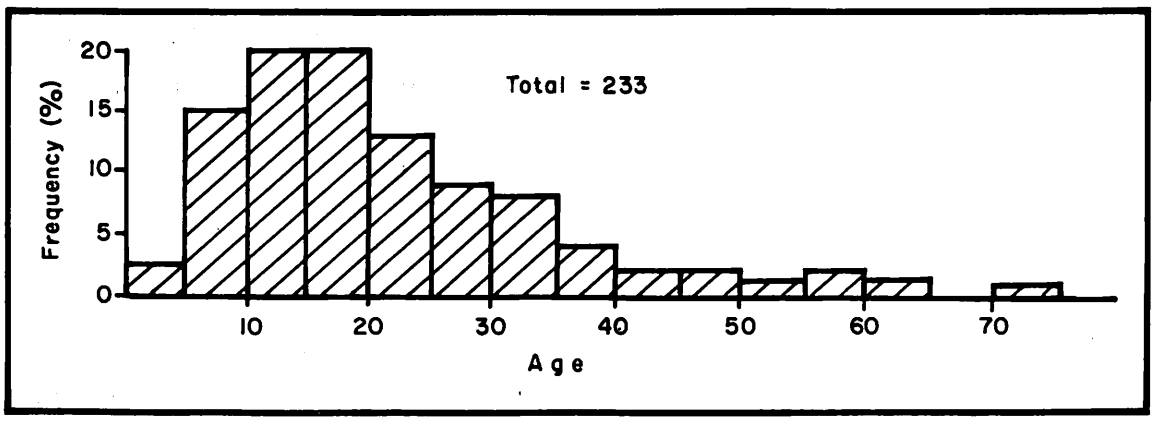
Figures 4.1 and 4.2 give the age/sex of family herders (i.e. those who herd the livestock of their own family or household) and those who herd the livestock of their family or household of adoption. We recorded only four instances of female hired herders and eight instances of male hired herders. None were hired on a cash basis except four of the hired men.

Figure 4.1 Female family and adopted herders



Mean: 13.6
Standard deviation: 9

Figure 4.2 Male family and adopted herders



Mean: 21
Standard deviation: 12.8

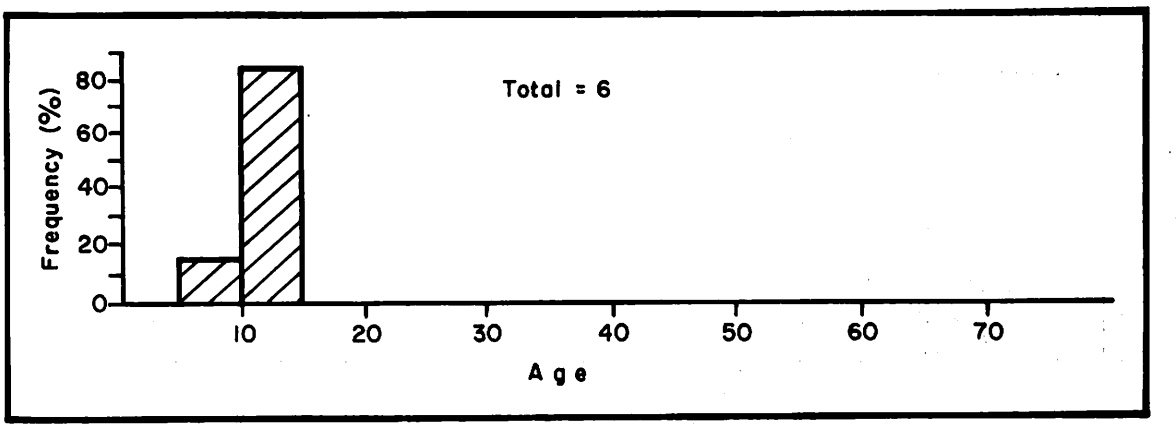
The average age of female herders is low (13.6). The very young only take care of kids and lambs (see below). Female involvement in herding reaches a peak in the 10-14 age group and tapers off as girls marry. Gabra custom prescribes high levels of propriety for nubile girls and hence households only use them as herders in necessity and when there is nobody else available to do the job. This explains why only 45.6% of girls in the 15-19 age group herd.

There is a heavy reliance on boys and youths in herding. This is made possible since much of the herding is done locally (i.e. from the main camps) under supervision of adults. The highest involvement in herding is recorded in the 10-14 age category. Married men with young children herd frequently from necessity.

C. WHO HERDS THE CAMELS, CATTLE AND SMALLSTOCK

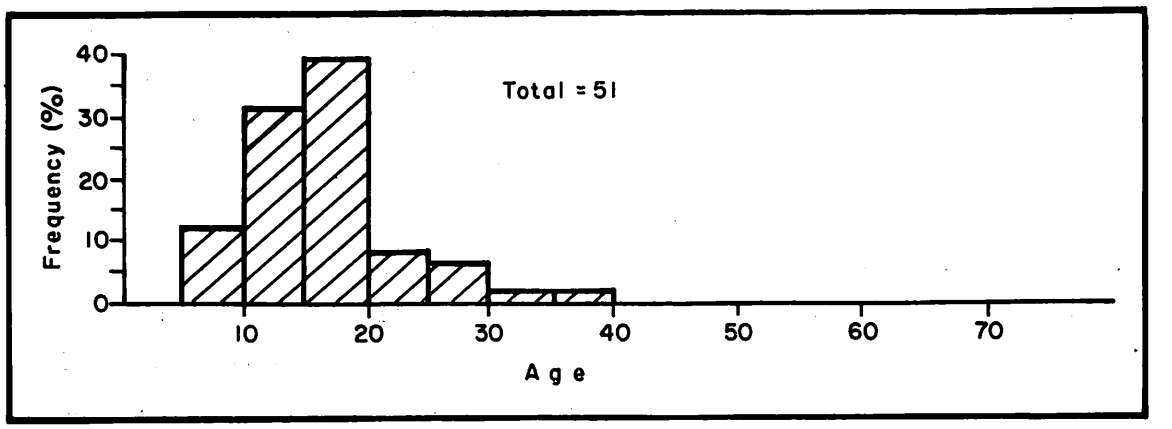
Figures 4.3-4.5 give the age/sex of both *fora* and local camel herders.

Figure 4.3 Female herders of local camels



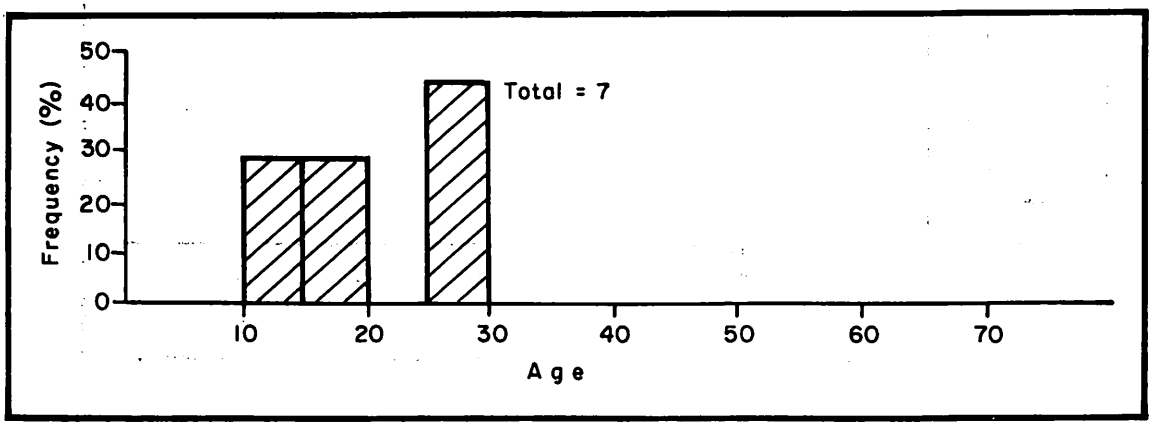
Mean: 11.7
Standard deviation: 2

Figure 4.4 Male herders of local camels



Mean: 16.4
Standard deviation: 6.3

Figure 4.5 Male herders of *fora* camels

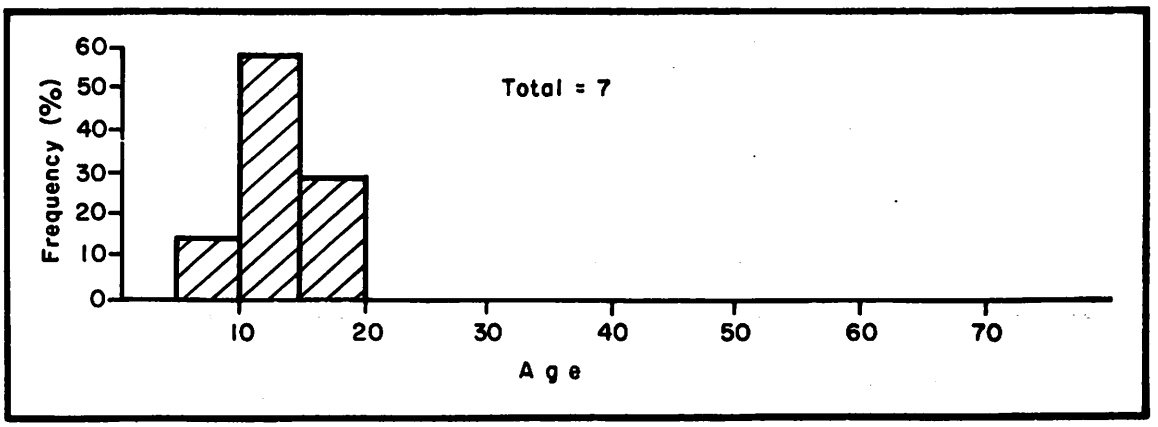


Mean: 20.4
Standard deviation: 7

Girls do not herd *fora* camels, and indeed only girls of the 10-14 age group and younger herd even local camels. Camel herding is primarily a male task. The majority of males herd local camels rather than *fora* camels. This reflects the fact that not too many households send their camels frequently to *fora*. Small local camel herds can be looked after by boys. However, larger herds can only be properly managed by youths. Married men also herd local camels. Very young children are sometimes assigned the task of keeping an eye on camel calves who graze close to main camps. We recorded four girls and six boys in the 5-9 age category who looked after local camel calves.

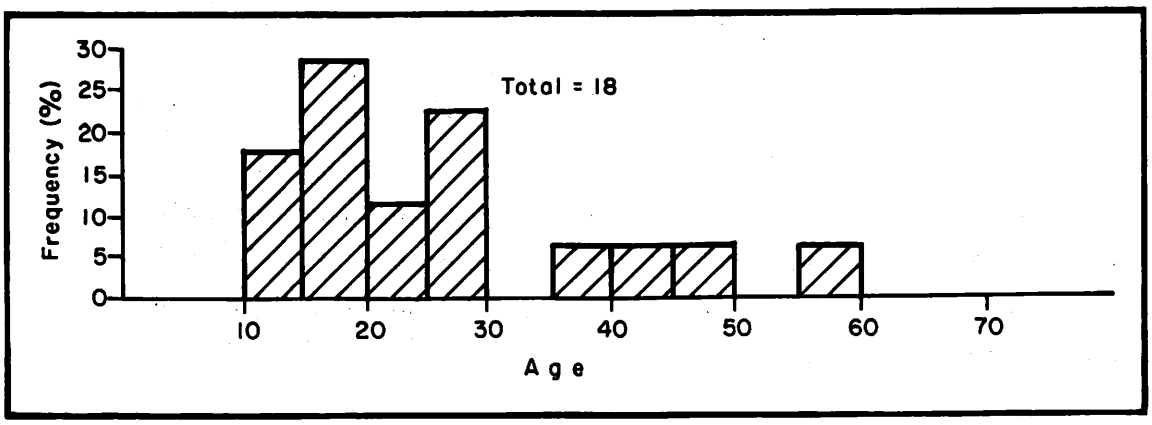
Figures 4.6-4.9 Outline the age/sex of cattle herders.

Figure 4.6 Female herders of local cattle



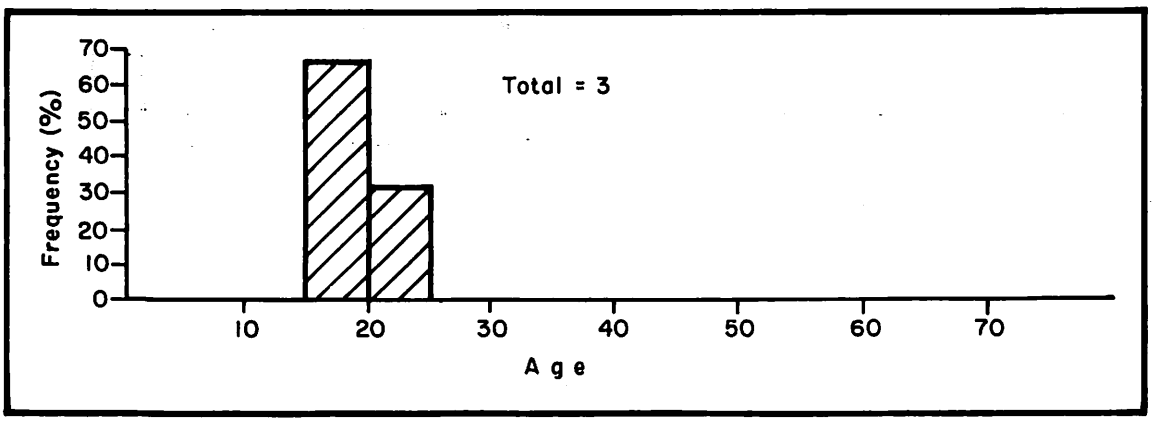
Mean: 13.2
Standard deviation: 3.5

Figure 4.7 Male herders of local cattle



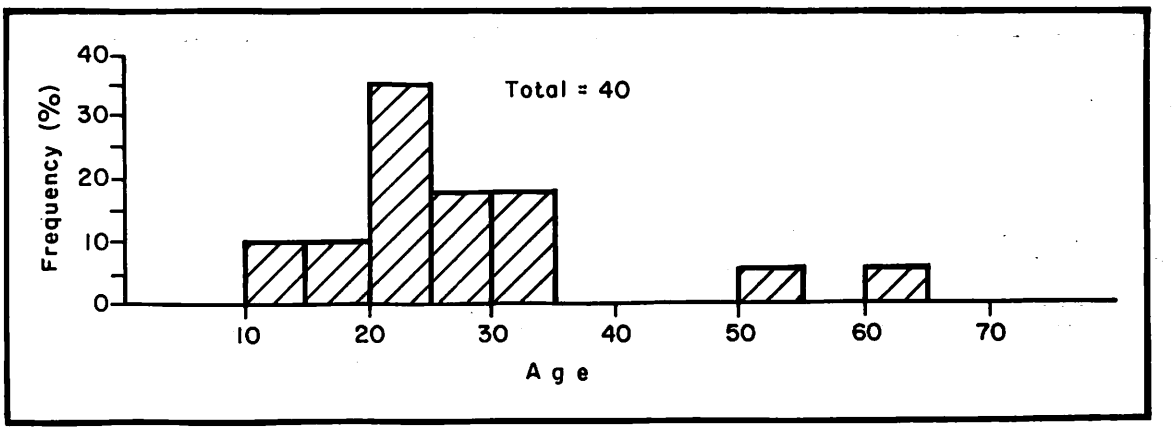
Mean: 26.3
Standard deviation: 14

Figure 4.8 Female herders of *fora* cattle



Mean: 19.2
Standard deviation: 2.9

Figure 4.9 Male herders of *fora* cattle

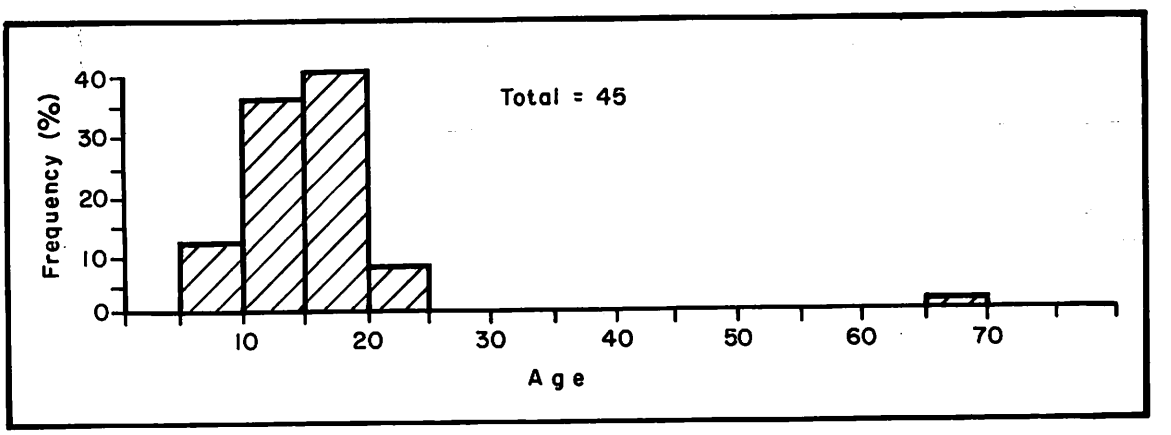


Mean: 24.5
Standard deviation: 15.4

Relatively few girls herd cattle. The majority of male herders take care of *fora* cattle. This mirrors the Gabra practice of frequently sending cattle away to *fora* camps (Chapter 3, Section D). The average age of male cattle herders is relatively high and reflects the skill and work required to manage cattle in arid conditions.

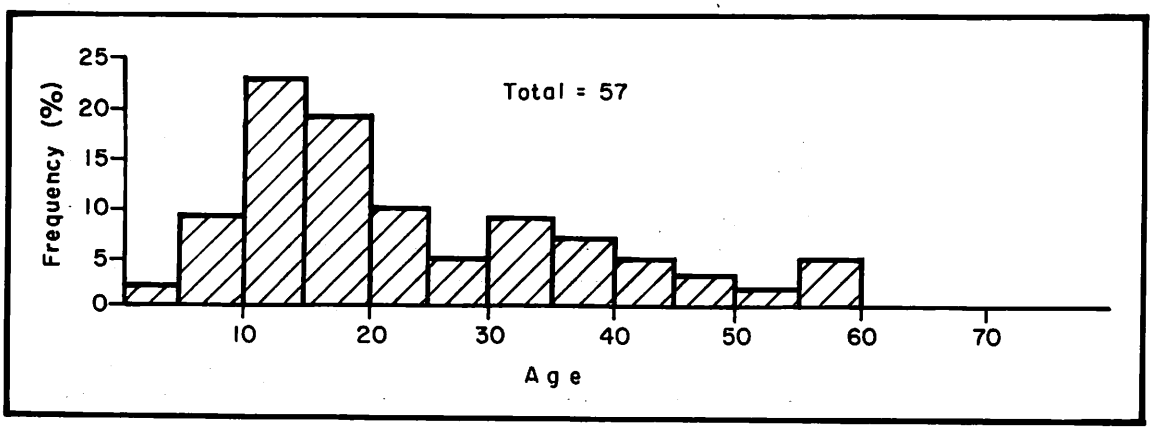
Figures 4.10-4.13 indicate the age/sex of smallstock herders.

Figure 4.10 Female herders of local smallstock



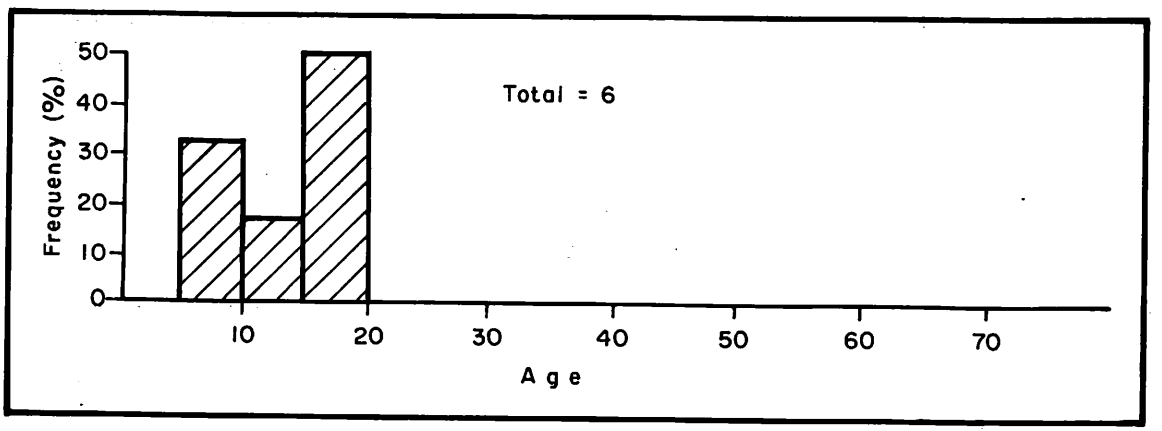
Mean: 15.9
Standard deviation: 8.9

Figure 4.11 Male herders of local smallstock



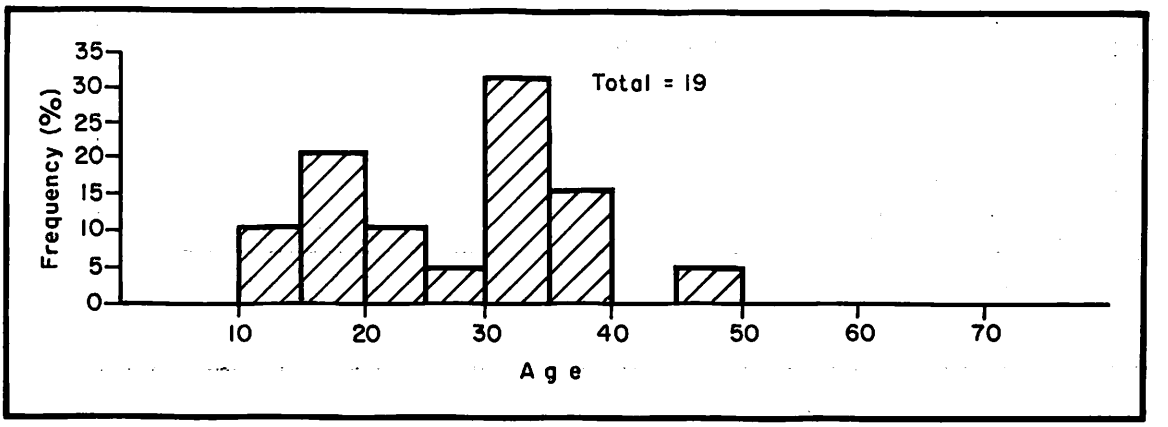
Mean: 24.5
Standard deviation: 15.4

Figure 4.12 Female herders of *fora* smallstock



Mean: 12.3
Standard deviation: 4.7

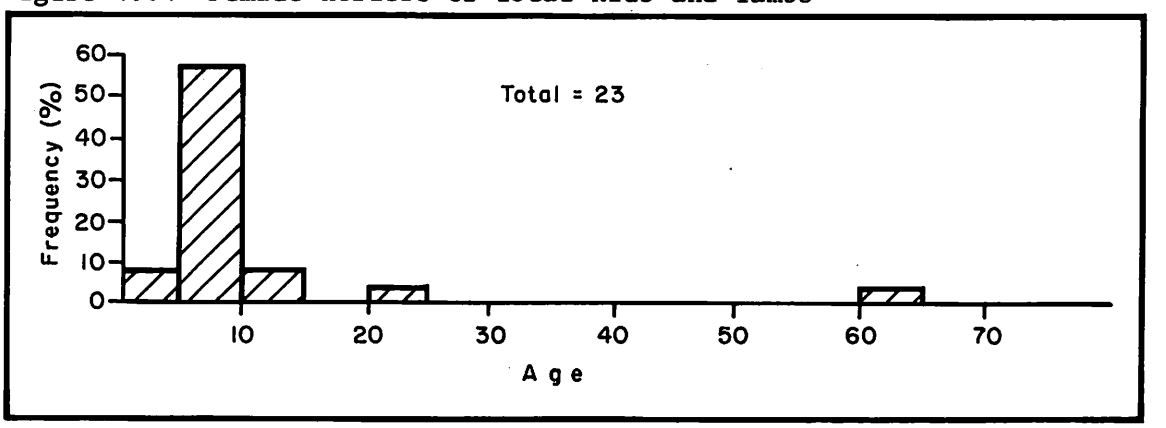
Figure 4.13 Male herders of *fora* smallstock



Mean: 27.5
Standard deviation: 9.9

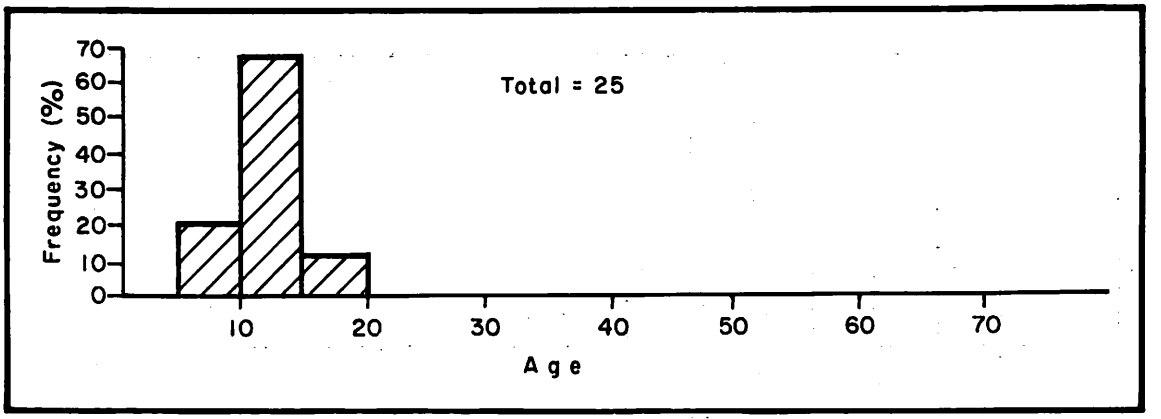
Relatively few girls herd *fora* smallstock (Figure 4.10). Girls are primarily herders of local smallstock (Figure 4.12). More males are involved in herding local smallstock than *fora* smallstock. Since herding smallstock at *fora* requires higher levels of responsibility *fora* herders are significantly older than local herders of smallstock (Figures 4.11 and 4.13). Quite a number of young children of both sexes look after local kids and lambs (Figures 4.14-15).

Figure 4.14 Female herders of local kids and lambs



Mean: 11.1
Standard deviation: 14.6

Figure 4.15 Male herders of local kids and lambs

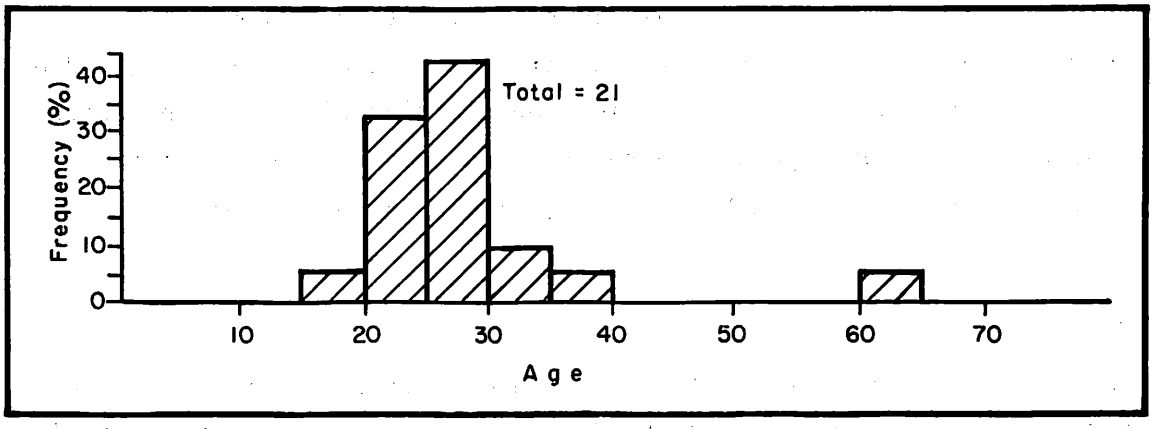


Mean: 7.1
Standard deviation: 2.9

D. WAGE EMPLOYMENT

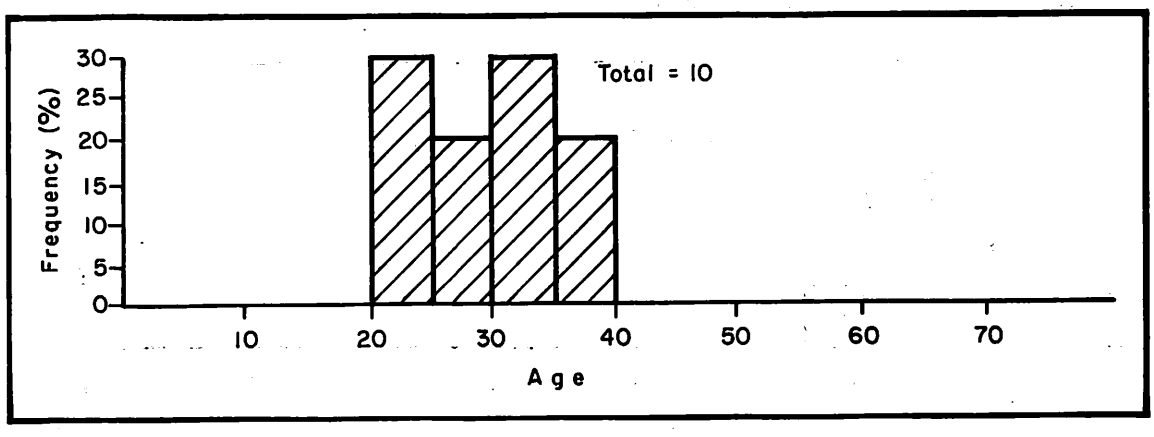
An increasing number of men perforce seek non-pastoral sources of income. There are a number of reasons for this. Firstly, many households have insufficient livestock to provide a livelihood for all sons. In such cases the sons who are intent on building a future career and marrying either attach themselves to households with sufficient livestock, or establish a footing in itinerant trading or practise some agriculture on Mt. Marsabit or seek wage employment. However, in our study of 30 camps, containing in all 577 males, only eight were hired either in kind or for cash as herders, eight were itinerant traders and even fewer engaged in agriculture on Mt. Marsabit. By far the majority opt for wage employment (Figures 4.16-17). Secondly, since the 1960s primary school education has been established. School leavers tend to look for wage employment and only return to being full-time herders if they fail. Those with secondary education are the most successful in obtaining jobs.

Figure 4.16. Males employed within the district



Mean: 28.6
Standard deviation: 11.5

Figure 4.17 Males employed outside the district



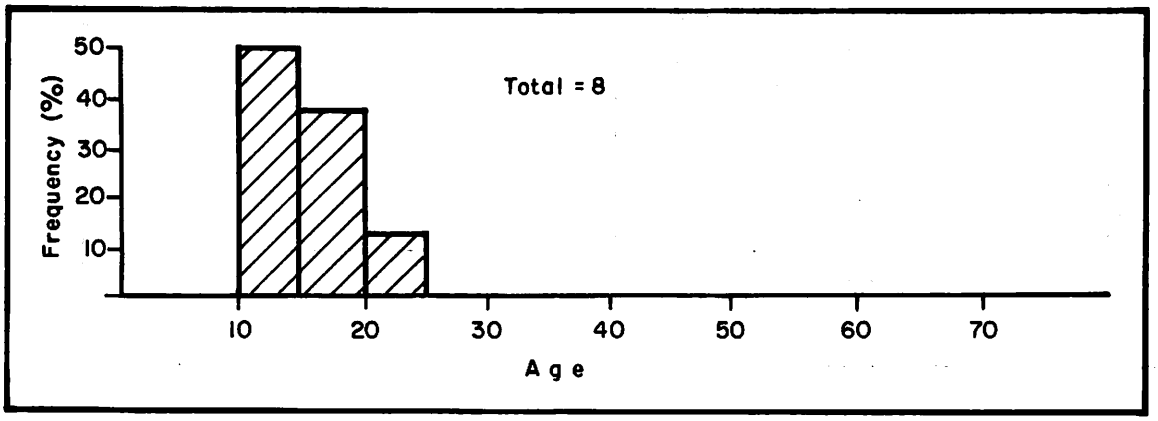
Mean: 29.5
Standard deviation: 5.9

There are 21 employed locally as against ten outside the district. Of those working locally ten are in better paid jobs (i.e. with an income greater than Shs 600-800 per month), three are in low-paid jobs and eight are employed on a casual basis. Of those working outside the district eight are in better-paid jobs, two in low-paid jobs. We recorded no female in employment outside the district and only seven worked locally, all in low-paid jobs.

E. SCHOOLING

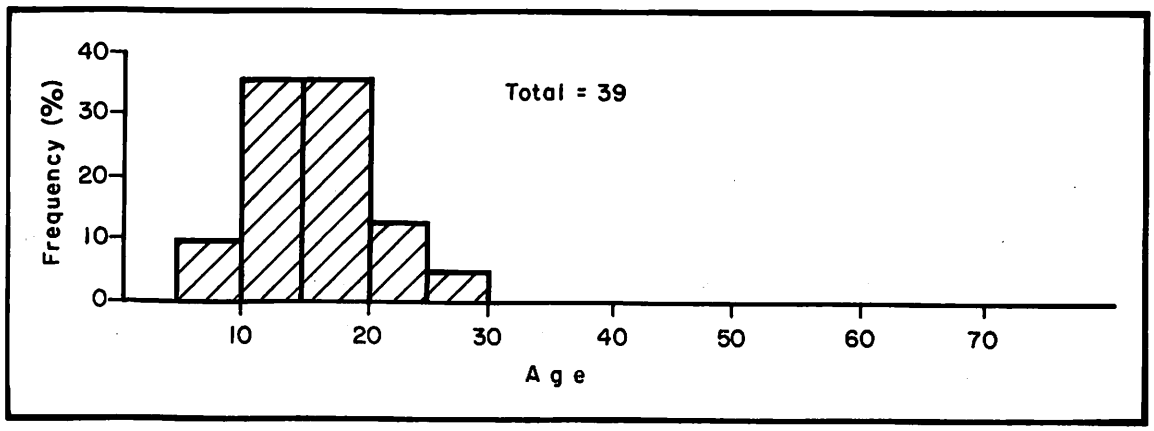
There is a trend to send more children to school. It is Government policy to encourage parents to send their children to school and the Roman Catholic Church has provided capital and managerial resources in the establishment of schools. Some parents - particularly the poor - are also beginning to see its importance as a means of improving their children's chances in life. However, in the camps we studied (which were mainly country camps) households still send very few girls to school.

Figure 4.18 Ages of girls at school



Mean: 15.6
Standard deviation: 3.7

Figure 4.19 Ages of boys at school



Mean 15.8
Standard deviation: 5

Chapter 5

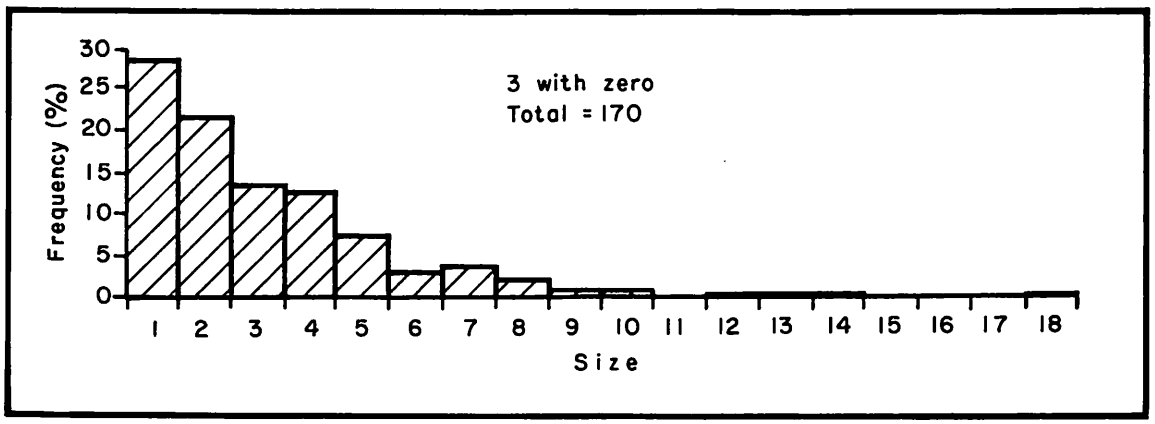
GABRA HERDS

So far in this report the main focus has been on certain aspects of Gabra society. In this and subsequent chapters interest is shifted to their livestock and how the Gabra manage them. In this chapter the numbers of animals of each species - camels, cattle, sheep, goats and donkeys - households own are examined. Inquiries are also made into how households acquire rights in animals.

A. HOUSEHOLD LIVESTOCK HOLDINGS

Figures 5.1-5.5 show the household holdings of camels, cattle, sheep, goats and donkeys for the 30 Gabra camps studied.*

Figure 5.1 Household holdings of camels



Mean: 12.0
Standard deviation: 11.8

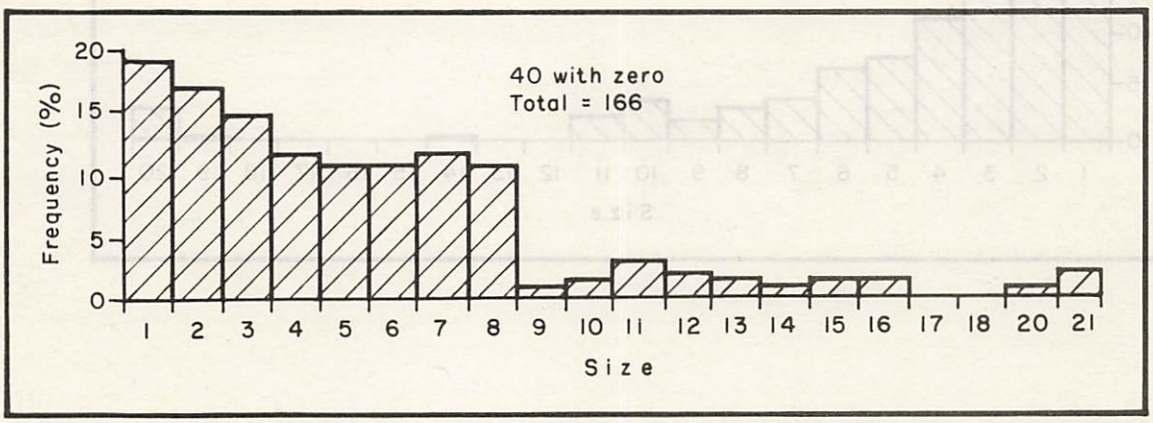
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* The first column in each Figure represents the scale intervals, starting with the lowest and working upwards. The value of the interval varies. For household holdings of camels and cattle the intervals are 1-4, 5-8, 9-12 etc.; for household holdings of sheep intervals are 1-15, 16-30, 31-45 etc.; for household holdings of milch camels and cattle, pack camels and donkeys 1,2,3,4, etc.: and for household holdings of milch sheep and goats 1-5, 6-10, 11-15,etc. (see Figures in Chapter 8). The zeros at the bottom of a Figure represent the number of households which do not have any animals.

The average size of camel herd is 12 head per household. Given the fact that the average size of a Gabra household is 6.3 persons there are 1.9 camels per person. Only three of the 173 households studied possessed no camels.

The Kenya Gabra originated from southern Ethiopia, a country suitable for cattle and to which they frequently return to graze cattle and smallstock. For example, during the 1984 drought many of the Kenya Gabra cattle and smallstock. For example, during the 1984 drought many of the Kenya Gabra cattle and smallstock were in southern Ethiopia where there was some rain. It is said that during the severe drought at the end of the last century the Gabra lost a high percentage of their cattle herds. At the same time the mortality rates amongst camels were much lower. This taught the Gabra to depend more on camels than cattle. However, the tradition of cattle keeping remains and is buttressed by the Kenya livestock market structure which favours cattle.

Figure 5.2 Household holdings of cattle

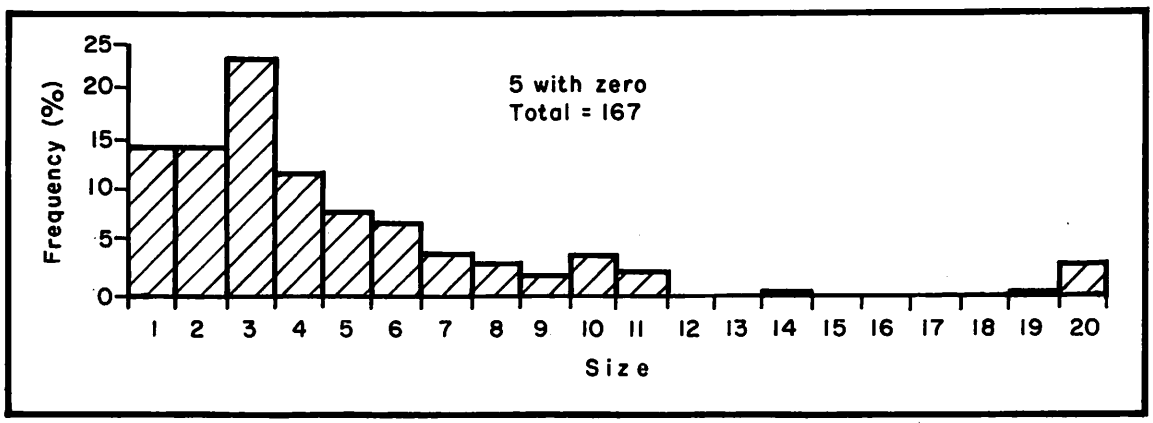


Mean: 15.1
Standard deviation: 19.7

On average the Gabra household owns more cattle than camels. However, the ownership of cattle by households is more uneven than the household ownership of camels. Indeed 40 of the 166 households on which we have information possess no cattle. Constraints to cattle keeping arise not only from the difficulty of raising cattle in an arid environment but are also due to labour considerations. Frequently the Gabra have to send their cattle to *fora* camps to utilize ecological niches which are more suitable for camels. Many households lack the necessary labour and hence fail to keep cattle.

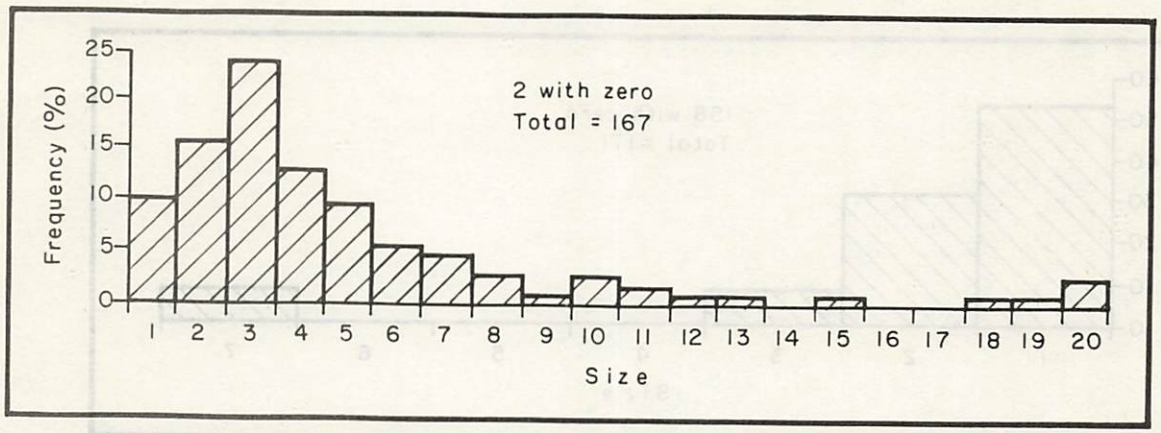
Figures 5.3 - 5.4 outline the household holdings of sheep and goats, respectively.

Figure 5.3 Household holdings of sheep



Mean: 76.1
Standard deviation: 131.1

Figure 5.4 Household holdings of goats

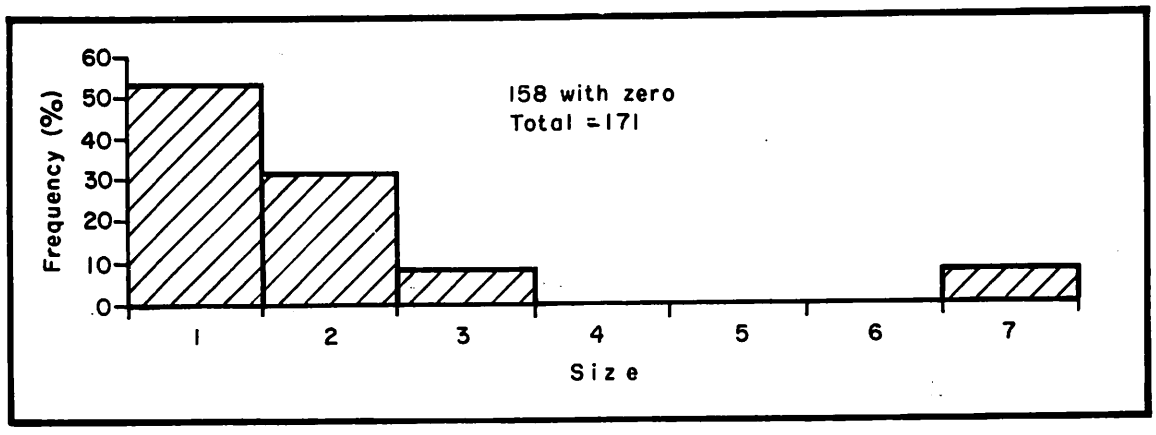


Mean: 68.7
Standard deviation: 73.1

There is no significant difference statistically between the numbers of sheep and goats households own. The Gabra range is divided between the mountainous regions (Hurri Hills, Asie Mountain and the mountain range east of Lake Turkana) much of which is lava fields strewn with boulders, and the plains which are more level. It is generally thought that the parts of the range which have lava boulders are more suitable for goats. Indeed in a few isolated instances households with large herds of smallstock and the necessary labour divide them into separate sheep and goat herding units. The goats utilize the higher ground of lava boulders while the sheep use the less harsh terrain of the plains. Although sheep survive droughts better than goats many sheep die during the first rains (after the drought) from some form of pneumonia. We witnessed this in April 1982 in Maikona and Kalacha when a few hundred sheep died with the onset of the rains. Informants spoke of the hundreds of sheep which died after the 1980 drought. On the other hand young goats are more susceptible than sheep to extreme heat conditions when on the move and kids fall victim more easily than lambs to liver diseases. The growth rates of goat herds is thought to be lower than in the case of sheep.

The Gabra own few donkeys, as indicated by Figure 5.5. Only thirteen households from a total of 171 owned any donkeys.

Figure 5.5 Household holdings of donkeys



Mean: 0.1
Standard deviation: 0.7

B. ACQUIRING ANIMALS

The Gabra recognize different types of rights over animals. Where an individual is given an outright gift of an animal the practice is referred to as *halal* (Torry, 1973). The recipient in such cases has total ownership and use of the animal and its progeny (if it is a female).

There are two major types of animal loans, namely *debarre* and *kalisime* (Torry, 1973). In the former the recipient has the right to use the animal until it is requested back by the owner. Male progeny belong to the recipient, while female progeny belong to the owner, but the latter may be left with the beneficiary as *debarre* animals. In some instances the *debarre* animal may be left with the beneficiary or his family until it dies. The practice of *kalisime* primarily gives the beneficiary the right to the milk of animals for a specified time.

While the *halal* practice transfers ownership of animals between households, *debarre* and *kalisime* practices confer immediately on the beneficiary households rights of use of animals without transfer of ownership.

The analysis of household livestock holdings indicates that there is a wide range in the numbers of animals households own. Many households possess inadequate numbers of stock. The custom of loaning animals can tide these

households over periods of scarcity. In general, transfer of ownership of animals only takes place between close kin, while animals are loaned not only to close kin but also to neighbours and more distant kin. Destitute town dwellers have found that members of the nomadic community usually only give them animals when they return to nomadism. The Catholic Fathers of North Horr have assisted about 80 households (who had settled at trading centres) with gifts of animals to add to their sub-subsistence herds and with food for a two-year period until their herds increase. The arrangement has enabled at least the household head to return to nomadism and thereby qualify him to receive additional animals from the nomadic community. Traditionally when someone suffered a sudden loss of a large number of livestock because of drought, raids, etc. members of his lineage would collect a number of animals and present them to him. These livestock are known as *erb*.

Within households the male head is the legal owner of the household livestock. His wife has milking rights *(amesa)* over his animals. Where the owner has more than one wife he apportions the milking animals to his wives according to the needs of their respective houses. However, where wives have rights over certain animals such as their *barito* (dowry) animals, they must be consulted before these animals are given to a co-wife. A woman also has prior milking rights in the animals of an unmarried son. At marriage these rights are transferred to his bride.

The sons of the household slowly acquire rights in animals of their father, close patri-kin and close matri-kin. A boy has a claim to gifts of stock (ideally a female camel or bovine) on the day he is born. These are referred to as *handura* stock. He may not receive all of them immediately but may continue to ask for them as he grows to adulthood. He also acquires animals when circumcised. These animals are referred to as *dabaqaba* stock. He obtains them from his father, close parti-kin and matri-kin. During the celebration of the *sorio* rites he is free to petition gifts of animals, particularly from his father and close patri-kin.

Bridewealth consists of three camels or cattle. Two of the animals are males, the third a female. Anybody from amongst a man's patri-kin, matri-kin and friends can assist in providing the bridewealth stock. One of the males is given to the senior maternal uncle of the bride, the other, referred to as *gurbo chulu*, is presented to the bride's mother. The female belongs to the bride's father or eldest brother if the father is dead. To enable them to build up their own household herd both the bridegroom and bride obtain gifts

of animals. During the wedding ceremony he requests animals from his father, brothers, close patri-kin, maternal uncles and affines. The young couple live their first months of marriage in her family's camp. When they leave to take up residence with his people she obtains gifts of animals known as *barito* stock. If her father has sufficient animals he gives her nine female smallstock, a castrated male sheep in good condition, a female camel in milk *(alla gorfa)*, and a trained or untrained pack camel. The person immediately junior to the bride's father and her senior maternal uncle each give her an untrained pack camel. The bridegroom's family gives her a female camel or bovine. She can also petition other animals from the bridegroom's patri-kin, matri-kin and affines.

All the stock acquired in the above ways belong to the individual sons and are referred to as *guma* stock (Torry, 1973). The first-born son *(angaf)* inherits rights over all the other animals owned by his father. If he is still a minor when his father dies his mother manages the herd - under the supervision of her dead husband's brother(s) - until he comes of age. In cases where the eldest son is married and his father is senile he in practice assumes the ownership of his father's herd before the latter dies.

In some instances junior sons will be married and own sufficient numbers of smallstock (although these will still be part of the family herd) at their father's death. Eldest sons are obliged to find bridewealth stock for their younger unmarried brothers. The dependency of younger brothers on their oldest brother can lead to tension when the former feel that their senior brother has not their best interests at heart by refusing to reward them with sufficient numbers of livestock in return for their herding of the family stock. This latent tension is acknowledged by the Gabra saying '*Obolesi nyapa*' (brothers are hostile).

The natural path to animal wealth, particulary for men who begin life with few large stock, is first to build up smallstock flocks and when these are sufficient in number to exchange them for larger stock. The exchange rates are flexible and the final agreement depends on some bargaining. The following rates give some idea of the range of these exchange rates:

1 Pack camel:	12 - 20 smallstock mixed in species, age and sex
1 female camel:	18 - 30 smallstock mixed in species, age and sex
1 heifer (bovine):	11 - 14 smallstock mixed in species, age and sex
1 cow:	c. 20 smallstock mixed in species, age and sex

Labour considerations frequently delay a man's decision:

(i) to leave his brothers and to pull out his stock from the family herd; and

(ii) to diversify his herd.

We knew of men who prematurely left their brothers' camp but later returned with their stock after having learned that it is difficult, labour-wise, to manage on one's own. Gabra men learn to stay with their brothers at least until they are assured that they have sufficient stock and labour to herd them. Frequently some brothers decide to live together for a lifetime (Chapter 2, Section E). By doing so they can better guarantee sufficiency in stock and labour.

Sons of very poor families can acquire stock by hiring their labour to more wealthy households. However, in Gabra society this creates a great dependency between the hired and the person who hires. The relationship frequently generates into a patron-client type of relationship in which there is no fixed rate of remuneration. Nowadays a number of poor men look for a job and use savings from their wages to buy livestock to build up their herds.

Women can only acquire ownership rights over livestock in their roles as wives and mothers (Dahl, 1979). We have mentioned above that women acquire dowry *(barito)* stock at marriage. There are, however, other occasions when a woman acquires animals. When a son is circumcised the mother burns the foreskin and she is then presented with gift(s) of animal(s). These animals are referred to as *dungo* stock. As mentioned above she also obtains a male camel at the marriage of a daughter.

Only women who have sons can look forward to widowhood with any comfort. The eldest son is responsible for the welfare of his widowed mother since he inherits his father's stock. All livestock, except her *barito* animals, can be taken from a widow without a son by her dead husband's brother(s).

Chapter 6

FOLK KNOWLEDGE OF THE RANGE AND LIVESTOCK

Livestock owners and herders have a wealth of knowledge of their natural environment and livestock which includes information on the location of springs and waterholes, the identification and location of numerous plants and their uses, characteristics and needs of their animals, and common diseases to which they are vulnerable. Such folk knowledge should be acknowledged by range and livestock specialists in their assessment of indigenous range and livestock management practices. It should also be central in any dialogue between the pastoralists and the livestock specialists in animal husbandry, livestock nutrition and veterinary science.

A. FOLK KNOWLEDGE OF THE VEGETATION

The Gabra identify a large number of plant species. They know where different species may be found. Some of the terrain types mentioned by informants in interviews on the location of different vegetation species were: *sarbob* (mid-range levels of a mountain), *badha* (upper reaches of the mountain, frequently associated with cold conditions), *lafichah lalfa* (soft ground), *dida* (plains, frequently associated with heat), *gamoji dida* (hot plains), *caffa lafa* (areas inundated with water), *hirma* (upper reaches of a hill), *woroma lafa* (areas with a thick cover of trees and shrubs), *laga* (riverine areas), *bule* (foothills), *rar lafa* (stony areas with tree and shrub cover), *bule dakha* (stony hills), *kakat* (stony areas), etc. The major characterizations of places centred on contrasts between hot/cold places, soft/stony areas, localities with/without thick cover of trees and shrubs and on the relative altitude of places (upper, mid-range and lower levels of mountains, and plains). Different types of terrain are associated with different plant species. For example, it is maintained that certain species thrive in high altitude and cold places (viz. *qalqalch*) and others in hot places (viz. *shisha*).

The primary use of the range is for feeding livestock and the principal vegetational preferences of the different domestic animals during wet and dry seasons as perceived by informants are outlined in Tables 6.1 and 6.2 below. The fodder value of *Acacia tortilis* pods *(arbu)* in dry seasons and of the flowers *(dharara)* of some of the *Acacia* species during wet seasons is well known.

Table 6.1 Vegetational preferences of camels

DRY SEASON		
1.	*Agagaro*	(*Indigofera* species)
2.	*Adhe*	(*Salvadora persica*)
3.	*Barat*	
4.	*Buyo*	
5.	*Qorati galla*	
6.	*Jilbete*	
7.	*Durte*	
8.	*Madera*	(*Cordia sinensis*)
9.	*Adum*	
10.	*Okomis*	
11.	*Qadhu*	
12.	*Shisha*	(*Baleria* species)

Others mentioned were: *abalkabba, agarsu, banya, chame, chica, chimpa, dadacha, dhakar, dumasho, madeqh* and *qaralcha.*

WET SEASON		
1.	*Agagaro*	(*Indigofera* species)
2.	*Madera*	(*Cordia sinensis*)
3.	*Assura*	
4.	*Okomisha*	
5.	*Qorat galla*	
6.	*Barat*	
7.	*Buyo*	(*Cenchrus ciliaris*)
8.	*Munyamunye*	
9.	*Abalkalbba*	
10.	*Banya*	
11	*Dekha*	
12.	*Gelgedhan*	
13.	*Jilbete*	
14.	*Korkod*	
15.	*Madeqh*	
16.	*Obe*	

Others mentioned were: *ames, adum, cimpa, dadale, fursa, gabe, hachacha, jirimocha, laqude, safara* (*Moringa* species), *sarim (Duosperma eremophilum)* and *shisha (Baleria* species).

Table 6.2 Vegetational preferences of cattle

DRY SEASON	
1.	*Dhilalesa*
2.	*Murat*
3.	*Sampe*
4.	*Bila*
5.	*Buyo*
6.	*Barat*
7.	*Idho*
8.	*Ilmogor*
9.	*Omorofis*
10.	*Serich*
11.	*Sokorsa*
WET SEASON	
1.	*Chope*
2.	*Murat*
3.	*Qayu*
4.	*Burate*
5.	*Dhilasesa*
6.	*Idho*
7.	*Sampe*
8.	*Agagaro*
9.	*Ilmogor*
10.	*Omorofis*
11.	*Sokorsa*

Plants are classified as being salty *(inquraa)*, having a sweet odour *(inurgofti)*, bitter *(inadau)* or sweet *(imia)*.

The Gabra frequently judge the productivity of a range by the amount of milk the animals that are using it produce. When the milk yields reach unacceptably low levels the camp moves elsewhere. Overgrazed areas are known as *barbatha*. Traditionally people were not allowed to graze in wet seasons in rangeland surrounding permanent water. Nowadays Government chiefs and assistant chiefs have replaced indigenous leaders in importance and except for a few isolated instances these administrators fail to give leadership in matters dealing with grazing control. This results in a free-for-all. Elders state that a return to some form of grazing control is acceptable.

B. FINDING WATER

In discussions on their development needs Gabra elders are quick to point out that water is their greatest need. Much time, labour, thought and organization goes into finding and providing water for domestic use and animals. Priority is assigned to providing water for human consumption. Since camels can do without water for over 15 days and are able to walk up to 70 km for water they appear at the bottom of the priority list. Cattle, who need to be watered every second day, are given top priority amongst the domestic animals in water management considerations, while smallstock, which need to be watered every fifth day, are second on the priority list. The laboriousness of herding is related to the frequency with which animals have to be watered. Cattle herding is regarded as the most labour consuming occupation and camels the least toilsome to manage.

The arrival of the rains is always welcome and marks the end of the toil and care involved in providing water from dug wells until the onset of the next dry season. When the vegetation is green camels and smallstock need to be watered less frequently because of the extra moisture in their food intake. There are times during the wet season in the upper reaches of the Hurri Hills when camels are only watered once a month and smallstock are not watered at all. All animals, in particular cattle, use surface water which collects in wet seasons. The Gabra distinguish between different types of surface water points. Flood plains are known as *caffa* and dams as *haro*. A large water pan is termed *damballa*. Smaller water pans are known as *dolol*, *nagat*, *malalba* and *malbe*. A large rock catchment, such as is found at Afgab, is termed *garb/qarsa*. A small rock/river pool is termed *gotu* and a water puddle *bugisa*.

The natural surface water which collects in wet seasons enables cattle and smallstock to use parts of the range inaccessible in dry conditions because of the distance from permanent water. The sites of these surface water points are common knowledge and some of them are listed in Table 6.3.

Table 6.3 Sites of surface water points

North of Hurri Hills

Damballa Kilkolla, Damballa Allero, Damballa Badhana, Damballa Shabeli.

Northern slopes of Hurri Hills

Damballa Dhofi, Damballa Bakisa, Damballa Nanah, Damballa Gange Ali Elema.

Eastern slopes of Hurri Hills

Dololo Qarari Irres Bodhe, Dololo Madera Rukiti, Dololo Kukub Urgo, Dololo Malka Sotowa Ege Cirra, Adhama, Qarse Dhoya, Buqisa Sheshere.

Southern slopes of Hurri Hills

Dololo Finchami, Dololo Ilama, Dololo Arano, Dololo Kubi Bua, Dololo Gotu Game, Dololo Warra, Dololo Awacha Irres Nyacha, Dololo Buta, Dololo Tullu Dimtu, Garb Afgab, Dololo Adhe, Dololo Alguman, Damballa Lon Haro, Damballa Hos Golbo, Damballa Agaricha, Damballa Teso Gamurra, Damball Urgo, Damballa Qeramsa, Dololo Dambitu, Qarsa Garb Ree, Kubi Qarsa, Dololo Iyolle, Gotu Waraa, Gotu Gamee, Dololo Dadach Fucani Allatii, Dololo Arano, Qacaca Toricha Gotu Matakurma, Gotu Ental Oboroo, Dololo Qoboo, Naqata Orgore Ibrae, Dololo Illamba, Damballa Qersa, Damballa Tummu, Damballa Ires Sora Gota, Dololo Dadach Marmaa, Dololo Ires Jarti Abdudo Alqayu, Dololo Dadach Ilmele, Dololo Dadach Abalakha, Dololo Ires Guyo Korre, Dololo Athee, Dololo Dhaicha ta Dadach Cillaqida, Damballa Dakhaa Bucani Allatii, Gotu Warah etc.

Western slopes of Hurri Hills

Dololo Umbasar, Qarsa Birchabis, Qarsa Arkor, Dololo Reficha, Dololo Kalessa, Dololo Daqanne, Naqat Ugora Ibrae, Dololo Raq Sumure, Dololo Tumticha, Dololo Dadaba, Gotu Qararii.

Table 6.3 continued.

Upper reaches of the Hurri Hills

Garb Bori, Garb Obessa, Qarsa Baqaqa, Garb Dhoo, Garb Gadamsa, Caffa, Garb Gathamsa, Garb Dhaho, Garb Bori, Qarsa Baqaqa, Qarsa Waciu, Qarsa Doyya, Qarsa Obaso, Qarsa Athamaa, Matho Afaro, Matho Shurii, Matho Kutuu, Qarsa Dhoya, Qarsa Girimue, Qarsa Gurba Elema Bore, Gotu Qaran etc.

Eastern side of the Chalbi

Damballa Rage, Gotu Dhafata, Damballa Ireres Bobo, Irres Dima, Dololo Mata Gocha, Dololo Hos Qencho, Dololo Ark Anchabi, Dololo Hos Bericha, Dololo Innata, Damballa Bisan Guracha, Dololo Kaa Adhe, Dololo Terejan, Dololo Ghafa Korangogo, Dololo Qoti Korre, Dololo Man Hagicha, Dololo Kilkille, Dolol Naqa, Damballa Badhana, Gotu Iyole Tullu, Damballa Agarich, Damball Urgoo, Damballa Teso Gamura, Malibe Mulude, Damballa Lon Haro, Gotu Darawe, Damballa Dara Haraa, Gotu Kambi Guyo Liban, Dololo Dimtu, Qacaca Algumani, Gotu Dhofataa, Damballa Lon Jalla etc.

Western side of the Chalbi

Malalba Ildere, Chafa Ildere, Dololo Balessa Raqa, Dololo Arillo, Malalba Intal Odisa, Malalba Bisiqa, Malalba Bassuma Ildere, Malalba Intal Odhisa, Damballa Lon Gusaa etc.

Upper reaches of Asie Mountain

Qarsa Ree Dufu, Dololo Funkoftu, Qarsa Sukela, Qarsa Sala Ashe, Qarsa Fun Qotuu.

In dry seasons people fall back on the springs (which are mainly located at the edges of the Chalbi Desert) and on dug waterholes.

Springs of the Chalbi Desert and elsewhere

The major springs are at the following places: we start with Mehate and work our way anti-clockwise around the Chalbi Desert:
Medhate, Gamura, Mulude, Karawe Diqa, Karawe Arba, Burqaa, Kalacha Godha, Kalacha Dida, North Horr (Horri Gudha, Horri Diqa, Erendheri Gudho and Erendheri Diqo), Wormo and Kurawa.

Other important springs are located at Gas, Wano, and Madho Siginte.

Table 6.4 lists the location of important waterholes. In general, the majority of camels utilize the springs but small numbers can be watered at waterholes.

Table 6.4 Location of waterholes

Eastern slopes of the Hurri Hills
El Afaro, Madho Shuri, El Dula (also referred to as the Konso well)
Western slopes of the Hurri Hills
El Nadeeni
Eastern side of the Chalbi
Maikona, Kalacha, El Rage, El Boji, El Wato Elema, El Gadhe, El Godana Iyesa etc.
Western side of the Chalbi
Balessa Bobor, Balessa Ildere, Balessa Oloma, Balessa Dedera, Balessa Raqa, Balessa Intal Odisa, Balessa Ilmole, Balessa Yabi, and Malabot.
South of the North Horr-Loiyangalani Road
El Kancharo, Qete and Gas.
Between Loiyangalani and Alia Bay Roads
Jijiga, Balessa Ree Guyo, Dosso, Sinafur, El Tokoch, Madho Chiladhu, Sarimo, Komodhe, Galas, Koronto, Balessa Gorore, Balessa Chiladhu, Balessa Ashura, Balessa Nyecha, Tumal, Balessa Gabasa, Fur, Garb Alowani etc.
West of North Horr-Dukana-El Yibo Road
El Besso, Nyaber, Uranura, Dhavadhe, Buluq Araftis and Sabarei.
East of North Horr-Dukana-El Yibo Road
Balessa, Adi, and Marime.
Southern Ethiopia
Gorai, Oboq, Dhilo, Magadho, Qadim, Sake, Arbale, Somatale, El Dhima, Marmaro, El Odha, El Hola etc.

As mentioned above, cattle are given priority over smallstock at dug waterholes. The person who initially dug the waterhole and found water is known as the *abba koffi*. He is also regarded as the owner of the well *(abba ella)*. However, the task of managing the use of the well is assigned to the person who is selected to become the *hereg (abba balla)*. He may appoint assistants to help him in his task. Ideally water schedules are designed for smallstock on a four-day cycle and for cattle on a two-day cycle. On the first day of the smallstock cycle the owner and members of his family have priority over the use of the well, the second day is assigned to close and distant agnates living in the locality, the third day is allocated to affines and the fourth day is open to others. However, this ideal model is not always followed. There are strict rules with regard to the use and maintenance of wells and the behaviour of those using the well. Offences are penalized. In addition, people are prohibited from cutting down trees close to wells as they are required as shade for livestock.

C. CAMELS

The camel is regarded as the most reliable of all animals. In drought periods it is able to provide milk when the milk yields of other animals drop drastically. It provides blood and meat in large quantities and its fat is thought to be delicious. It is valued for its ability to do without water for long periods. This, and the fact that it is able to cover long distances without flagging, enables the camel to use pastures long distances from water. Its qualities as a pack animal are also highly regarded. Socially the possession of large numbers of camels brings high status to the owner and camels are the preferred animals for use in bridewealth payments.

A number of ritual prescriptions are followed in managing camels (Torry, 1973). After birth the umbilical cord is placed in grass, sprinkled with the mother's milk and placed in front of the mother's hump *(korodh)* if the calf is a male, and behind the hump *(irma)* if a female calf is born. When a *sarma* camel (i.e. a camel given by a maternal uncle to someone who has killed an enemy) gives birth, people celebrate, coffee beans are fried, tobacco is chewed and women sing. If a camel gives birth early in the morning (an event which is referred to as *saesa*) a piece of bark from a doum palm tree is tied around its neck. People are disturbed when a camel gives birth to twins.

Only celibates are permitted to milk camels. Women are not even permitted to touch the udders of camels. Camel milk is not to be given out on Sundays since Sunday is the day of the camel. People from hunting groups such as the Dorobo are not allowed to drink from the camel milk bucket. Camels can only be slaughtered when the owner and his first born is present. It is thought inadvisable to water camels on Sundays and Saturdays. If this happens they are not permitted to be away on Saturday night. When camels are brought to water for the first time after the wet season it must be done on Mondays, Thursdays and Fridays.

Camel owners without breeding bulls can obtain a loan of one but the loaned animal must be brought along from the owner's camp with a companion female camel. Bulls are never permitted to mate with their mothers. Very old bulls are not slaughtered. Instead they are garlanded and led out to the bush to die. When camels are sent to *fora* most of the milch animals must be left behind as well as all the baggage camels. When the *fora* camels are leaving for a new grazing site a sheep is tied at the gate of the pen and the camels and the herders are not permitted to pass on the left (south) of this sheep. The herders pass their hands over the back of the sheep from head to tail. Prayers are also said. A similar practice is followed when the *fora* camels return. Girls and boys can herd camels but girls are not permitted to open or close the gates of camel pens. The preferred months for giving others camels are the *Somidera* and *Yaqaa* months. Camels are not sold during the *Sorio* and on Sundays.

Inquiries about the physiological characteristics and management of camels produced the following replies. Camels become pregnant during wet seasons when in good condition and mainly in the long wet season *(gana)*, before the disappearance of a star cluster known as *busan* in the case of adult females and later in the season in the case of heifers. Gestation lasts for approximately 12 months. Abortion rates varied between 2 and 6 per ten pregnancies. Trypanosomiasis is a major cause. The rate of deaths amongst calves ranges between 2 and 5 per ten births. Calf mortality was attributed to tick-borne diseases (*yaqala*), foot and mouth, a calf disease locally known as *qarfata*, toxic poisoning from a plant known as *badhana*, insufficient milk, sunstroke, drought and fractured leg bones. It is also believed that when a dam is milked by non-celibates the calf will die.

Lactation periods deviated between 12 and 24 months depending on when the next pregnancy intervened. Calves begin to be weaned after 10 to 12 months.

They are put to water after 4 to 6 months in dry conditions and are allowed to join their mothers in grazing when 12 - 24 months old. Males are castrated in their fifth or sixth year and females first give birth when 5 - 6 years old. The number of breeding males per herding unit depends on its size and varies between 1 and 3 bulls (Chapter 9, Section D).

The maximum number of calves born to a female in a lifetime ranges from 9 to 15. One informant indicated that camels give birth to fewer calves nowadays because of drought conditions, disease and the degradation of the range.

Camels can utilize pastures over 70 km from water. However, the journey to and from water over such long distances takes up to four days. The preferred distance, however, is 15 to 40 km from water. When pastures are dry people tend to send their camels to water every 11 to 14 days. However, if the camels are relatively close to water they may be sent every fifth to eighth day. Camel vegetational preferences as perceived by informants were given in Table 6.1.

Table 6.5 lists camel diseases and conditions which we recorded during the course of field work.

Table 6.5 Camel diseases and conditions

1. *Qufaa*

Symptoms: Cough

Treatment: In some cases tobacco is boiled in water and given to the sick animal to drink. This will be referred to as the 'tobacco treatment'.

2. *Malla*

Symptoms: A swelling on the neck, legs and side.

Treatment: A plant known as *arkhen* is chopped into small pieces and boiled in the water. This will be referred to as the *arkhen* solution. The *arkhen* solution is then administered to the sick animal. The tobacco treatment is also used. The animal is branded around affected parts.

3. *Qando*

Symptoms: Hair becomes erect, watery eyes, animal shivers, high fever and anorexia.

Treatment: Tobacco treatment.

Table 6.5 continued.

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4. *Dukub tari*

Symptoms: Protuberance of the eyes.

Treatment: Branding.

5. *Simpiro*

Symptoms: Restlessness.
Treatment: Branding on the neck.

6. *Matita*

Symptoms: Hair becomes erect and head swells.
Treatment: Animal is bled.

7. *Sirgo (T. multiceps: Caenurus cerebralis)*

Symptoms: Animal is restless, drinks and eats a lot, and becomes anxious.
Treatment: No local treatment and the animal usually has to be slaughtered.

8. *Chacharsa*

Symptoms: Backbone crackles.
Treatment: Branding along the back.

9. *Dukub furi*

Symptoms: Mucus from the nose and anorexia.
Treatment: *Arkhen* solution is poured through the nostrils.

10. *Haaro*

Symptoms: The animal is seen to munch a lot.
Treatment: A *sosso* cloth (this is the cloth that is used to remove charcoal from milk containers) is used to clean the animal's tongue.

11. *Lugussa*

Symptoms: Sore throat and fever.
Treatment: It is regarded as one of the more serious of camel diseases and there is no local treatment.

Table 6.5 continued.

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12. *Chilmale*

Symptoms: Swollen glands and the coat becomes pale and shiny.
Treatment: The animal is fumigated by the burning of either a hyena's skin or bones. The animal is bled and in some cases soapy water is poured down the sick animal's throat.

13. *Afdara* (a calf ailment)

Symptoms: Sores of the mouth and swelling of the throat.
Treatment: The calf is prevented from suckling and is given fat to eat. As a preventive measure the neck is branded.

14. *Matiti*

Symptoms: Swelling in the head. Difficulty in breathing after drinking water.
Treatment: Swollen part is lanced.

15. *Chachapsa mohoh*

Symptoms: The toes of hind legs bend backwards. The backbone crackles.
Treatment: The back is branded.

16. *Karfat*

Symptoms: Sores over the body.
Treatment: The *arkhen* solution is administered by mouth.

17. *Gandhi* (trypanosomiasis)

Symptoms: The animal becomes weak and its coat becomes shiny.
Treatment: No local treatment.

18. *Qoshe*

Symptoms: The animal becomes weak.
Treatment: No local treatment.

19. *Chawe* (an abscess)

Treatment: The milky juice of the *arkhen* plant is applied over the abscess.

Table 6.5 continued.

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20. *Kilisa*

Symptoms: The animal seems as if it is choking.
Treatment: Neck branded.

21. *Qutaa*

Symptoms: Severe coughing and anorexia.
Treatment: No local treatment.

D. CATTLE

When asked why the Gabra keep cattle, informants gave a number of reasons. The Gabra are aware that the livestock market favours cattle. 'Cattle are not difficult to sell like camels.' They produce good quality meat. Their milk has a high fat content and produces good quality ghee and yoghurt. They can be used when paying bridewealth and their skins are used as sleeping mats and for making sandals. A large herd of cattle brings a man status.

Few ritual prescriptions are followed in managing cattle. The main regulation is that cattle may not be sold or given to others as gifts or loans on Saturdays because Saturday is regarded as the day of cattle (*ayyan loni).* The most appropriate months for such activities are the *Somdar* and *Yaqqa* months.

Inquiries about the physiological characteristics and needs of cattle as perceived by Gabra herdsmen produced the following information.

Cattle usually become pregnant during wet seasons when in good physical condition and pregnancy is more likely to take place in the long wet season than during the short rains. Cattle owners try to prevent mating until the previous calf has been suckling for at least 9 months. The gestation period is 9 months. This means that cows that become pregnant during the long rain season drop their calves in the short dry season. Abortion rates vary between 0 and 3 abortions per ten pregnancies. Calf mortality rates during the previous year ranged from 0 - 2 deaths per ten calves born. Calf mortality was attributed to disease (*dadi, diyale, aruha* and anthrax) and drought. Lactation lasts for 12 - 14 months unless a new pregnancy intervenes. Calves suckle for 6 - 12 months depending on when the dams come in calf again. In rare cases

the dam becomes pregnant two months after birth. This means that lactation ceases around the sixth month after the previous birth. Calves are first watered between the third and fourth months and they join their dams for grazing in their second year. Castration of males takes place between the third and fourth year. There are 1 - 2 breeding bulls per herd depending on its size. A herd of 40 cows and heifers normally has two breeding bulls (cf Chapter 9, Section D (i)). Females give birth for the first time when they are three or four years old. Cows give birth to 9 - 10 calves in a lifetime. In rare cases a cow produces 15 calves.

In wet seasons cattle are watered every day when close to water and every second day when grazing some distance from water. In dry seasons they are watered every second day when close to water and every third day when using range some distance from water. The maximum distance they can graze from water was put at between 10 and 18 km when the journey to and from the water point is over soft terrain. However, if the journey is over lava fields the maximum distance was judged to be 5 - 6 km. Vegetation preferences of cattle in dry and wet seasons as perceived by interviewees were given in Table 6.2.

Cattle diseases mentioned in interviews are contained in Table 6.6.

Table 6.6 Cattle diseases and conditions

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1. *Arkha* (Black quarter)

Symptom(s): Swelling of the forelimbs and fever.

Treatment: No local treatment.

2. *Awars*

Symptom(s): Urinates blood.

Treatment: The sick animal is bled and is administered sheep fat.

3. *Butta* (Three-day fever)

Symptoms: Anorexia and listlessness.

Treatment: The animal is bled in the neck.

4. *Chawe*

Symptom(s): Coat loses hair.

Treatment: Affected parts smeared with oil from mutton fat and singed.

Table 6.6 continued.

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5. *Chilmale*

Symptoms: The sick animal has a temperature, swollen glands and pancreas *(rajeji)* and is listless.

Treatment: The sick animal is bled.

Gum arabic is chewed and placed in the sick animal's mouth. The cattle *boma* is fumigated with smoke from a burning hyena's skin.

6. *Chirr*

Symptom(s): Blindness

Treatment: No local treatment and the animal is usually slaughtered.

7. *Dadi* (Intestinal helminthiasis)

Symptoms: Diarrhoea, watery eyes, mucous nose, hair becomes erect and the coat becomes pale.

Treatment: The sick animal is fumigated with smoke from burning a plant known as *hargessa*. The sick animal is kept separate from the others and women are expected to keep clear of the sick animal. It is also believed that the herder is to keep celibate during the sickness.

8. *Dharabota*

Symptom(s): Bloat

Treatment: The area around tail and rump is singed.

9. *Lutta* (Rinderpest)

Symptoms: Animal loses weight and becomes emaciated.

Treatment: The oil from sheep's fat is administered through the nostrils.

10. *Oiyale* (Foot and mouth)

Symptoms: The animal limps because of sores between the hooves.

Treatment: No local treatment but the sick animal is moved to a hot area if possible.

11. *Robbi* (Ringworm)

This condition is found mainly in calves.

Treatment: The rash is smeared with mud.

Table 6.6 continued.

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12. *Sillisa* (Haemorrhagic septicaemia)

Symptoms: Saliva drips from the mouth and the gums develop sores.
Treatment: The sick animal is branded around the neck.

13. *Simpire day*

Symptoms: Joints swell and the animal limps.
Treatment: The animal is branded around the swollen parts.

14. *Sombesa* (Contagious bovine pleuro-pneumonia)

Symptoms: The sick animal is listless, has difficulty in breathing and its lungs and liver swell.
Treatment: The roots of the plant known as *bursa* are pounded and boiled in water. The mixture is poured through the animals nostrils.

15. *Tumma*

Symptoms: The sick animal coughs, has a fever and its nose is dry and contains mucus.
Treatment: The plant *bursa* is chopped up and boiled in water and the mixture is given to the sick animal to drink. Alternatively the *bursa* plant is chewed by a person and the saliva which is produced fed to the animal. One informant mentioned that the sick animal is fumigated with smoke from a burning *bursa* plant.

16. *Qawa*

Symptoms: The sick animal loses condition and 'has holes in its body which are just covered with skin'.
Treatment: The sick animal is branded with a hot iron around the severe sores. Oil from mutton fat (or cooking oil provided by the mission) is administered through the nostrils.

E. SHEEP AND GOATS

The fat of sheep is used in cooking and mutton soup is administered to sick people and animals and to give sustenance to women after giving birth (Chapter 8, Section B). The milk of ewes is second only to cow milk in fat

content and hence is also used in the production of yoghurt and ghee. Smallstock in general can be sold to meet minor domestic financial needs and it is known that there is a better market for goats because their meat is in higher demand in the wider economy (Chapter 8, Section C). Smallstock are also used to meet meat requirements of households. However, the Gabra slaughter more sheep than goats (Chapter 8, Section B). Smallstock flocks are valued for their ability to grow much faster than camel and cattle herds.

Smallstock cannot be sold or given away on the day of the week on which the owner was born, on the first day of the new moon, during Almadho or on Mondays because Monday is regarded as the day of the smallstock. Smallstock ought not be moved to a new camp on the 15th or 16th day of the new moon *(gobana taka)*.

Smallstock are liable to breed all the year around, however more pregnancies occur during wet seasons when pastures are succulent and the animals are in moderate or good condition. The gestation period for sheep is thought to last 3 - 4 months and for goats 4 - 5 months. Hence sheep that breed in the April - May rains drop their lambs between July and September and goats their kids between August and October. These are dry months when there is little to suckle. Ewes which mate in the November - December rains give birth in February - April and similarly does give birth in March - May. The latter parts of these periods are more propitious for the newly born lambs and kids since they coincide with the April - May rains. Abortion rates for ewes were put at 2 - 3 abortions per ten pregnancies and higher rates are thought to occur amongst does. Extreme heat is said to cause abortion. Deaths amongst lambs and kids were attributed to tick-borne diseases and other diseases *(dukub turu, buta,* foot and mouth), insufficient milk, heat (affects kids more than lambs) and predators, particularly hyenas.

Effective lactation lasts for 3 - 4 months in the case of sheep and 3 - 5 months for goats. Lambs and kids are usually allowed to suckle during effective lactation. However, during drought they may be weaned earlier. Lambs have easier access to their dams than kids. Lambs and kids are first brought to water in their 2nd - 4th month, depending on whether wet or dry conditions prevail. In dry conditions it is necessary to put them on water sooner. Lambs are allowed to graze with their mothers when 2 - 3 months old, kids when 4 - 5 months old as their mothers approach the end of effective lactation.

Males are castrated in their second year. The number of breeding males per flock depends on its size and varies between 1 and 5 (Chapter 9, Section D).

Females of both species can give birth for the first time in their second year. In a lifetime ewes give birth to 12 - 15 lambs and does 10 - 13 kids.

In dry conditions smallstock are watered every third or fourth day when close to water and every fifth or sixth day when more distant from water. The maximum distance smallstock can graze/browse from water varies between 25 and 30 km. In wet seasons their need for water is much reduced by the moisture they obtain from succulent grasses and in the Hurri Hills dew also diminishes the need for water.

Table 6.7 lists sicknesses and ailments of smallstock recorded during the course of fieldwork.

Table 6.7 Smallstock diseases and conditions

Biraa (g)

Symptoms: A high temperature and fever.
Treatment: The sick animal is fumigated with smoke from burning a plant known as *sotowes*.

Butt (g)

Symptoms: Body swells out and the coat becomes pale. Effects kids mainly.
Treatment: Ears are cut.

Chilmale (g + sh)

Symptoms: Fever, swollen glands and listlessness.
Treatment: The sick animal is bled. Gum arabic is chewed and administered to the sick animal.

Chito (g)

Symptoms: The hair of the coat falls off and a rash develops.
Treatment: The sick animal is taken to hot areas. A mixture made from a plant known as *obbe* is applied to the animal's skin.

Dukub anani (g)

Symptoms: Joints of the front legs stiffen and the animal is unable to walk. Affects kids mainly.

Table 6.7 continued.

Dukubu turu (sh + g)

Symptoms: Animal has much pain.
Treatment: No local treatment. As a preventive measure the coat of the animal surrounding the rib cage and close to the lungs is branded.

Mareb (g)

Symptoms: Fever and dies quickly.
Treatment: No local treatment.

Matita (sh) (*Clostridium chiovi* Type A infection: 'big head')

Symptoms: Diarrhoea and swelling of head.
Treatment: No local treatment.

Okol (sh + g) (Foot rot)

Symptoms: The animal is limp, sores in the hooves and legs swell.
Treatment: No local treatment.

Qando (sh)

Symptoms: Listlessness, anorexia, fever and diarrhoea.
Treatment: No local treatment.

Sirgo (sh + g) (*T. multiceps: Caenurus cerebralis*)

Symptoms: Restlessness and over-eating.
Treatment: No local treatment and the animal is usually slaughtered for meat.

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g = goat; sh = sheep

Note

I am grateful to Drs. Rutagwenda and Omara-Opyene for providing me with the scientific names of a number of animal diseases and conditions known to the Gabra.

Chapter 7

GABRA HERD MANAGEMENT PRACTICES

A. HERDING UNITS

It is common practice for households to combine their herds and flocks to form herding or grazing units. This co-operation is referred to as *sololo* (Torry, 1973) and since households possess fewer large stock than smallstock co-operation in the herding of the former stock is more extensive than in the case of smallstock. To illustrate how households within Gabra camps co-operate in herding we give the case of Adano's camp whose social composition was studied in Chapter 3, Section F. The camp of Adano has five households constituted from six houses.

Table 7.1 Herding partnerships of Adano's camp

Herding unit type and no.	Co-operating houses	No. of stock in herding unit	No. of herders
Local camels (1)	1 - 6	24 + (7)	1
Local cattle (1)	1 - 6	21 + (21)	1
Local smallstock (1)	1 and 6	110 + (34)	1
Local smallstock (2)	2 - 5	102 + (47)	1

Figures in parenthesis indicate young animals (i.e. calves, lambs and kids)

This camp co-operated in creating one camel herding unit of 24 camels and one cattle herding unit of 21 head of cattle. The herder of the camels was an unmarried son aged 29 of house 3 and the cattle herder a twelve-year-old daughter of house 4. The older camel calves and the bovine calves grazed close to the camp and had no particular herder. People in the camp kept an eye on them periodically during the day. The smallstock of the camp were divided into two herding units with the Algana members of the camp herding separately from the Odola members. The herder of the first smallstock unit was a daughter aged eight of house 1 and a girl aged fifteen of house 2 the herder of the second herding unit. The young and old lambs grazed with their mothers. This is normal practice (Chapter 6, Section E). However,

young kids do not normally join their mothers in grazing: the camp did not have labour to follow the norm. Instead they grazed the young kids of houses 1 and 6 with the adult flock of houses 2 - 5, and the young of houses 2 - 5 with the adult flock of houses 1 and 6. In this way does were kept separate from their young kids during grazing hours.

It will be noted that the herding load is evenly distributed between the houses; houses 1 and 2 provide the smallstock herders, house 3 the camel herder, and house 4 the cattle herder. House 6 consists of a single widow whose son is head of house 1. House 5 consists of a couple with two young children unable to herd. However, the husband helps out in watering the camp's cattle as in supervising some of the young herders.

For the most part livestock owners are limited to the labour pool of the camp. Exceptions are mainly found in *fora* camps where a herder is free to join his stock with the stock of camps other than his own. Adano's camp was studied during wet conditions when all the stock were at the main camp. Turn-over in the personnel of main camps is high. Disagreement over where the camp ought to move next is a major cause. But also important is the search by individual households for camps in which there is sufficient labour for all herding tasks.

The second example of the herding associations of a camp is taken from Guyo's camp. This camp, in contrast to the previous camp, was researched during September when conditions were very dry. This necessitated sending away to *fora* camps not only cattle but also smallstock flocks. The camp has 12 houses which combine to create nine households.

The relatively small numbers of large stock owned by the camp did not necessitate a plurality of herding units for camels and one for cattle. In dry conditions cattle herds are usually sent to *fora* camps. Camels are only sent away either when conditions become very dry or if the camp has large numbers of them. When this camp was studied the cattle were at *fora* and the camels were still at the main camp. Although the average size of goat and sheep flocks of the camp is significantly smaller than the overall Gabra averages, the majority of the smallstock were at *fora* camps. As is the normal practice, more sheep than goats were sent away. One of the reasons for this strategy is to allow the main camp residents to avail of the milk of does with young kids. On the other hand, young lambs are permitted to suckle more than young kids which means their dams have much less milk available for human

consumption. It follows that from the point of view of milk for human consumption ewes are less important than does and hence can be released - with little loss to the main camp residents - to *fora* camps where fodder conditions are usually more favourable. Another consideration is that young lambs are more sturdy walkers than young kids, particularly when it is very hot, hence they are more suited to the long trek to the far away *fora* camps.

Table 7.2 Herding partnerships of Guyo's camp

Herding unit type and no.	Co-operating houses	No. of stock in herding unit	No. of herders
Local camels (1)	1 - 12	50 + (18)	1 (House 9)
Fora cattle (1)	1 - 2	21 + (6)	1 (House 1)
Local smallstock (1)	3 and 8	127 + (45)	1 (House 8)
Local smallstock (2)	4 - 7	19 + (19)	1 (House 7)
Local smallstock (3)	9 - 12	40 + (43)	1 (House 9)
Fora smallstock (1)	1 - 3	210 + (94)	1 (House 1)
Fora smallstock (2)	4 - 6	117 + (39)	1 (House 4)
Fora smallstock (3)	9 - 12	222 + (54)	1 (House 12)
Local kids and lambs (1)	4 - 8		1 (House 8)
Local kids and lambs (2)	9 - 12		2 (Houses 11 and 12)

Sixty-four per cent of the adult goats were at *fora* while only 41% of the kids were there (i.e. 59% of kids were at the main camps). However, in the case of sheep 83% of adults and lambs were at *fora*. Labour is also an important factor in deciding whether or not smallstock (or other animals) are sent to *fora*. The only household that had all its smallstock at *fora* also had access to the necessary labour to do so. The household had two able sons aged 31 and 29, respectively, while the household which had all its smallstock at the main camp consisted of an old man (69 years old), his wife (65 years old) and an adopted daughter (11 years old). He could only take care of smallstock locally and the adopted child managed kids and lambs locally.

In this camp most houses contribute some labour to the herding tasks. Table 7.2 indicates that houses 1, 4, 7, 8, 9, 11 and 12 contribute full-time herders. The heads of houses 3 and 5 play active roles as managers in the herding process, while houses 2, 6 and 10 consist of widows who live with married sons.

B. HERDING ROUTINES

Grazing, watering and milking routines vary with the season, and the frequency of suckling depends on the maturity of the young and the condition of the mother. In relation to milch animals a distinction must be made between those who have newly born young and those whose young are older and hence need to be suckled less. The routines discussed below are taken from a number of camps.

(i) Dry season camel herding routines

Young but not old calves are permitted to sleep with their mothers at night to facilitate suckling on demand throughout the night. We recorded two different styles of morning milking and suckling. In some cases camels departed for early morning grazing between 6.50 a.m. and 7.25 a.m. to return to the camp between 9.10 a.m. and 10.00 a.m. when they were both milked and suckled. They later left for grazing between 9.45 a.m. and 10.30 a.m.

In other cases they were first milked and suckled before grazing and only departed for pastures between 9.10 a.m and 9.30 a.m. In all cases young calves did not join their dams at pastures. In some instances old calves joined their mothers in grazing. The young calves normally graze close to the main camp. They depart for grazing later and arrive back earlier than the other camels. In the evening camels returned from pastures between 6.50 p.m. and 7.35 p.m. to be milked and suckled.

There is a great variation in the frequency of watering camels. Some of those who are very close to water were watered every fourth day. In these instances the older calves joined their mothers while young calves were watered at home. When camels utilize range which is far distant from water they may only be watered twice a month.

(ii) Dry season cattle herding

Usually young calves do not sleep with their dams during the night. In the morning dams are milked and suckled and then they depart for pastures between 7.15 a.m. and 8.45 a.m. Young calves never join the adult herd in grazing but in some instances the older calves do. When herded separately, calves always depart after their dams have left for grazing and they are usually in their pens when the adult cattle return from pastures. The cattle herd return to camp between 6.45 p.m. and 7.35 p.m. In some instances those with old calves are milked but not suckled. Those with young calves

are always milked and suckled after the day's grazing.

The frequency of watering depended on how far away the waterpoint was. We observed that at a camp in Wormo, which was relatively close to a waterhole, cattle were watered every day. However, when cattle use pastures some distance from water they are watered every two to three days.

(iii) Dry season smallstock herding

Young lambs but not young kids sleep with their mothers at night to facilitate suckling on demand. In the mornings before smallstock are released from their pens only ewes with old lambs and does with old kids are both milked. Ewes with young lambs are neither suckled nor milked. Adult smallstock depart for grazing between 7.15 a.m. and 9.00 a.m. Old lambs (but not always old kids) join their mothers in grazing. The older kids are moved to pastures later after the adult animals have left. The young kids and lambs leave much later still to use pastures close to the camp.

The adult smallstock return to camp between 6.45 p.m. and 7.25 p.m., the old kids around 6.30 p.m. and the younger animals around 6.00 p.m. Does are milked and suckled on arrival. Only ewes which are mothers of young lambs are milked and suckled.

Depending on the distance from water, smallstock are watered every fourth to sixth day. Young lambs and kids are not watered but the older ones are.

The following excerpt describes what is involved in watering smallstock that are 30 km from water:

> 'After being milked the smallstock flock with the old lambs and kids left camp at 7.00 a.m. in the care of a married man and a teenage girl. His role was to protect the animals from attack by predators and arrange matters at the North Horr springs. They were walked slowly and allowed to graze on route until 10.00 p.m. when they were milked. Milk surplus to the needs of the herders was stored in milk containers *(soror)* which were full of water at the beginning of the trek. Around 5.30 a.m. the following morning the stock were on the move again arriving at the springs around 7.00 a.m. They stayed there drinking at will until approximately 1.00 p.m. when they began their return journey walking slowly and grazing on route. They stopped for the night at 10.00 p.m. when they were milked. On the morning of the third day they broke camp at 4.00 a.m. to arrive back at the main camp at 7.00 a.m. for morning milking.

(iv) Wet season herding

The main adjustment to herding schedules at the onset of good rains is the tendency to bring back animals to the camp after early morning grazing. Cattle depart for pastures between 5.00 a.m. and 5.45 a.m. without being milked or suckled. They return between 7.30 a.m. and 8.15 a.m. to be both milked and suckled. They depart again for pastures around 9.30 a.m.

The first departure of camels from camp is much later than in the case of cattle. It was observed that they left between 6.15 a.m. and 6.45 a.m. although on a day when *Sorio* rites were celebrated camels left camp as late as 8.10 a.m. Camels return to camp after morning grazing around 9.30 a.m. At that time all the camel calves are suckled but only dams with old calves are milked - when households have sufficient milk. This enables the young calves to have as much milk as possible. Within the hour and when all the camels have been milked and/or suckled they depart again for grazing.

The smallstock are the last to leave camp in the morning, leaving around 8.00 a.m. to return around noon when it is very hot. They do not depart again for pastures until late afternoon. A variety of decisions are connected with the milking and suckling of ewes and does. Much depends on the age of their young. Within a camp different households follow different strategies depending on their need for milk from their smallstock. We illustrate the complexities by giving an example of milking and suckling patterns of a number of households of one camp during wet conditions.

In the morning the ewes with young lambs are separated from their lambs. These lambs had been with their mothers throughout the night. The dams are not milked. Ewes with older lambs are milked in the morning and the lambs are allowed to join them in grazing. In this way the lambs are permitted to suckle on demand. At noon when the flock is brought back none of the ewes are milked and the ewes with young lambs are not suckled. When the flock returns at evening the ewes with young lambs are milked dry and then spend the night with their lambs. On the other hand the ewes with older lambs are separated from them but are not milked because they have been with their lambs throughout the day. They are only milked on the following morning.

Goats follow a slightly different pattern. None of the kids are allowed to stay with their mothers during the night. Before going to pastures does with young kids are milked and suckled. The does with older kids are neither milked nor suckled. None of the kids join their mothers at pasture. At noon does with young kids are neither milked nor suckled. However, does with older kids are both milked and suckled. At evening all does are milked and suckled.

The wet season adjustment to the herding strategy is based on a number of considerations. In the case of smallstock it shortens the period they spend on the range and hence reduces the danger of bloat. The return of the large stock to the camp after morning grazing allows the camp residents and calves to avail of their milk.

We observed that camels and smallstock were never brought to water during the height of the wet season. At that time there is sufficient surface water available locally for cattle to drink. Indeed people complain about how the cattle are primarily responsible for drying up surface water points which they intended to use for human consumption.

C. RANGE USE

The Gabra complain that where there is good grazing there is no water and where there is water the range is degraded. During the rains the Gabra tend to move into areas where the rain falls heaviest and where the vegetation is succulent and plentiful (Chapter 3, Section C). These areas are usually some distance from permanent water and hence the wet season use of the range does not normally contribute to range degradation. However, as soon as the dry season begins and the need to water animals frequently returns many of the Gabra camps tend to move immediately close to permanent water. In the absence of grazing control, range close to permanent water is first used and as the dry season proceeds camps move further away from permanent water. This range use practice results in ever expanding circles of denuded range around permanent water. A typical example is the range east of the Chalbi Desert between Kalacha and Lag Ballal, an area that is served by a number of springs and waterholes.

This imbalance in the grazing use of the range is paralleled by a similar skewness in the utilization of the range for building material and livestock enclosures, and for firewood. The areas surrounding most trading centres have long lost any adequate tree cover due to local demands for firewood and fencing material. Kalacha - where some enlightened local leaders have banned tree cutting - is an exception. Areas surrounding regularly used sites for main and satellite *(fora)* camps are also greatly denuded of tree cover.

Chapter 8

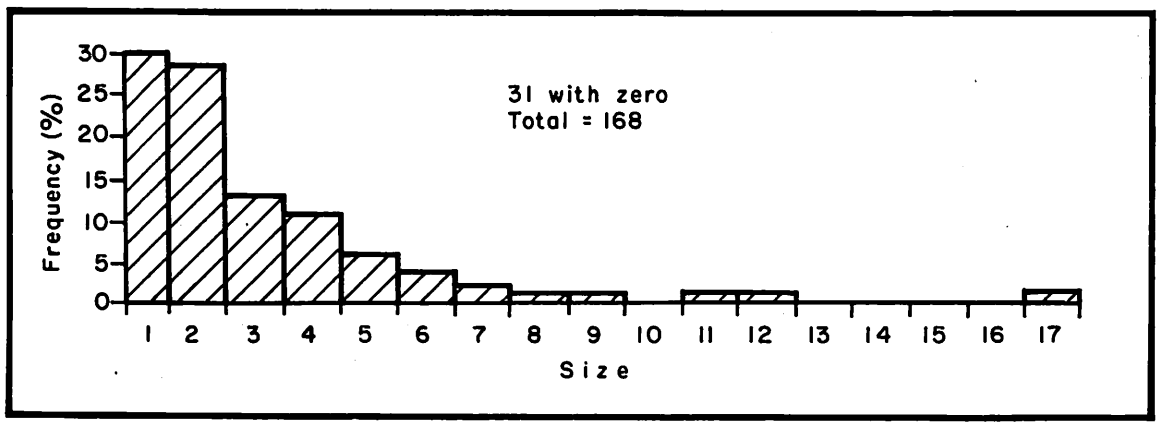
ECONOMIC USES OF LIVESTOCK

In this chapter the emphasis is on husbandry, i.e. what the Gabra obtain from their herding in terms of food (milk and meat). The Gabra also bleed their camels and cattle for blood but it was not possible to obtain substantial data on this source of food which is important particularly in dry and drought conditions. We recorded the number of milch animals households had. In the course of our research spot checks were made on the milk yields of the different animal species as a means of assessing the amount of milk which was available for human consumption. A perennial problem for the pastoralist is deciding how much milk should be reserved for the young animals and how much for the family. Records were also kept on the extent to which households slaughter animals for meat and sell them to obtain cash. In addition we monitored the sale of skins and hides. Finally in this chapter the role of the camel as a baggage animal is examined.

A. MILK

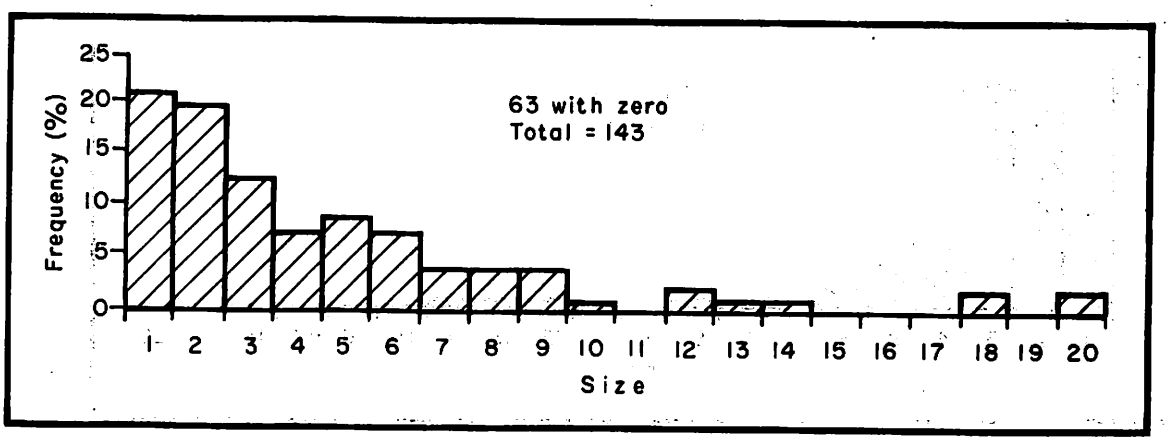
Figures 8.1 to 8.4 outline the household holdings of milking animals of each species.

Figure 8.1 Number of milch camels per household



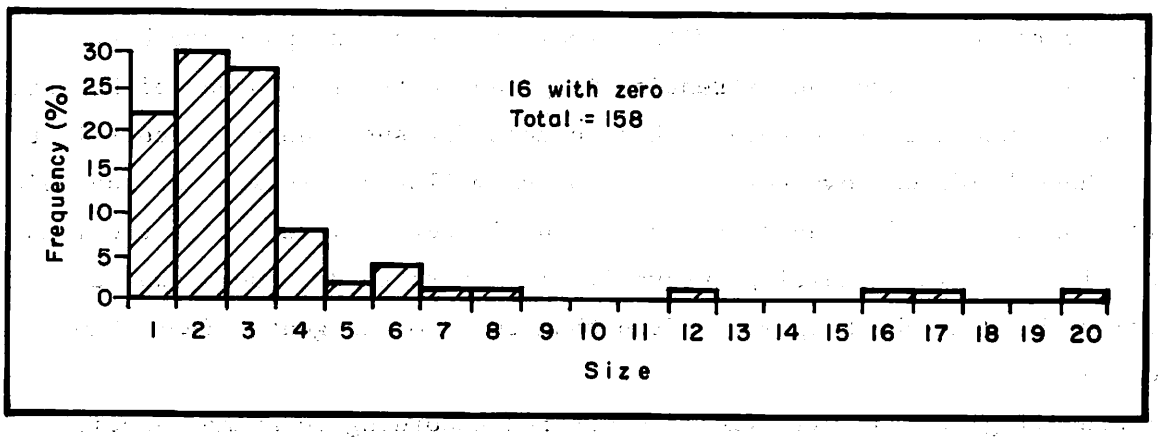
Mean: 2.4
Standard deviation: 2.5

Figure 8.2 Number of milch cows per household



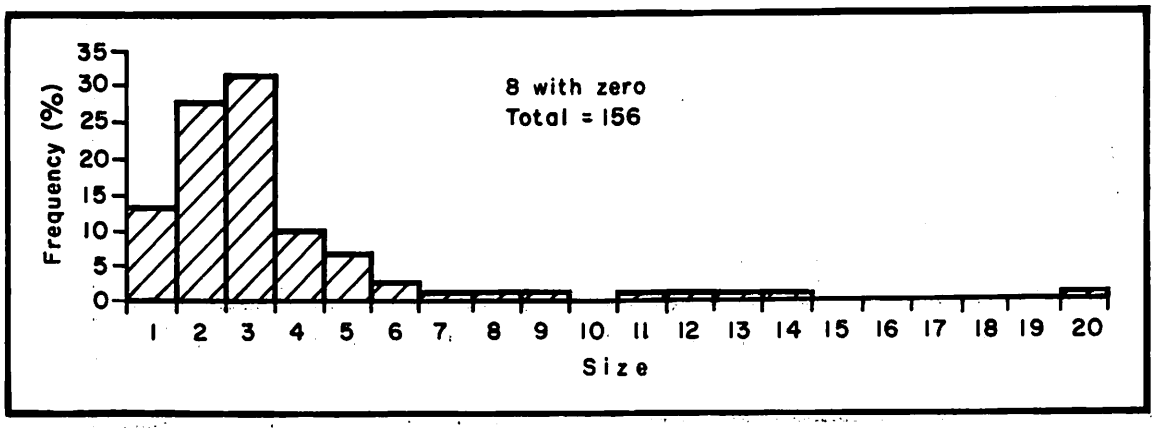
Mean: 2.8
Standard deviation: 4.9

Figure 8.3 Number of milking ewes per household



Mean: 11.8
Standard deviation: 14.7

Figure 8.4 Number of milking does per household



Mean: 14.3
Standard deviation: 15.2

Residents of main camps benefit more from the milk of their camels and smallstock than from cow milk and from amongst smallstock, from goat milk more than sheep milk. Milch camels for the most part are kept at the main camp. Of course due attention is given to the food needs of herders of *fora* camps who are given some milking camels for sustenance. Except in the cases of households who own very large flocks, smallstock are kept at the main camp for longer periods than cattle are. The latter only remain at the main camp usually when wet conditions prevail. The Gabra tend to send away to *fora* camps their milch sheep more often than their milch goats (see Chapter 7, Section A).

Table 8.1 gives the milk yields monitored according to animal species, length of time the monitored animal had been lactating and whether dry or wet conditions prevailed. Wet conditions are usually expected from November to mid-January and April to mid-June. Obviously this categorization is not completely accurate since there can be a great variation in the distribution of rains between years. However, for our purpose it is moderately satisfactory.

Table 8.1 Milk yields

LARGE STOCK MILK YIELDS (litres)		
Stage of lactation (months)	1-3	4-6
Camels		
Wet conditions	2.90	
	(0.78)	
Dry conditions		2.37
		(0.46)
Cattle		
Wet conditions	1.79	1.33
	(0.46)	(0.14)
Dry conditons		0.52
		(0.09)

SMALL STOCK MILK YIELDS (cubic centimetres)		
Stage of lactation (months)	1-2	3-4
Sheep		
Wet conditions	146.73	
	(65.63)	
Dry conditions	62.5	
	(8.83)	
Goats		
Wet conditions	208.98	174.28
	(107.68)	(38.25)
Dry conditions	46.88	
	(6.85)	

Note: Figures in parenthesis denote standard deviations.

The data for the statistics in Table 8.1 were derived by monitoring the milk yields of camels and cattle individually and smallstock in groups of 4-5 for a run of five to seven successive days at all milking times. Only the amounts of milk actually obtained from milking were recorded.

As is to be expected, camels produce significantly more milk than cattle. Camels lactating for 4-6 months in dry conditions produce more milk than cattle lactating for 1-3 months in wet conditions (see Table 8.1). There is a significant drop in cow's milk in dry seasons (Table 8.1).

In wet conditions milking does lactating 1-2 months produce more milk than ewes lactating for the same period (Table 8.1). This reflects the practice of allowing young lambs to sleep with their mothers throughout the night and thereby allowing them more access to their dams than young kids. Both ewes and does produce significantly more milk for human consumption in wet conditions than in dry periods. There are two reasons for this. There is an overall drop in milk production in dry seasons and the Gabra pastoralist tends to leave more to the young animals to suckle in dry conditions when the young need all the nourishment they can obtain.

A number of factors are taken into account in deciding how much milk is given to the young animals and how much is reserved for human consumption. Firstly, as the young animals age they are allowed to suckle less and less before being finally weaned. In the case of camel calves weaning begins after their ninth month. Bovine calves are not usually weaned since their dams have very little milk after the sixth month of lactation, particularly in dry conditions. Weaning may begin for lambs after the second month and for kids after the third month. Weaning may be delayed in the case of camel calves, kids and lambs if conditions are dry and the young animals are weak and need extra nourishment. In general, in dry conditions as much as possible of the milk is allowed to the young animals. However, if the drought is severe and the mother's health is at risk young male kids and lambs are slaughtered to ease stress on the nursing does and ewes.

Secondly, when offspring are weak and sick they are allowed to suckle more.

Thirdly, the number of milking animals owned by a household is a key factor. Households with many milking animals need to reserve less milk for domestic use from individual animals and some animals may not be milked at all. In such cases lambs may not be weaned. The reverse is true in the case of households with few animals in milk.

Fourthly, the availability of alternative food supplies (such as shop-bought cereals, meat from slaughtered animals, and even powdered milk supplied for school-going children and women who are pregnant or have young infants) eases the pressure on households to obtain maximum supplies of milk from their own animals.

B. MEAT

Apart from drought periods - when large stock are slaughtered - the Gabra slaughter mainly smallstock, and more sheep than goats. It is said that since there is a better market for goats they reserve sheep for home consumption.

We recorded the number of sheep and goats households slaughtered in a year taking note of the occasion or reason for the slaughter, the age/sex of animals slaughtered and the season of the year in which the slaughter took place. Data were obtained from over 40 houses.

Table 8.2 Annual slaughter of smallstock per house

No. slaughtered per house	Frequency
2	1
3	1
4	5
5	3
6	6
7	6
8	5
9	3
10	1
11	2
12	2
13	2
14	1
15	0
16	2
21	1
22	1
29	1
42	1

Mean: 9.7
Standard deviation: 7.3

Table 8.3 Age/sex of animals slaughtered

Age in years	0-1/2	1/2-1	1-2	3-4	5-6	7+	NK	Total
Sheep								
Male	2	11	85	83	41	8	1	231
Female	-	3	45	21	3	10	1	83
Total 314								
Goats								
Male	2	2	27	22	4	3		60
Female	1	2	12	16	4	18		53
Total 113								

Seventy-four per cent of the smallstock which were slaughtered were sheep. Seventy-four per cent of the slaughtered sheep and 53% of the slaughtered goats were male. The bulk of male animals which were butchered belong to the 1-2 and 3-4 year-old age categories. However, the majority of male sheep slaughtered were three years or older, while the slaughtered bucks were younger. More than half the ewes slaughtered were younger than three years, while the majority of does were three years or older. Female smallstock are slaughtered for a variety of reasons: the poor who frequently have either sold or slaughtered most of their males often have little choice but to select one of the female animals to slaughter. All animals, female or otherwise, which contract *T. multiceps* (*Caenurus cerebralis*) are immediately slaughtered, and the older and the less fecund the female animal is the more likely it is to fall to the butcher's knife.

The butchering of an animal occurs for a variety of reasons: the need to supplement the household diet, ritual celebrations, hospitality towards visitors, to give added nourishment to sick people (and animals) and women after birth, and when animals become afflicted with *T. multiceps* (*Caenurus cerebralis*) which is regarded as incurable. Animals which die after an illness are frequently eaten.

Table 8.4 Occasions when smallstock are butchered

	Wet seasons	Dry seasons	Total
For food	18	184	202 (48.7%)
Hospitality	16	44	60 (14.1%)
Ritual occasions	49	9	58 (13.6%)
Post-natal sustenance	19	34	53 (12.4)
T. multiceps	12	22	34 (8.0%)
To treat sick people and animals	7	11	18 (4.2%)
Death after illness	1	1	2 (0.5%)

In wet seasons the most important occasions for slaughtering animals are family rituals or festivals. In Gabra country these include the *Sorio* and *Almadho* rites and a rite known as *Hayyan* which aims to appease evil. On the other hand, in dry seasons the need to supplement the household diet is the major reason for slaughtering. The relative isolation of the Gabra from the national livestock market and the non-existence of auction facilities within their homelands frequently force people to slaughter animals and eat the meat rather than sell stock for cash to purchase food. At the height of dry seasons we frequently noted people who went hungry for days only to decide in the end to slaughter. The prospect of trekking to the nearest trading centre - often 30-40 km away - to exchange stock for cereals at unfair rates was frequently off-putting. The need to slaughter for food accounted for 47% of all animals butchered. This was followed in importance by the obligation to show hospitality towards visitors and the need to slaughter on ritual occasions.

C. LIVESTOCK AS A SOURCE OF CASH

We obtained data from over 40 households on the number and species of animals sold over a period of twelve months taking into account whether the sales took place in dry or wet seasons. In the majority of cases it was also possible to record the age/sex of animals which were sold (Table 8.5).

Table 8.5 Age/sex of animals sold

Age (years)	0-1	1-2	3-4	5-6	7+	Age NK	Age/sex NK
CATTLE							
Male							
Wet season	-	-	5	2	2	5	-
Dry season	1	1	3	2	3	4	-
Annually	1	1	8	4	5	9	-
Female							
Wet season	-	-	-	-	-	1	-
Dry season	-	-	-	1	-	-	-
Annually	-	-	-	1	-	1	-
GOATS							
Male							
Wet season	-	6	21	10	2	-	27
Dry season	18	21	11	7	1	22	-
Annually	-	24	42	21	9	1	49
Female							
Wet season	-	1	1	6	-	1	-
Dry season	-	-	3	3	-	1	-
Annually	-	1	4	9	-	2	-
SHEEP							
Male							
Wet season	1	11	-	-	-	2	14
Dry season	1	2	4	1	-	-	7
Annually	2	13	4	1	-	2	21
Female							
Wet season	-	-	-	-	-	-	-
Dry season	-	-	2	-	-	-	1
Annually	-	-	2	-	-	1	1

We recorded the sale of only one camel. A second camel recorded had been slaughtered and the meat sold. In a third instance a camel had been exchanged for 10 smallstock and KShs 500. Camels are also exchanged for cattle. Camels are rarely sold because there is no market established for them. However, a Gabra would rarely countenance selling a female camel. Of the 30 cattle sold only two were female. There is no difference between the number of cattle sold in wet and dry seasons.

Of the 208 smallstock sold, 162 (or 77.9%) were goats. This is due to the greater overall demand for goats in the wider economy despite the demand for sheep during Muslim festivals. Occasionally buyers for the Saudia Livestock Agency - one of the few groups who export to the Middle East - purchase both goats and sheep. However, their buying patterns are sporadic. Of the 113 goats whose sex is known, 97 (or 85.8%) were male: the corresponding figure for sheep was 25 (or 88%). The bias towards the sale of male animals is attributable to the fact that females are valued for reproduction and hence are only sold when they become old or where poor households already have sold most of their male animals. In addition, better prices are fetched for males. There is no significant difference between the number of smallstock sold in wet and dry seasons.

Table 8.6 Average prices obtained for animals sold

Age (years)	0-1	1-2	3-4	5-6	7+	Age not known	Sex not known
CATTLE							
Wet season	-	-	891	1350	1288	948	
			(323)	(71)	(265)	(378)	
Dry season	400	490	733	1000	1250	982	
	(-)	(-)	(115)	(283)	(132)	(296)	
GOATS							
Male							
Wet season	-	91	143	147	158	-	136
		(30)	(23)	(54)	(4)		(83)
Dry season	-	79	129	162	154	160	137
		(26)	(28)	(31)	(15)	(-)	(62)
Female							
Wet season	-	70	55	90	-	100	
		(-)	(-)	(21)	-	(-)	
Dry season	-	-	100	85	-	70	
SHEEP							
Male							
Wet season	56	95	-	-	-	95	104
	(-)	(12)				(-)	(31)
Dry season	110	100	108	200	-	-	142
	(-)	(14)	(24)	(-)			(41)
Female							
Wet season	-	-	-	-	-	-	
Dry season	-	-	93	-	-	90	
			(4)			(-)	

Note: The standard deviations are given in brackets.

The main outlets for Gabra cattle were the auctions organized by some leaders within the homelands of Gabra at North Horr and Dukana. These auctions are not organized on a regular basis. Nevertheless, they enable the Gabra to obtain prices which are higher than the prices fetched by Rendille pastoralists. The Livestock Marketing Division (LMD) (which is no longer in operation) concentrates on buying cattle of specified weights (Njiru, 1983). They hold most of their auctions at Marsabit Town and Moyale but never within Gabra territory. They only bought smallstock on one occasion at auctions organized in Gabra country after President Moi's visit to the district in February 1983. Smallstock were bought by weight and prices were exceptionally good. Large goats fetched over KShs 400 per head. Such prices were never experienced before by the Gabra pastoralists. However, in spite of demand for them by the Gabra, auctions have been discontinued.

In general there is no significant difference between seasons in prices offered for smallstock (whose ages and sex are known). The only exception is the higher price fetched for male goats 3-4 years old in the wet season. Prices fetched for male smallstock are significantly greater than those offered for females. Bucks 5 years or older fetch higher prices than younger animals. The older a ram is the higher is the price obtained for it.

Table 8.7 Number of livestock sold by houses annually

	No. of stock sold	Frequency
CATTLE	0	14
	1	17
	2	3
	3	1

Mean: 0.7
S.D.: 0 7

Note: Three houses together sold one animal while six houses sold three animals which are not included in Table 8.7 but are included in the calculation of means and S.D.

(Table 8.7 continued)

	No. of stock sold	Frequency
SMALLSTOCK	0	2
	1	3
	2	5
	3	7
	4	2
	5	7
	6	8
	7	5
	8	3
	9	-
	11	1
	14	1
Mean: 4.8		
S.D.: 2.8		

Table 8.8 Annual income derived by houses from the sale of livestock

	Income (KShs)					
	0	1-500	501-1,000	1,001-1,500	1,501-2,000	2,000+
Cattle						
No. of houses	2	14	9	9	9	1
Mean: Shs 640						
S.D.: Shs 738						
Smallstock						
No. of houses	0	2	19	18	3	2
Mean: Shs 582						
S.D.: Shs 450						
All stock						
No. of houses	6	0	5	13	13	7
Mean: Shs 1,273						
S.D.: Shs 815						

The Gabra slaughter significantly more smallstock than they sell (Tables 8.2 and 8.7). They frequently opt to slaughter smallstock and eat the meat rather than sell them and buy in cereals, mainly because of the unfavourable rate of exchange between the prices of smallstock and cereals. In general, cattle are a more important source of income than are smallstock. Houses which earn little from the sale of livestock are either poor or have other sources of income such as wage employment. Obviously those who have non-pastoral sources of income are under less pressure to sell livestock in order to acquire cash.

D. HIDES AND SKINS

Table 8.9 shows the number of skins sold by houses. There was no record of a house selling hides.

Table 8.9 Annual sale of skins

No. of skins sold per house	Frequency
0	10
1	1
2	4
3	4
4	5
5	5
6	3
7	3
8	3
9	1
12	2
13	1
20	1
25	1

Mean: 5

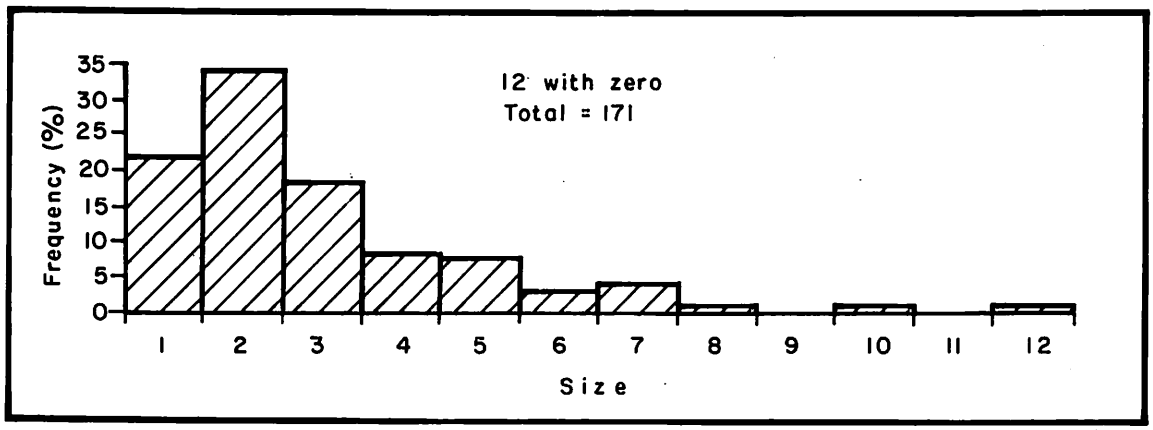
S.D.: 5.2

On average, houses sold five skins annually. This represents a little over a half of all slaughtered smallstock (cf. Tables 8.2 and 8.9). There are more sheep skins than goat skins available for sale because of the preference for slaughtering sheep. Goat skins fetch slightly higher prices than sheep skins. On average, houses obtained Shs 23 per annum from the sale of skins and prices varied from Shs 2 to Shs 10. Many of the skins are bartered to itinerant traders for small amounts of tea and tobacco. Skins are used domestically as sleeping mats and roofing material.

E. THE CAMEL AS A TRANSPORT ANIMAL

The Gabra camps are widely distributed over their range (see Chapter 3, Section C). Movement of most camps occurs frequently and in some instances over long distances. Furthermore, camps are frequently some distance from permanent water. Such patterns of nomadism and settlement require the use of pack camels as shown by Figure 8.5.

Figure 8.5 Number of pack camels per household



Mean: 2.6
Standard deviation: 2.0

Male camels are normally used as baggage animals. However, where a household lacks a sufficient number of male camels female animals are used. In our census 394 (or 87%) of all pack camels were male. Households with insufficient numbers of pack camels are assisted in moving camp and in

drawing water by other households from their own camp or neighbouring camps. Already we have noted that some Gabra households own donkeys (see Chapter 5, Section A). Donkeys can be used to draw water regularly for domestic use only when the camp is close to permanent water. Donkeys are also used particularly at cattle *fora* camps - which are usually located relatively close to water - to draw water for human consumption.

Chapter 9
SUBSISTENCE AND HERD STRUCTURE

In the previous chapter certain features of the economy of houses - the extraction of milk and meat from livestock and the sale of stock for cash - were discussed. In this chapter the cash income and expenditure of houses are analysed. The Gabra houses obtain cash from sources other than the sale of livestock, viz. wage remittances and gifts of money. It will be shown that a high percentage of cash available to houses is channelled annually into purchasing food. Other house needs are clothes, footwear, jewellery, tobacco, etc. In Chapter 5, Section A we outlined the household holdings of livestock and in Chapter 8, Sections B and C we examined the offtake of animals by slaughter and sale. In Sections C and D of this chapter we examine the structure of camel, cattle, sheep and goat herds. The exercise illustrates the impact offtake has on herd structure. It also enables us to predict potential offtake from the present herds. The latter issue is important to both the environmentalist, who wishes to minimize livestock pressure on the range, and to the developer, who in addition aims to improve the income and standard of living of the Gabra pastoralists as well as to develop their pastoral economy. As we hope to show in Chapter 10 environmental degradation can arise from practices associated with poverty and an underdeveloped local economy.

A. HOUSE INCOMES

We obtained data on the annual income of over 40 houses. In the calculations of income we include cash obtained from the sale of livestock, livestock products (skins, hides and milk) and handicraft items, wage remittances, and other sources of cash such as trade. We also included gifts of cash. In instances where gifts of goods were given we give the cash value of these gifts. The average annual income was Shs 1,769 (S.D. Shs 943). Table 9.1 shows the breakdown of this income.

Table 9.1 Sources of annual house income (Shs)

	Mean	S.D.
The sale of livestock and livestock products	1,420	849
Wage remittances	140	329
Gifts	86	158
Other	88	373
Handicraft	36	94

The sale of livestock and their products is the major source of income constituting on average 80% of the annual incomes of houses. The sale of milk is an important source of income for pastoralists who reside adjacent to trading centres. Wage employment is the second most important source of income and is becoming increasingly so as more go to school and as the ratio of livestock to people declines (due to population growth and the loss of stock due to droughts). Most of the income grouped under 'other' is derived from trade. In Gabra country there are a number of itinerant traders who serve camps in outlying areas which are some distance from trading centres. The Catholic Fathers of North Horr operate a successful handicraft industry for mainly poor households who reside at trading centres. The data we present here are mainly of country camps and do not include the impact of the home industry organized by the Catholic Fathers.

B. HOUSE EXPENDITURE

The average annual expenditure of houses is KShs 1,551 (S.D. Shs 668). Table 9.2 gives a breakdown of annual expenditure.

Table 9.2 Annual expenditure patterns (Shs)

	Mean	S.D.
Maize	326	236
Sugar	215	172
Tea	261	155
Clothes	398	245
Footwear	34	26
Jewellery	10	26
Tobacco	58	62
Giving gifts	74	117
Miscellaneous	176	259

Given the fact that approximately half of the miscellaneous expenses also involve the purchase of food Gabra houses assign approximately 57.4% of their expenditure to food. In normal years the Gabra can depend for a certain portion of their diet on the milk of their camels and smallstock because of the practice of having these animals frequently at the main camp. Of all items of expenditure most money is spent on clothes. Clothes originate from either Ethiopia or from down-country Kenya. Much of the Ethiopian cloth is Konso-produced and is imported mainly by itinerant traders.

C. HERD STRUCTURE

The Gabra divide their animals into maturity classes. The classification of adult females is based on the number of animals to which they have given birth. A female camel which has given birth to three or more calves is termed *alla*, a female with two calves *lamdal* and a female with one calf *soroms*. The latter term is also used for a mature heifer capable of conceiving and giving birth. An immature heifer is termed *orge*. Female calves are divided into old and young categories. Males are divided into castrates and non-castrates. The latter are grouped into mature breeding bulls (*korm*) and immature (*gurbo*); castrates are divided into mature (*duffal*) and immature (*diror*) animals. Male calves are grouped into old and young animals. Table 9.3 shows the results of research on the herd structure of 583 camels.

Table 9.3 Camel herd structure

	Number	Percentage of total herd	Percentage of adult herd
FEMALE			
Alla	154	26.4	34.5
Lamdal	22	3.8	4.9
Goroms	29	5.0	6.5
Goroms	34	5.8	7.6
Orge	37	6.3	8.3
Old calves	34	5.8	
Young calves	23	3.9	
Total		57.0	61.8
MALE			
Korm	15	2.6	3.4
Duffal	79	13.6	17.7
Diror	17	2.9	3.8
Gurbo	60	10.3	13.4
Old calves	51	8.7	
Young calves	28	4.8	
Total		42.9	38.3

The Gabra group their cattle into 14 maturity categories. Cows that have given birth to three or more calves are termed *saa*, those with 1-2 calves *goroms*, and *radh* is the term for heifers. Breeding bulls are referred to as *korm*, and immature but uncastrated males as *jibich*. A mature bull that is castrated is termed *qubla* and other castrate categories are *sanga* (a mature castrate), *mirgo* (a medium-sized castrate) and *jibich* (an immature castrate). Bovine calves are grouped according to sex and maturity. Table 9.4 gives the maturity classes of 685 head of cattle.

Table 9.4 Cattle herd structure

	Number	Percentage of total herd	Percentage of adult herd
FEMALE			
Saa	207	30.2	40.3
Goroms 1-2	43	6.3	8.4
Goroms	45	6.6	8.8
Radh	76	11.1	
Old calves	52	7.6	
Young calves	44	6.4	
Total		68.2	72.3
MALE			
Korm	22	3.2	4.3
Qubla	3	0.4	0.6
Sanga	16	2.3	3.1
Mirgo	26	3.8	5.1
Jibich	27	3.9	5.3
Jibich	49	7.2	9.5
Old calves	42	6.1	
Young calves	33	4.8	
Total		31.7	27.9

Sheep have twelve maturity classes. Ewes that have given birth to three or more lambs are referred to as *olla*; those with one to two lambs as *goroms* and immature females as *korso*. A mature breeding male is known as *elemo korma* and an immature uncastrated male as *elemo jibich*. Castrates are grouped into *elemo kote* (large mature castrates) and *elemo mirgo* (not fully mature castrates). Lambs are grouped into four classes according to age and sex. Table 9.5 outlines the maturity categories of 4,628 sheep.

Table 9.5 Sheep herd structure

	Number	Percentage of total herd	Percentage of adult herd
FEMALE			
Olla	1,459	31.5	43.1
Goroms	379	8.2	11.2
Goroms	373	8.1	11.0
Korso	288	6.2	8.5
Old lambs	377	8.1	
Young lambs	267	5.8	
Total		67.9	73.8
MALE			
Elemo korma	100	2.2	3.0
Elemo kote	136	2.9	4.0
Elemo mirgo	317	6.8	9.4
Elemo jibicha	332	7.2	9.8
Old lambs	344	7.4	
Young lambs	256	5.5	
Total		32.0	26.2

Goats are grouped into thirteen classes. Does with three or more kids are called *reti*, those with one or two kids *goromti* and immature females *ilme*. The term for breeding bucks is *korbes korma* and for immature but uncastrated males *korbes intumin*. The castrate categories are *korbes kote* (large matures), *korbes mirgo* (medium size) and *mirgole dididko* (small immatures). Kids are divided into four classes according to age and sex. Table 9.6 indicates the maturity classes of 3,591 goats.

Table 9.6 Goat herd structure

	Number	Percentage of total herd	Percentage of adult herd
FEMALE			
Reti	1,193	33.2	45.0
Goromti	283	7.9	10.7
Goromti	291	8.1	11.0
Ilme	250	7.0	
Old kids	261	7.3	
Young kids	203	5.7	
Total		69.2	76.1
MALE			
Korbes korma	81	2.3	3.1
Korbes kote	57	1.6	2.1
Korbes mirgo	179	4.7	6.4
Mirgole didiko	103	2.9	3.9
Korbes intumin	225	6.3	8.5
Old kids	287	8.0	
Young kids	187	5.2	
Total		31.0	24.0

D. SOME IMPLICATIONS ARISING FROM THE HERD STRUCTURE DATA

The above data on herd structures enable us to draw some conclusions relating to the herd management and husbandry practices of the Gabra and the performance of their herds.

(i) Breeding males

The ratio of mature camel bulls per adult female (i.e. camel cows and heifers) is 1:18 (see Table 9.3). The corresponding ratio for cattle is 1:17 (see Table 9.4). The ratio of mature rams per adult females is 1:25 (see Table 9.5) and the ratio of mature breeding bucks to adult females is also 1:25 (see Table 9.6).

(ii) Sex ratios

Female camels constitute 57% of the total herd and 61.8% of the adult herd (see Table 9.3). Corresponding figures for cattle, sheep and goats are 68.2%/72.3%, 67.9%/73.8% and 69.2%/76.1% respectively (see Table 9.4-9.6).

(iii) Fertility

Camel cows make up 35.2% of the herd. If heifers are included, breeding females represent 47% of the herd. Calving rates vary between 8.7 and 14.5% of the total herd per annum (see Table 9.3). Put differently, 205 camel cows/heifers produce between 51 and 85 calves per annum or an average of 68 calves yearly. This gives an average rate of 0.33 calves per cow/heifer per annum or one calf per cow/heifer every three years. A three-year cycle for a camel cow allows for one year gestation and two years suckling/milking before the next pregnancy.

Bovine cows make up 36.5% of cattle herds. Cow and heifers constitute 54.2% of bovine herds. Calving rates for the year of study were 24.9% of the total herd (see Table 9.4). In other words, 250 cows/heifers produced 171 calves in a year. This gives a rate of 0.68 calves per cow/heifer every twelve months, 1.02 calves every eighteen months and 1.36 calves every two months.

Ewes (which have given birth) form 47.8% of sheep herds and lambs 26.8%. This means that 2,211 ewes produce 1,244 lambs in a six-month period - assuming that young and old lambs are in the 0-6 month age range. It follows that the same number of ewes would produce 2,488 lambs in a year. This gives an annual rate of 1.13 lambs per ewe.

Does (which have given birth) form 49.2% and kids 26.2% of goat herds (see Table 9.6). In other words, assuming that young and old kids are in the 0-6 month age range, 1,767 does produce 938 kids in a six-month period. In a year 1,767 does would produce 1,876 kids. This implies an annual rate of 1.06 kids per doe.

These statistics were gathered between July and October 1983 before the 1984 drought and hence should be adjusted to allow for the impact of drought on fertility rates and overall herd structure.

(iv) Actual offtake rates

The data on camel herd structure indicate a slow offtake of male animals. Male animals constitute 42.9% of the total herd and 38.3% of the adult herd (Table 9.3). There are a number of reasons for this. The Gabra being highly

mobile require male animals to train as baggage animals (Chapter 8, Section E). Poor prices and poor market facilities for camels fail to induce the Gabra to sell them. Male animals are only slaughtered in drought periods.

The average annual offtake per house from cattle herds through sale is 0.7 (Table 8.7). This figure corresponds to 1.05 cattle per household (since there are on average approximately 1.5 houses per household). All cattle sold except for two were male (Table 8.5). The average size of household cattle herd is 16.2 (Figure 5.2). It follows that an annual offtake of 1.05 per household represents an offtake of 6.48%.

The average annual offtake per house from smallstock flocks through sale and slaughter is 14.5 (Tables 8.2 and 8.7). Given that on average there are approximately 1.5 houses per household the average offtake from household flocks is 21.8 sheep and goats. On calculations based on Tables 8.3 and 8.5 the percentage of goats (male and female) and sheep (male and female) either slaughtered or sold are as follows:

Goats (male)	32.4%
Goats (female)	10.9%
Sheep (male)	43.1%
Sheep (female)	13.5%

This means, given that the average offtake from the household flock is 21.8 sheep and goats, the composition of the offtake is as follows:

Goats (male)	7.1	(= 10.2% of the average-size goat herd)
Goats (female)	2.4	(= 3.4% of the average-size goat herd)
Sheep (male)	9.4	(= 12.0% of the average-size sheep herd)
Sheep (female)	2.9	(= 3.7% of the average-size sheep herd)

(v) Potential offtake rates

On average 18.85% of male camels are baggage animals (Figure 5.1 and 8.5). Given that adult males constitute 29.4% of camel herds and that mature breeding bulls represent 2.6% of the herd, 7.95% of males of the present herds could be eventually marketed. The number of male camel calves produced per annum varies between 4.8% and 8.7% (Table 9.3). This gives a measure of the potential offtake of male camels that could be maintained.

The number of bovine calves which were dropped during the year of study represent 10.9% of the total cattle herd (Table 9.4). This shows the type of offtake of male cattle that is possible. Similarly offtakes of rams and bucks at the 25.8% and 26.4% levels respectively are also possible (Tables 9.5 and 9.6).

E. HOW TO INCREASE THE PASTORALISTS' INCOME

A comparison of actual and potential offtake estimates for male cattle, sheep and goats shows that in all cases potential offtake figures are not realized. As already noted, camels are rarely sold and are slaughtered only in drought periods. Assuming that at present the pastoralists slaughter sufficient numbers of animals for home consumption it follows that any increase in offtake should come from the sale of animals. There are a number of reasons for the pastoralist's tendency to limit involvement with the livestock and cereal markets. The cereal markets are unstable and are not always able to provide cereals in drought periods when the pastoralist most needs to purchase cereals. Hence the pastoralist must always keep a reserve of males, particularly camel castrates, as a food 'standby' in drought periods. In addition, it is believed that the terms of trade between livestock and cereals are disadvantageous to the pastoralist and this also legitimizes limited involvement with the market system. In fact the Gabra slaughter more animals than they sell and this is mainly due to market considerations. Swift, writing on pastoralists in Somalia, notes:

> 'Since the sale of pastoral (or hunted and gathered) products is the pastoralist's only source of income, with which he buys essential food grains, clothing and luxuries such as tea and sugar, the relationship between the prices at which he sells his own products and the prices at which he buys these goods determines how well-off he is' (Swift, 1979).

Increasing the price of livestock is essential if the standard of living of the Gabra is to improve. It would also induce them to sell more of their animals, particularly if the pastoralists could be guaranteed an adequate supply of cereals at all times. Such matters are primarily the stuff of Government policy decisions and can never be satisfactorily and permanently solved by a project working at grass-roots level without the necessary political leverage in top-level Government circles.

It is our opinion that before a substantial increase in livestock prices and adequate livestock marketing facilities can lead to an increased offtake, a constant supply of cereals must be guaranteed and credit and savings facilities must be made available to the pastoralists. Such measures will have the effect of increasing the pastoralist's income, some of which could be invested in veterinary treatment of his animals - if this service was made available for him - and in improving and extending watering facilities for his stock - if the materials and know-how were provided. This in turn would increase the productivity of his stock and require the implementation of range management practices such as are suggested by the management plans of IPAL (Lusigi, 1984).

Chapter 10

THE ECONOMY AND THE ENVIRONMENT: SOME CONCLUSIONS

A. THE PEASANTIZATION OF THE GABRA PASTORAL ECONOMY

In a sense it is mystifying to refer to the Gabra pastoral economy as a subsistence economy. It begs the question and releases the researcher all too easily from the task and responsibility of examining the conditions which maintain the Gabra at subsistence level (or at a low standard of living). It is more illuminating to view their economy as a peasant economy. A peasant economy has the following characteristics: a heavy reliance on household labour in production, production for home consumption as well as for the market, variation in household land and livestock holdings and hence a variation in household wealth. Peasant economies are not isolated entities but are linked with national economies and politics which normally dominate them.

The day when the Gabra could totally and directly depend on livestock production for their livelihood has long past. The decline in the livestock/human population ratio first moved them to an indirect reliance on their stock. In other words livestock were sold on the open market in order to purchase cereals. This shift in their economy took place in the 1940s. Nevertheless they continued to rely totally (although indirectly) on livestock and its products. However, this indirect mode of reliance proved inadequate in the late 1960s and early 1970s when the livestock/human population ratio further declined. Supplementary sources of livelihood were sought in labour migration, cultivation and the sale of milk, particularly to the residents of trading centres.

Since the Gabra depend greatly on the wider economy (both district and national) for their livelihood it is necessary to examine the nature of their links to it. Lack of education ties the majority of Gabra job seekers to low paid jobs. Poor market facilities frequently condemn them to selling cattle and smallstock at unfavourable prices (Table 8.5). The Gabra have no market outlets for their camels (Chapter 8, Section C). They have to pay for foodstuffs at price levels similar to those pertaining in urban areas, while at the same time they are forced to sell their own products at price levels much lower than those which exist in urban markets. In other words, terms of trade with the wider economy are unfavourable to the Gabra. Under such circumstances they refrain from placing their livestock on the wider market except as a last resort and in times of great need when cash is required for necessities. This reluctance to sell is primarily caused by the state of the market and not by cultural considerations.

Those who say that pastoralists are reluctant to sell because their needs are few are putting the cart before the horse. In a situation where the market is uncertain and prices low the pastoralist learns to aim only for a subsistence standard of living, otherwise he would risk the very livelihood of his households. Sufficient evidence exists to indicate that once pastoralists are guaranteed a stable market and good prices they do not hesitate to sell (Galaty *et al.*, 1981) and indeed improved marketing can cause major changes in the life-style, social organization, herd management practices and economy of pastoralists (Barfield, 1981).

The tendency for pastoralists to maximize their herds is motivated mainly by the desire to reap gains in good years as a buffer to losses in drought years. It is encouraged in circumstances where market facilities are inadequate and alternative sources of investment are lacking (Chapter 9, Section E). Where rich pastoralists can invest in agricultural land, trade, permanent property, etc., they do so (Dahl, 1979; Barth, 1961). Already there are signs that the Gabra and Rendille are investing in agricultural land on Marsabit Mountain. This gives them an opportunity of investing other than 'on the hoof'. However, as long as livestock prices remain low this tendency will be inhibited due to lack of ready cash.

B. GOVERNMENT POLICY

It is unnecessary here to examine colonial policies towards pastoral groups in northern Kenya. Between 1963 and 1967 the newly independent Kenya Government was preoccupied mainly with quelling guerilla activity in northern Kenya. It could only concentrate on development activities after 1967 when the Dar es Salaam Agreement brought the conflict to a formal end. Somali and Maasai pastoralists have benefited to some extent from the First Livestock Development Project (1968-1973) and the Second Livestock Development Project (1974-1982). However, the main focus in these national projects was on ranching and cattle production. The development needs of the pastoral economies of the Rendille and Gabra were not considered. Their only role in the national plan was to contribute immature cattle to the ranching community and even this operation was conducted on an irregular basis and sometimes even in an haphazard fashion. Little cognizance was taken of the fact that the Gabra also kept large numbers of camels and smallstock, animals which are most suited to their arid lands. The exclusion of the Gabra from the main thrust of the livestock projects means that they still lack adequate veterinary services and a suitable network of

waterpoints. While the Kenya Government has assisted in establishing marketing facilities for agricultural products such as coffee and tea (export crops), and maize and beans (subsistence crops) it has yet to assist in creating adequate marketing facilities for livestock in spite of the finance invested in the Livestock Marketing Division (L.M.D.) which at present is not operating (1). A restrictive policy towards the export of livestock coupled with a cheap meat policy for home consumers keeps livestock prices low and denies the Gabra adequate return on what they produce and sufficient funds to develop their livestock economy.

C. LACK OF INCENTIVE IN THE LOCAL ECONOMY

Increasing livestock numbers rather than maximizing in terms of meat and milk production of individual animals or of the whole herd is the primary goal of the Gabra livestock keeper. No doubt he is concerned with the condition of his animals but he knows that it is subject to seasonal fluctuations. As long as the lactating animals' supply of milk is close to average and is adequate to sustain their young, leaving some milk for home consumption, he finds it unnecessary to move to better grazing sites which involve an increased watering work load and greater risks of losing animals to raiders. In his view the law of diminishing returns applies. Under present marketing conditions the marginal improvement in the condition of his animals does not justify the increased work load or the greater risks involved.

In conclusion, poor market facilities and low prices have stunted growth in the Gabra pastoral economy and prevented any take-off above subsistence level. As a result the economy is poorly monetized and little specialization occurs. There are no inbuilt incentives to maximize production through investing extra labour in opening up new waterpoints and grazing sites, and in investing in veterinary services other than in a limited way. Their economy is unable to afford specialists in non-herding occupations such as tradesmen to build cement-lined and permanent wells, mechanics to maintain water pumps, commercial wood-cutters capable of transporting fuel and building material long distances, etc.

D. DEPENDENT OR SELF-SUSTAINING DEVELOPMENT

One solution to range degradation is to forbid the Gabra from using over-grazed areas and to open up alternative grazing for them by extending the present network of waterpoints. Wood harvesting could be regulated and limited to those areas with sufficient woodland, and the wood transported to major Gabra settlements. This solution would undoubtedly have a measure of success but it lays an emphasis on having an outside agency to do things for them and hence perpetuates dependency. What happens when the agency withdraws, as it eventually must?

An alternative way suggests going beyond an examination of the symptoms of range mismanagement and sets the problem in a wider context. It recommends that the Gabra be provided with a functional market system which would guarantee good prices on a regular basis. This, in the long run, would maximize production by providing livestock owners and herders with incentives to go beyond a strategy of least effort in seeking out suitable grazing sites, in extending the network of waterpoints, and in treating sick and weak animals. It would also greatly monetize their economy, improve their standard of living, and open the door for specialists such as tradesmen, veterinary technicians, mechanics, commercial wood-cutters and hauliers. In such a setting the Gabra could mobilize local resources while having the wherewithal to operate according to principles of proper livestock and range management. This would also enable them to relate to the wider economy not as dependents but as equal trading partners. This solution has the advantage of being self-sustaining and is workable even after the external agency has left.

Notes

1. Indeed, numerous reports submitted to the Government of Kenya have pointed out the need to develop proper pricing and marketing facilities for livestock (Chemionics, 1977; Gulf Development Consortium, 1980; Devres Inc., 1979; Matthes, 1979).

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