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THE ASSALE-SERBEWEL SOCIAL ECONOMIC STUDY

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N° Djamena

June 15, 1974

ACKNOWLEDGEMENTS

This report has been written as a contribution to the program constituting the preliminary phase of the project ANIMAL PRODUCTION DEVELOPMENT IN THE ASSALE (CHAD) AND SERBEWEL (CAMEROUN) DISTRICTS (USAID 625/11/130-803) for the Lake Chad Basin Commission. The author would like to acknowledge the kind assistance of the local authorities in the Assale and Serbewel Sectors of the project. He wishes to thank the staffs of both the Lake Chad Commission and the Project Assale-Serbewel. He wishes to especially thank Mr. Bens n Tonwe, the Executive Secretary of the Lake Chad Commission, and Dr. J. Crouail, the Director of Project Assale-Serbewel, whose foresight made possible this report. I thank my research-assistant, Mr. Sultan Alipha, who as a friend withstood sometimes trying conditions -- with occasionally the only food to eat Gerber's Baby Food.

Finally, let me make clear my respect for the herders of the Assale-Serbewel -- with skill and intelligence they exploit an austere land.

SUMMARY OF RECOMMENDATIONS

In order to enhance the probability of success of Project Assale-Serbewel the following is recommended :

- 1) the formation of community cooperatives as agencies constructed out of traditional elements of herder society to give the herders the capacity to organize changes in their pastoral economy (A plan for the foundation of the community cooperatives is included)
- 2) the formation of an extensive service consisting of two persons to live as closely as possible with the herders with the tasks of communicating to the herders new pastoral techniques, assisting the herders with the community cooperatives, and serving as a liaison between the herders and the project's staff
- 3) the adoption of a plan of timing of the introduction of innovations so that innovations are begun only after the herders understand and demand them
- 4) the adoption of a plan for avoiding certain inter ethnic-groups frictions capable of occurring in the Serbewel
- 5) that certain types of herders will be more profitable for the project to concentrate its development efforts on
- 6) the immediate installation of cemented wells and the latter constructions of artesian wells in the project zone
- 7) a plan for the implementation of laws closing the project zone (especially in the Assale) to migrants from outside the area
- 8) a scheme to stimulate the sale of younger male cattle
- 9) a scheme to stimulate the commercialization of cattle
- 10) the introduction of feedlots and ox-drawn agriculture only if all other aspects of the project are successful

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I. INTRODUCTION

The present report describes certain of the social and economic conditions in the Assale and Serbewel regions directly to the south of Lake Chad pertinent to the implementation of innovations in pastoral proposed by the Project Assale-Serbewel. (Map 1 presents the location of Project Assale-Serbewel in the Lake Chad Basin. See Appendix II). The report is divided into three major sections. Section one describes social factors relevant to the success of the project. Section two describes the pastoral economy predominating in the project area. Section three describes role of project Assale-Serbewel with regards to livestock development in the project zone and concludes with a number of recommendations designed to enhance the probability of the project's success.

1. Who was studied

The short time allocated to field operations for the socio-economic study made it impossible to study more than one thnic group. ¹ Consequently, the study concentrated its efforts of the Assale-Serbewel Arabs, because these people are by far the most numerous cattle-raising population normally resident in the project zone.

2. Where the study took place

Field operations were conducted in 24 villages throughout most of the Assale-Serbewel. A non-random sample was drawn of 18 villages and formal interviewing was conducted in these villages. The villages were choosen in terms of their dry season transhumance. Villages in the Assale-Serbewel either tend to transhume towards the Chari River or Lake Chad. Two sets of villages were selected in each project sector: one set of villages oriented towards Lake Chad and one set of villages oriented towards the Chari. Table 1 lists the names and sizes of the four sets of villages studied (See Appendix II).

3. Methods of study

Two research methods were employed throughout the course of the study : (1) questionnaire, and (2) observation-discussion.

A. Questionnaire : A copy of the questionnaire used is concluded as Appendix I. The questionnaire gathered basic social information about : (1) household size and composition; (2) divorce; (3) marriage; (4) migration. It gathered economic information about : (1) household possessions; (2) herd size; (3) herd composition; (4) cattle mortality; (5) cattle males. A oword is in order about the accuracy of informant's responses concerning their livestock.

The study relied on the herders' own statements as to herd size, composition, etc... The author was aware of the reticence of livestockmen to discuss their cattle holdings. Consequently each interview was conducted in a slow, painstaking fashion. The informants' responses are as accurate as possible when relying purely on verbal reports.

B. Observation-Discussion : During the course of field operations the author lived in four villages under the same conditions as the herders. While it is highly unlikely that the author was ever mistaken for a herder; it is true that he was able to take part in and observe social and economic activities including marriages, funerals, informal meetings, pasturing of animals, transhumance, etc.. The author followed all the events of the community within which he resided an avidity that occasionally tried his hosts. From this observation, and the discussions which followed on observations, the author was able to come to conclusion about :

- a. inter ethnic-group relations in the region
- b. the role of local government in the region
- c. the nature and role in herding activities of such groups as tribes, lineages, households, villages, and the community
- d. the organization of cattle commercialisation
- e. the leadership and decision-making process, especially as it pertained to pastoral resource utilisation
- f. attitudes towards cattle slaes aspects of animal husbandry, and farmland, pasture, and water tenure
- g. likely herder attitudes towards the Project's proposed pastoral innovations

4. Factors determining the success or failure of Project Assale-Serbewel

In the late afternoon a week ago the author was sitting in the shelter of an influential herder with a number of his neighbors. It was a time of tea-drinking and desultory gossip. A watch was lying on the mat beside the teapot. The influential man picked it up and strapped it about his wrist. He asked of nobody in particular why anybody would wear a watch? A young neighbor replied: "... for young men, to get them to work on time; for old men, to know when to say their prayers." The influential man put the watch down, replying that he had lived a long time without the need of such a device to get him to his prayers.

In this incident are contained all the elements which will determine the adoption or rejections of Project Assale-Serbewel by the herders. First

the project if it is to succeed must be accepted by the influential livestockmen. If these men scorn the project then their neighbors will follow suit. Second, the herders are as fascinated with new things—innovations—as any people on earth. When they are available herders will experiment with an attempt to find out about innovations. Witness the influential man's handling of the watch. Third, the herders will only accept innovations when they know these fulfill a need in their society better than existing ways of doing things. The influential man had had his prayers at the proper times without a watch so he rejected it. The present research has studied Assale-Serbewel herding society and economy to be able to make recommendations which will lessen the chance that the Project Assale-Serbewel will be laid aside like that villager's watch.

II. SOCIAL FACTORS

In this section we describe who lives in the Assale-Serbewel, how they get along, and under what demographic conditions; before describing aspects of local government and social groups most pertinent to the herders.

1. Ethnic-groups resident in the Assale-Serbewel Region

Table 2 lists the major ethnic groups found in the Assale-Serbewel by their economic specializations (see Appendix III). By far the most numerous ethnic group in the Assale-Serbewel are the "Shuwa" Arabs.¹ The Arabs are semi-sedentary cattle pastoralists; practicing agriculture during the wet season, moving their place of residence only twice a year, once to reach their dry season camp, and once to return to their home-village. The only other pastoral ethnic group in the Assale-Serbewel are the Fulani.² The Fulani found in the Serbewel tend to be semi-sedentary like their Arab neighbors. Those found in the Assale transhume far more frequently, often from areas outside of the Assale-Serbewel, and may be described as nomadic. The most numerous ethnic-group in the Assale-Serbewel which does not raise cattle are the Kotoko. The Kotoko occupy an important political position within the Serbewel. There is a sprinkling of Hausa and Kanuri throughout the area who play a disproportionately large role in the commercial life of the region. The northeastern portion of the Assale is visited in the dry season by pastoralists from the Kanem and the desert. These include some Kanembu and Goranes.

(The approximate location of the different Arab ethnic-groups may be found on Maps 2 and 3 (see Appendix II).

2. Inter-ethnic group relations in the Assale-Serbewel

The relations of the Arabs with their neighbors, especially the Fulani and Kotoko, are of relevance to the success of Project Assale-Serbewel.

A. Arab-Fulani Relations

Arab relations with the Fulani are somewhat mixed. On the one hand there are not infrequently individual Fulani families resident in Arab villages. Arabs will entrust their cattle to Fulani to herd; and marriage of Arabs to Fulani occurred with some regularity (see Table 3, Appendix III). On the other hand, Fulani like Arabs are cattle pastoralists, and the two groups compete for water and especially pasture resources.

Under normal environmental conditions Arab-Fulani competition over resources does not appear too severe in the Assale-Serbewel. Present environmental conditions are marked by a scarcity of water and pasturage. This has led to an influx of Fulani, largely in the Assale, that has intensified competition over resources. Arab villagers in all areas of the Assale complained that Fulani herds grazed near their villages, ate all the pasturage, and then moved on. Villagers in the Serbewel complained of banditry by the Fulani.

It should be appreciated that most Fulani do not practice agriculture. This makes them highly vulnerable to the effects of the drought. If they lose their herds they are deprived of their sole means of economic support. Loss of herds due to the drought may account for much of the reported Fulani lawlessness. Because Fulani must at all costs minimize cattle losses, and because Lake Chad and the Chari Rivers are the largest bodies of surface water in the Chad Basin it is expected that the Fulani will continue to

1

The term "Shuwa" is applied to the Arabs of Chad and the Camerouns to distinguish them from Arabs in other areas of the world. The term is used in the Assale-Serbewel by non-Arabs to designate Arabs. It is never used by the Arabs to describe themselves, and is indeed looked upon as somewhat insulting.

2

The Fulani are known in English literature by this Hausa appellation for them. The Wolog term Peul is frequently used by the French. In the Assale-Serbewel they are called Felaata. In German works they are called Fulbe, which what they call themselves (Stenning: 1959).

migrate or attempt to migrate to the Assale-Serbewel (See section on Migration). It should be realized that migration to the Assale-Serbewel is conceived by the Fulani as a last chance for survival for their herds, and, by extension, for themselves who are dependant on their herds.

B. Arab-Kotoko Relations

The Kotoko are most numerous in the Serbewel and consequently our discussion of Arab-Kotoko relations is largely relevant to this zone of the project. When the Arabs began to arrive in numbers in the Serbewel in the 18th and 19th centuries they found the region already occupied by highly organized, statelike Kotoko "principalities".¹ Arab migration into the area was of groups small in number, between whom there was little cooperation or coordination. In fact the 19th century Assale-Serbewel history is marked as much by severe intra-tribal warfare as it is by the Arab-Kotoko conflicts. The acephalous political organization of the Arabs made it relatively easy for the 19th century Kotoko principalities to politically dominate the Arabs resident in the Serbewel.

With the defeat of Rabah outside the Kotoko village of Kousseri in 1900 French colonial rule began in the Assale-Serbewel. The colonial administrators were most interested in finding strong individuals with experience and skill in bush-administration to rule in the Serbewel. Surveying the Arabs they found only a jumble of tribes, and lineages, some headed by sheiks, some not, with no apparent semblance of "rational" political order. When they turned to the Kotoko they found precise, walled towns --the seats of small principalities containing numerous fonctionnaires with responsibilities in the bush-- that must have reminded them of their own feudal past. The French administrator Gentil in the first years of the 20th century created the Sultanate of Goulfei between the Chari River, Lake Chad and the El Obaid River (i.e. the region of the Serbewel zone of the project). The direction of this Sultanate was given to a "Kotoko" named Jagara.² The bulk of the local officials in under Jagara were Kotoko, and

¹
The term principality is used by A.M.D. Lebeuf to describe Kotoko political organization.

²
Jagara's father was an Arab of the Siger maximal lineage of the Abu Kader Arabs. Jagara was raised in Goulfei and was thoroughly culturally "Kotoko-ized".

they continued to administer, frequently using the political titles of the old pre-colonial principalities, in exactly the same ways as they had done prior to the arrival of the French. In turning to Jagara the French continued the pre-colonial dominance of Kotoko over Arab. In 1953 the Sultanate of Goulfei was divided into 5 cantons: Gufei, Wulki, Makari, Afade, and Bodo; and traditional Kotoko rulers (me) were placed in charge of each canton. This system has continued largely unchanged until the present.

Some idea of Arab response to Kotoko political dominance is perhaps reflected in Arab beliefs concerning a form of sorcery called masass¹. The Arabs are convinced that Kotoko practice masass. They believe that masass is directed against Kotoko and against themselves. A kotoko who is a masass-adept is thought to possess an apparatus which allows him to peer from a great distance into the bodies of his victims, and to cause them to sicken, and to gradually die. When a victim of masass is dead and buried it is thought that the sorcerer on the evening comes to his grave, waves a wand, and spirits the body away to a dark grove. In the somber atmosphere of the grove the body is cut into "mini-morceaux", and eaten by the sorcerer and his fellow masass-adepts. Arabs and others of different ethnic groups in the Assale-Serbewel all readily admitted fear of masass. Medecines were constantly being taken against the imagined ravages of masass². People avoided as much as possible places where masass was known to be practiced --this included most Kotoko towns. Once I asked an informant how you could tell if a Kotoko was a masass-adept. He replied chillingly: "If he is nice to you".

Whether masass, and its attendant cannibalism, does or does not exist is irrelevant³. What is relevant is that the simple fact of the existence of the belief in masass requires that Arabs be suspicious and wary of Kotoko. This Arab caution vis-à-vis Kotoko takes a number of forms. Younger Arabs when travelling to larger towns are not adverse to finding out about the girl situation in the town they are visiting. Once, in a Kotoko town I asked a young Arab acquaintance if he was going to go to the market to look over the girls. He replied that this might be a dangerous thing to do, and that he was afraid of masass.

¹
The word masass actually means a sorcerer.

²
Catnip appeared to be one of the ingredients in these medecines

³
It is extremely unlikely that cannibalism of the dead does occur.

Belief in Kotoko cannibalism of the dead may be interpreted as a belief held by Arabs which acts to reduce social interaction between the two social groups. Belief in masass makes it literally a matter of life and death that an Arab have as little to do as possible with Kotoko.

3. Demographic Conditions in the Assale-Serbewel

Demographic factors pertinent to the success of the project are presented in this section.

A. Population size and percentage by ethnic-group

The estimated population size of the Serbewel in 1973 is about 70,000 inhabitants; while the estimated population size in the Assale for this year was about 29,000. It is believed that Arab ethnic-groups are 58% of the total population in the Serbewel and 80% of the population in the Assale. Kotoko are estimated at 32% of the population in the Serbewel and only 11% of the population in the Assale.

B. Fertility, Mortality, and Natural Growth Rate

Table 4 (see Appendix III) presents fertility and mortality information pertinent to the Assale-Serbewel. All 3 of the ethnic groups in the area Arab, Fulani, and Kotoko have been reported to exhibit low fertility and relatively low mortality. As would be expected from these figures the predicted natural growth rate of the population is low—estimated to be 1.3% per year in the area occupied by the Assale, and 1.2% in the area occupied by the Serbewel. These rates imply a doubling of the population due to natural causes approximately once every 54 years. The Assale-Serbewel region is not likely to be swamped with people ing to rising birth and slumping death rates.

C. Migration

Two types of migration have been observed during the course of the study. In the Serbewel a number of households reported that they had some sons who recently went to "Lagos". It is believed that the drought has caused a certain out-migration of young men from the Serbewel to Nigeria. These young men confidently set off for Lagos to become gardis (housegards).

Of far greater consequence to the project is the in-migration of a number of pastoral ethnic groups (predominantly Fulani) to Lake Chad in the Assale. These migrants have come in immense numbers during the

present dry season. If they remain project personnel have announced that they will create a "desert" in the northeastern portion of the Assale. Almost nothing is known of this migration, of its dimensions and of its duration; especially whether it represents only a temporary response to drought conditions or whether it signals a permanent alteration in transhumance patterns. It is in the interest of the project that this migration be further studied.

D. Population pressure on Resources

If there is not likely to be a human population explosion due to excesses of births over deaths in the Assale-Serbewel the following factors pertinent to population pressure should nevertheless be taken into consideration. First, the cattle in the project area due largely to the project's veterinary activities and its anti-tsetse fly program may be expected to register a sharp decrease in mortality in the immediate future. We may thus expect a healthy increase in the numbers of cattle in the project area. Bear in mind, according to M. Gaston the Project agrostologist, that prior to the drought the numbers of cattle in the Assale-Serbewel were at or near the carrying capacity under then prevailing ecological conditions. Second, certain human activities, which will not cease in the foreseeable future, threaten the maintenance of pasture conditions at their present levels in the Assale-Serbewel. The most important of these activities is the cutting of tree cover to fuel and lumber N'Djamena and to a lesser extent Kousseri. Third, the implantation of wells and the provision of veterinary services will continue to make the Assale-Serbewel a desirable region for pastoral in-migration even after the present drought has ended. There exists for the Assale-Serbewel during the immediate future the prospect of declining pasturage and increase in hominid and bovine populations. The possibility of over utilization of resources, especially pasture resources, exists. It is of interest to the project to see that this does not occur.

4. Local Government in the Assale-Serbewel

Our discussion of political phenomena in the Assale-Serbewel will concentrate on two subjects: first on the local administration operating the project area, and second on the position of the Arabs, and for that matter other ethnic groups, in the local administration.

The local administration pertinent to the Assale and the Serbewel is essentially identical in both Chad and Cameroun. The largest pertinent administrative unit is the Préfecture in Chad and the Département in the Cameroun. Both are equivalent in many respects to the American state. The Préfecture and the Département are headed by a Préfet. The Préfecture or Département is composed of Sous-Préfectures, resembling a giant American county, each headed by a Sous-Préfet. The Sous-Préfectures are divided into a number of Cantons, resembling the American county, each presided over by a Chef de Canton. Finally, each Canton is composed of a number of villages (from approximately 50 to 100) in which bulama (village-head) is the representative of the local administration. The Serbewel region of the project ^{corresponds to the Sous Préfecture of Serbewel} while the ^{Assale zone} of Massakori and N'Djamena-Rural). Within the Sous-Préfectures of Serbewel there are five cantons: Makari, Afade, Bodo, Goulfei, and Wulki. The Assale zone of the project includes all of the cantons of Assale and Mani and parts of the cantons of Massaquet, Afrouk, and N'Djamena-Surburbain. Exactly, how the Assale-Serbewel project fits into the local administration is diagrammed in Chart 1 (see Appendix II).

To the ordinary villager the Préfet and the Sous-Préfet are immensely powerful, distant personages, only occasionally glimpsed as they race by in their automobiles. Rather it is the Chef de Canton (or Sultan, as he is called by the Arabs) who the villagers knows and experiences as the hakuma (government) in the region. It is the Chef de Canton who transmits the directives of the higher officials to the people. It is he who supervises the all important annual gathering of taxes. Occasionally, he acts in person; more frequently he acts through his representatives (goumiers). The Chef de Canton should be accessible to the villager. The villager may himself or through the medium of his bulama seek an audience with the Chef de Canton to present his needs or complaints. When Arab villagers meet with their Sultan they will draw their robes over their head, drop to their knees, bow forward at the waist, while quietly clapping their hands, and saying a prayer. Such behavior on the part of the villager is a traditional ritual of obedience, and not necessarily an expression of approval. The Sultan, then, is the lynchpin of local government —the point of articulation between the ordinary villager and the higher Préfectorial authorities.

This being the case Sultans are if possible chosen in Chad and the Cameroun so as to possess some legitimacy in the eyes of their villagers.

This is usually done when feasible by choosing as Chefs de Canton men who are descendents of persons who held positions of authority in the traditional, pre-colonial political structures which occupied the territory of the modern Canton. Unfortunately, in the Serbewel all the Sultans are the descendents of Kotoko traditional rulers (Me) which gives them considerable prestige in the eyes of the Kotoko villager; and in view of what was earlier mentioned of Kotoko-Arab relations, rather less in the eyes of the Arabs. This situation is less extenuated in the Assale where only the Sultan of Mani is a Kotoko.

It should be noted that the Chefs de Canton in no way officially represent ethnic groups or lineages within ethnic groups. They control cantons which are purely geographical administrative units which happen to contain different ethnic groups. It is possible that a Chef de Canton may favor a specific ethnic group. But if he does he must do it covertly as ethnic groups simply have no administrative existence within the Canton. Thus, while the Sultan is selected to be a person clothed in traditional legitimacy he in no way governs units which are tribal in nature. He governs villages led by bulamas.

The village head is a man of very little authority. He explains and carries out to the best of his abilities the Chef de Canton's orders within his village. He represents the village to the Chef de Canton. If the bulama is not to be marked as a pariah his leadership must be by tact and friendly persuasion. Many bulamas are descendents of the village founder. Most are somewhat more well off than the average villager, but most are usually neither the wealthiest nor the most respected men in their village. A bulama in no way represents his tribe or his ethnic group to the local administration. He simply represents the 60 to 80 individuals who compose his village.

The local administrative unit most pertinent to the Arab is the Canton. His tribe and his lineage are completely ignored in contemporary local government in the Assale-Serbewel. This is a matter with some relevance to livestock management practices.

5. Social Groups in the Assale Serbewel

Question : "Why do you let all these people eat your food when you have so little" ?

Response : "They are my kin".

(Taken from a conversation recorded in field notes)

This section describes the important social groups occurring among the Assale-Serbewel Arabs studied. These include tribe, lineage, household, village and community. The groups are largely discussed in terms of their size, composition, and the role they play in the pastoral economy. Kinship will be seen to be an important factor in providing the personnel who perform the different tasks it takes to run a pastoral way of life.

A. Kinship

Arabs tend to see the world of people as divided into kin, friends, and strangers. Strangers (deffan) are people normally from a different ethnic group who you must treat with respect and politeness. If they come to your household they should be offered if it is at all possible some nourishment —preferably tea or milk. But strangers are just that strangers. They are not well known, and you must keep up your guard with them. One can never be certain what they will do, or what they will demand. Friends (rufgân), while they are not related to you usually come from the community from which you live. They are people you have known for a long time, have had numerous relations with, and have found that you like and trust. Those who consider themselves friends are supposed to provide mutual aid to each other. Friends lend each other cattle, money, and labour they assist in the marriage of each other kin; and they assist in the death ceremonies of each others relatives. Friends are strangers who have come to know each other well enough to be able to count on each other for aid.

Kin are the people you believe you are related to either by blood or by marriage. (Chart 2 gives the names commonly given to Arab kin. See Appendix 2). You kin are the people you have been born with and lived with most closely all your life. Kin are under the strongest moral imperative to provide mutual assistance and aid. A friend delivers aid because he likes you. If dislike appears friendship disappears and aid evaporates. Aid donated between kin is given on the basis of kinship, and not on the fragile basis of amicability. Your brother may hate you, but he is your brother, and must assist you, or risk the social censure of being considered bad (fasil).

A friend may lend you cattle. He may even give you cattle. But if certain of your kin, principally your father, have cattle they must give you some of their cattle during the course of your life. Fully 72% of the cattle owners in the Assale-Serbewel population studied were aged 40 or older, and men of this age owned twice as many cattle as younger men (see Table 5, Appendix III). This means that most cattle were owned by men who would be classified as either fathers or grandfathers. Thus most of the younger Arab men studied are waiting to receive cattle from their older kin.

Kinship, then, is a basis of cooperation among Arabs. If kinship is lacking between individuals cooperation may or may not occur; if kinship is present individuals must at least try to cooperate.

B. Agnatic kin groups

The Arabs studied in the Assale-Serbewel use a form of kinship called agnation as the basis of formation of a number of social groups. The word agnation means descent traced through males only. People whose basis of kinship is that they are related to each other because they share descent from common male ancestors are called agnates. The word ahl is used to describe people who are agnates. Ahl are thus men and women descended through males from an ancestor (jid). People who are ahl are said to travel a darb wahid -- the same "path". The different agnatic descent groups commonly found among the Assale-Serbewel Arabs are presented below.

1. Tribe (nafar)

The entire tribe is often considered by Arabs to be a group of agnates descended from a common ancestor. Note for example the translation of a tape of one informant discussing the Assale-Serbewel Arab tribe known as the Abu Xader: "The children of Musa Xader resemble the tree grown, matured, and given birth to branches. The male descendants of Musa Xader they are 12; for these twelve, Musa Xader is like the trunk of the tree, and they are like the branches. Now I count them for you: Ziyada, Abu Jahal, Siger, Am Habil, Al Hatim, U. Joda, U. Jassas, Al Klebat, Abu Naji, Al Xawarte, Al Massauri, U. Zid." For the Abu Xader the founding ancestor is Musa Xader, and those who can claim descent through males from one of the descendants of Musa Xader (i.e. Ziyada, etc.) are said to be Abu Xader (See Chart 3, Appendix 2).

ii. Lineages (Xasimbet (sing.); Xasimbuyut (pl.))

If a tribe is like a tree, and if its trunk is the founding ancestor, it also has branches. These branches are groups of agnates composed of descendants of named descendants of the founder of the tribe. These branches call themselves xasimbuyut (meaning literally "the mouth of the house") and would be termed in ethnology patrilineages. Thus, for example, within Abu Xader there is a xasimbet called Abu Jahal. The members of Abu Jahal are all those people who claim descent through males to the founder of the patrilineage Muktar Abu Jahal. Muktar Abu Jahal was himself a direct descendant through males of Musa Abu Xader

The names of patrilineages are not necessarily the names of the lineage founders. They may refer to some event in the life of the lineage founder. The founder of the Al Klebat among the Abu Xader was one Ali. Once when Ali was a small boy his father beat him unmercifully. People asked his father why he was beating his son, and he replied because his son was naughty like the young dog (al klebat). Names of lineages may even be names of women. For example, among the Abu Xader and Al Hatim were founded by the same man Elawi a' Jumur, and the names of the two different patrilineages refer to two of his wives.

Arab tribes in the Assale-Serbewel differ in their patrilineages in the following ways: 1. in the total number of patrilineages which they possess; 2. in the number of the patrilineage in the tribe which claim descent from a common ancestor; and 3. whether the patrilineages in a tribe are sub-divided into smaller patrilineages. In general, the larger the tribe the greater the number of patrilineages which it possesses. Some tribes contain patrilineages which do not claim descent from the tribal ancestor. For example included among the Hemmadiya in the Serbewel are two patrilineages from the Tunjur a tribe completely distinct from the Hemmadiya (Hagenboucher:34).

Tribes also differ as to whether their patrilineages are segmented into smaller lineages which may in turn be divided into yet smaller patrilineages. For example, among the Salamat along the shores of Lake Chad in the Serbewel there are a number of large patrilineages such as Dar Begli and Ulad Eli. The founder of Ulad Eli had a number of

descendants who each founded patrilineages, one among these was the founder of Dar Hasan, and the founder of Dar Hasan had patrilineal descendants who founded further patrilineages among which were Am Samu and Mal Haj. The largest patrilineages within a tribe we may call maximal¹; the largest patrilineages within a maximal patrilineage we may call major; and the largest patrilineages within a major patrilineage we may call minor. The degree of patrilineage segmentation in the Assale-Serbewel varies from lineage to lineage within a tribe, and from tribe to tribe within the Arabs. Among the Abu Xader for example the maximal patrilineages like Ziyada or Abu Jahal do not have within them smaller named patrilineages of agnatic descendants of descendants of the founder of the Ziyada or Abu Jahal. Among the Abu Xader thus the segmentation does not extend below the level of maximal lineage. Chart 4 shows in comparison the segmentation in the Salamat and the Abu Xader. (See Appendix II)

iii. Importance of tribe and lineage in pastoral activities

In one Beniset village I interviewed a pair of identical twins. When asked what was their xasimbet one replied "Nawasat" and the other replied "Ulad Abu Sibel". Further responses to the question "Xasimbet chenu?" (what is your lineage) included: "I don't know; I am too young to know" the name of the respondent's tribe; or the name of the sheik who had been responsible for his village in colonial times. There was thus a tendency among Arabs to not be certain of their own patrilineage affiliation.

This is because today tribe and lineage within the Assale-Serbewel are far less important to the individual than in the past. Among the Arabs studied neither tribe nor lineage could be said to "own" such resources vital to a person's economic well-being as water-sources, pasture or farmland. Nor do tribes or lineages as corporate entities use together and consequently cooperate together over the use of water, pasture, or farmland. Nor among the Arabs studied did tribes or lineages possess cattle. Further, tribes and lineages lacked independence of political and judicial action. If disputes over pasture, farmland, or water sources

¹Maximal lineages might equally well have been called class. Most members of maximal lineages do not know the exact genealogical lines which connect them with the maximal lineage

occurred which could not be solved informally by villagers themselves then in all probability they would be resolved by the local administration. Thus among the Arabs studied pastoral activities were neither organized by the tribe or lineage, nor dependent for their success on the tribe or lineage.

It is not always the case that tribe and especially lineage are irrelevant to pastoral activities. Among such diverse pastoral ethnic groups as the Fulani of Bornu in Nigeria and the Kababish and Humr Arabs of the Sudan lineages have been reported as influential in animal management: especially in the organization of transhumance patterns, access to water, access to pasture, and in loans of livestock to needy members (Asad, 1970; Cunnison, 1966; Stenning, 1959). A major factor accounting for the difference of animal management functions of lineages between Assale-Serbewel Arabs and the Fulani, Humr, and Kababish is the degree of support of tribe and lineage received from colonial and post-colonial governments. Local administration, as we have seen, operates through the Chef de Canton and the village head. Person of respect or influence in tribe or lineage have neither the power nor the authority to participate in the cantonal decision making process. Nor do the units which such individuals represent have the right to possess a territory and its resources. This being the case in the region of the Assale-Serbewel studied tribe and lineage tend to be unimportant in organizing and supporting pastoral activities.

C. Residential Groups

Until the present we have discussed groups which are entirely based on kinship. Now we discuss three groups among the Arabs which contain kin but which also share a common geographic location --or residence. These groups are the household, the village, and the community.

i. Household

The Arabs household (zeribet) is a collection of circular grass huts, surrounded by an enclosure of thorns. Some of the grass huts will be living huts, and others will be used as barns for cattle and other livestock. (Often, the largest, most distinguished houses will be for the cattle.) Most households will include a shelter open at the sides

with a grass roof, which is where the male members of the household spend much of their free time gossip, saying prayers, eating or greeting villagers. The shelter is the domain of the men, women come there usually only to bring things to their menfolk. The domain of women is around the living huts. Here the cooking is performed and young children play within view of their mothers. The number of huts in the household and their size will depend on the number of people in the zeribet and their wealth. The more people there are and the greater their wealth, the larger and the finer the huts will be. The household will possess a head (sydal al bet). This person, almost always a male, will act as the pater familias. He, at least in theory, has the right to the biggest say in the major familial decisions.

a. Beliefs influencing the familial composition of the household

The households are composed of familial kin groups. Two factors influence what groups of kin exhibit co-residence in the same household. First, it is strongly believed that sons on marriage should have their own huts where they, their wife (or wives), and children reside but they should continue to live within the thorn enclosure which contains their father. Further, it is believed that brothers when they get married should continue to reside within the same zeribet. Such rules of post-marital residence (termed virilocal) act to form three types of extended families. An extended family is one in which there are two or more male-female married couples. A family may be lineally extended if it contains only a married father and his married son or sons. A family may be laterally extended if it contains only married brothers. And a family may be lineally and laterally extended if it contains both married father and at least 2 married sons.

If you ask an Arab why he and his married sons or brothers reside together he is likely to respond: we have "gelb wahid" (i.e. "one heart") which is to say that they get on well together. A more practical factor beyond emotion is likely ensure the successful start of a lineal extended family. This factor is the father's wealth. A man must pay a brideprice (mal al agd) in order to marry. Further, the process of getting married is long and includes numerous other costs for the groom beside the brideprice. A father should arrange his sons first

marriage, which includes bearing its costs. If a father is too poor to bear the costs of the son's marriage; then the chances are far greater that the son will move looking towards some other kin or friend who can provide him with the money or the work to earn the money for his marriage.

A second factor intervenes and occasionally ensures that affinal kin in the family (i.e. wives) will at the same time be agnatic kin. It is believed excellent for a man to marry his acti bint 'amm (his father's brother's daughter). Such marriages occur in less than 9% of the total marriages Arab men make. The reasons given for the marriage are either : "to increase our lineage", or "its written in the Koran for us to do".

According to Arab belief in the Assale-Serbewel the zeribet should contain extended families of agnates. The component nuclear families (i.e. husband, wife(s), and children) of a zeribet are called bets. The individual bet in a zeribet may have considerable independence. Each bet will have its own wealth (mal). Each will tend to have its own fields and its own cattle. Male members of a zeribet, however, will tend to eat in common. Further, members of a zeribet aid each other in work more than they aid others.

b. Observed Household Composition

The Arabs studied possessed beliefs as to what should be the familial composition of their households; but the actually observed household composition included the high frequency of occurrence of unexpected familial types. The other occurring familial types were :

1. nuclear families
2. incomplete extended families. These were of the following types (a) incomplete lineal, where the household contained a married son, but in the parental generation either the father lacked a mother, or the mother lacked a father; (b) incomplete lateral, where the household included two brothers, both in or beyond the age of puberty, but with only one of the brothers married, and an unmarried parent of the brothers.
3. none-marriage families. These were households that had groups of kin living together within the same zeribet none of whom were married.

Tables 6 & 7 present the occurring household compositions by region and by the age of the household head (see Appendix III). About 50% of all the households were nuclear; 25% extended; and a further 25% either incomplete or non-marriage families.

The 75% occurrence of nuclear, incomplete, or non-marriage families was due either to demographic factors or divorce. The nuclear families were largely the result of too few births or too many deaths which meant that the appropriate sons or brothers never were born or had died. The high occurrence of nuclear families among households headed by older men is partially explained by the fact that some men old enough to be grandfathers whose sons either were never born, dead or moved away had taken young wives in their old age and begun new families.

The non-marriage families were largely the result of divorce. Divorce is extremely common among the Arabs studied in the Assale-Serbewel. In the Chad portion of the study every man who had ever been married had been through an average of two and one fourth divorces. Marriage following a divorce is common, but it takes time for a divorced person to find a new mate. Most of the non-marriage families were composed of men and/or women, usually younger men or women, with their children or occasionally other unmarried relatives. Some were composed of widowed women. The incomplete extended families were composed of mother, father, sons, or brothers where either divorce or death had removed mates from all but one of the marriages on the sons generation.

c. Household size

The average size of the households studied in the Assale-Serbewel is presented by region and by the household composition in Tables 8 & 9 (see Appendix III). Household size varied immensely from a low of 1 to over 30 members. The average size was about 7. The non-marriage families were the smallest averaging 3 people; the extended families were the largest averaging 12 1/2 people.

d. Households and Cattle

The distribution of cattle to different household types, and the role of households in the Assale-Serbewel pastoral economy is discussed

in the present section.

The extended families contain the largest number of people so it might be expected that they contain the most cattle. This assumption is confirmed in Table 9 which reports average household size, average number of cattle per household, and average number of cattle per capita by the different types of household compositions. The extended families possess three times as many cattle (averaging 22 head) as the other household types. Further, in terms of per capita head of cattle the extended families rank second to the non-marriage families average 1.8 head of cattle to the 2.0 head of cattle for the households lacking a marriage. As the extended families have four times as many people as the non-marriage families the high per capita numbers of cattle for the extended families suggests that they are economically the most prosperous. The extended families present the largest array of personnel to perform economic tasks -- especially agricultural ones. Non-marriage families frequently lack adult males making it difficult for them to farm. It is suggested then that the extended family is the most prosperous household type found among the Assale-Serbewel Arabs and that it contains the most cattle.

The household is a critical unit for the performance of pastoral activities in the Assale-Serbewel. As will be explained at greater length in a latter section. All birthing of cattle is performed by male members of the household. Medical care for sick cattle is administered within the household by male members of the household. Milking of the cattle is normally performed twice a day (in the early morning and at dusk) by male members of the household. Marketing of milk and milk products is normally the task of the household's women. The sale of individual cattle is the business of adult males in the household. Small scale enterprises to commercialize cattle frequently begin with male members of a household. Purchase of livestock is done by male members of the household. Finally, in the evening the household is essentially a byre for its cattle. It is the household in which are performed most of the animal husbandry and commercialization activities of the Assale-Serbewel Arabs.

ii. Villages (hill sg), (hilal, pl)

The Arab villages in the Assale-Serbewel are situated within the vicinity of 3 resources: water, pasturage, and farmland. Just as households tend to be a collection of circular huts enclosed by a thorn fence, so villages tend to be a circular or oval collection of households. Village size, village movement, fission, and life-span, village composition, dry season villages, and the village's role in livestock management will be discussed in this section.

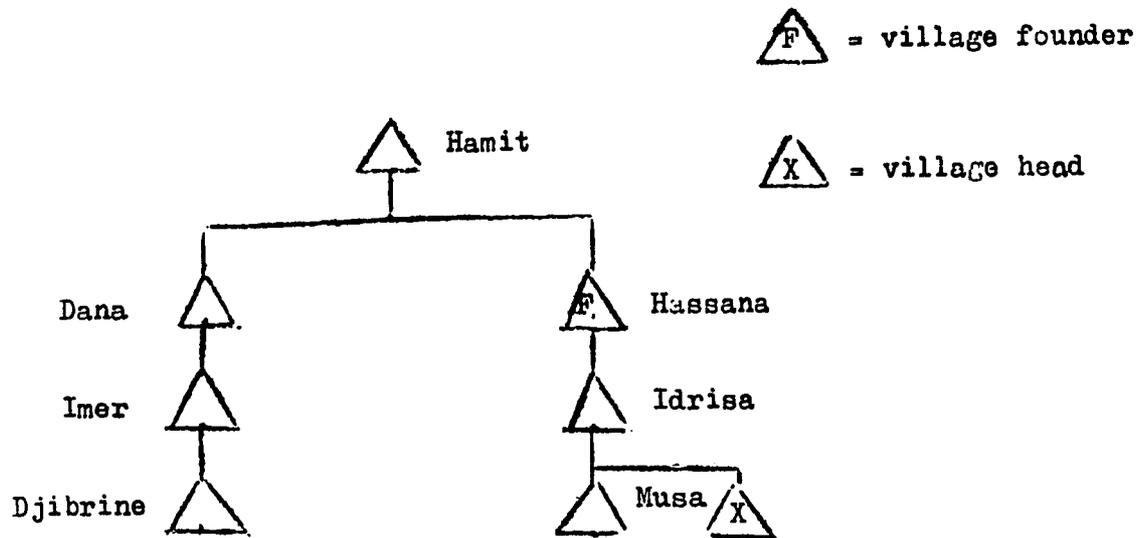
a. Village size, fission, movement, and life-span

M. Bouquet has performed an ethnodemographic study of the Bas-Chari a region in Chad which includes the entire Assale sector of the project. He reports that Kotoko villages average 319 persons, while Arab villages average only 68 (Bouquet: 1973). In our own study excluding Karal villages range in size from a low of 18 people to a high of 181. Arabs villages are small. Villages begin as very small entities, grow larger, and then typically begin to lose members through individual migration or fission (i.e. they simply divide in two). About 22% of the villages of the villages studied had fissioned at least once. Though no quantitative data is available for the entire Assale-Serbewel the impression is that Arab villages frequently change their location. About 26% of the 18 villages examined in our study reported having changed their place of residence. Villages in the Assale-Serbewel have a relatively short lifespan. There was no village studied which was over 80 years old.

The reasons for the smallness frequent fissioning, movement, and short lifespan of Arab villages are probably all inter-connected. Two factors appear to be involved in these phenomena. The first factor is that of intra-village squabbles. These disputes swirl about the village headn usually involving him or members of his amily. Below are presented examples of disputes which led to village fission among three of the villages studied.

One village in the Serbewel divided over a fight as to/^{who} owned certain very fertile farmland. The dispute was between two agnates related in

the following manner¹ :

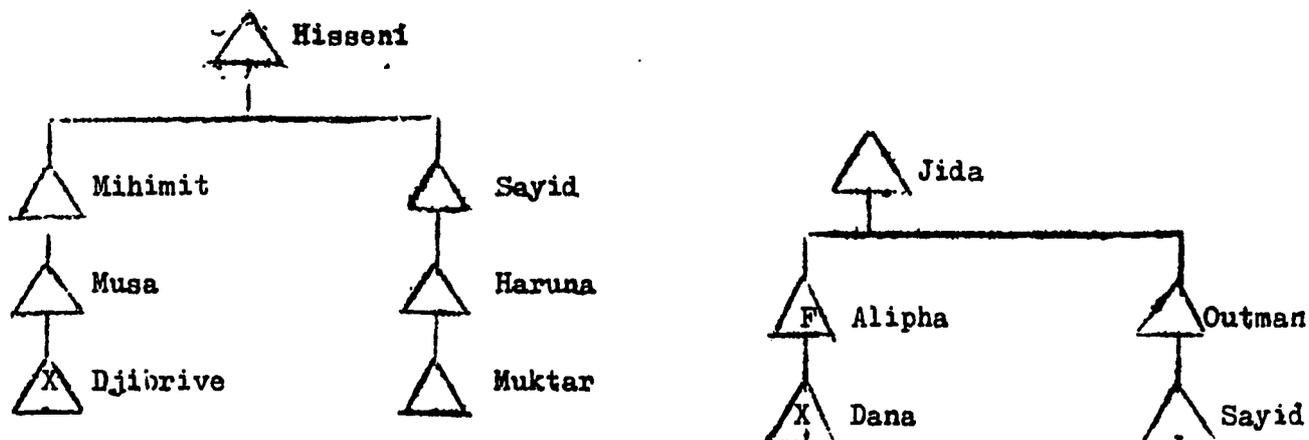


Djibrine claimed that his ancestors founded the village, and that he should control the land. Musa, whose line of the family traditionally provided the bulamaship for the village, and that therefore he and his direct descendant had a right to the land. The dispute was unresolvable within the village, and went to the traditional court in Kousseri where Musa was able to produce witnesses who claimed to have sold the disputed land to Hassana. Djibrine lost the case, and he and his followers, largely agnatic descendents of Dana, moved out of their old village to found a new one 1/2 kilometer from their previous residence.

A second village fissioned this year because of the following dispute between distant cousins. The cousins party to the dispute are diagrammed below :

1

The names in this and all other cases where personal names are used are pseudonyms.



Muktar accused the son of Djibrine, the village bulama, of committing adultery with his wife. Djibrine denied the charge, whereupon Muktar and his followers packed off to found a new village.

A third village fissioned 4 years ago because of a dispute between cousins related in the following manner :

Dana, the bulama, was the son of the founder of the village. Sayid said that his father Outman was the older brother of Alipha, the village founder. Sayid reasoned that as he was the oldest son of the older brother of the village founder he had a better right to distribute the village lands. The dispute was only resolved when the ambitious Sayid moved away with his followers to found a new village. It should be clear that quarrels within villages, often rather petty disputes, are the straws which break the camel's back and fission some villages in the Assale-Serbewel.

Environmental stresses also appear to be related to the ephemeral nature of Arab villages. Consider, for example, that 2 of the 4 villages in our sample of 18 villages which fissioned did so within the last four years during a time of drought. A number of villages studied reported moving because of environmental problems. One village died and its personnel relocated to found a new village informants in the latter village reported because there were too many tsetse-flies at the old location. It should be noted that the old village

was located within 4 kilometers of the Chari River, and that the new village is placed a considerable distance inland. Further, that the reported year of change in village sites falls just after a number of years when the river had risen higher than normally. One village now located a considerable distance from Lake Chad reported moving to its present site because their old village was located too close to Lake Chad and, again it was a time of lush hydrological conditions, the Lake continually flooded their fields. A third village studied ceased to exist 2 months after it was researched, when its members all went to join a larger village. It should be pointed out that this village had lost all of its cattle over the past years, and much of its membership.

Though further research is obviously called for it seems reasonable to hypothesize that the smallness in the size of Arab villages is due the infrequent and changeable concentrations of water, pasture, and farmland, that village fission and movement, which combine to produce the brevity of village lifespan, operate to maintain village size within the limits of available resources. Further, that intra-village squabbles and unfavorable environmental conditions are immediate cause of village fission and movement.

b. Village Composition

Once I was interviewing a man to find out all the places where he had lived. His father had died young, and his mother had returned with her young son to her natal village. The man had spent his childhood in this village. On marriage because he was poor he went to live in his wife's village. His wife's village happened to be located within a couple of kilometers of a village most of whose members were of his patrilineage. One fine day he moved from his wife's village to this latter village, and I asked him why he did so - "to be with my patrilineage" was his reply.

It is in the composition of the village that patrilineage becomes important ¹. It can easily be imagined that if the post-marital

¹The patrilineage unit we are discussing in the above section is the one we have called the maximal lineage.

residence rules of fathers and sons and brothers in co-residence are reasonably respected for a number of generations that villages would consist entirely of agnates - i.e. people of the same patrilineage. Table 10 (see Appendix III) presents the percentage of households per village whose male members are of the same patrilineage. On the average 60% of the village households sheltered male members of the same patrilineage. Charts 5 & 6 (see Appendix II) present the kinship relations between household within two of the villages studied. One of the villages was a wealthy one by Assale-Serbewel standards, the other was a poorer one .

Graph I (see Appendix II) plots the relationship between the percentage of a village's households in the same patrilineage and percapita head of cattle within the village. In general it can be seen that there is a direct relationship between the two variables : as the percapita holdings in cattle increase the percentage of households in the same patrilineage increases.¹ If per capita holdings in cattle are accepted as an index of village wealth it appears that the wealthier Arab villages are more likely to have a greater patrilineage solidarity. Why is this the case ?

Two related factors appear to be operative. On the one hand poorer villages lack the material wealth, especially the all important cattle, necessary for marriages, to hold as many of their younger sons

1. The glaring exception to the trend reported in Graph is the village of Nimia which has a high number of cattle percapita and a low percentage of members of the same patrilineage co-resident in the village. This village contains a person of considerable past wealth and political importance. He is resident very far from his own patrilineage. But his wealth and influence was sufficient to attract a number of people from different lineages.

To replace the lost sons and to prevent the village from becoming too small a hille is likely to welcome as residents strangers. Let us take the case of Habado₁ to illustrate how these processes operate. Habado₁ was founded approximately 70 years ago, and at present only 4 of the 11 households in the village are of the patrilineage. Between 10 to 7 years ago the village became poor losing essentially all of its cattle to epidemics. The headman of the village says that there has been a continual out-migration over the years from Habado₁, culminating 4 years ago in the fissioning of 1/2 the village to form Habado₂. The creation of Habado₂ removed 3 households from Habado₁ of the patrilineage which dominated this latter village. To recoup its losses, though perhaps not consciously, Habado₁ has followed a policy of accepting strangers. Three Salamat households, all of which left the same village due to a political dispute within the village, have recently come to Habado₁. These Salamat were accepted in the village because they were friends of the bulama. Habado₁ took in one Beniset man who came to the village to set up a household. The Beniset was accepted because he was married to a woman born in the village. One other Salamat resides in Habado who came to the village when his father migrated there. His father came because he had a brother in Habado who divorced his wife and needed someone with a wife so as to have a completely operational household. That this Salamat's father left his natal village to come reside in his brother's village strongly suggests that there were few economic inducements to hold him to his home village. There is one Fulani household in the village. The father of the Fulani who presently resides in the village migrated to Habado because of political problem which threatened his economic well-being in the Serbewel. Finally, there is one household in the village which appears to be of slave origin. It was not possible to ascertain why this household came to be resident in Habado. The example of Habado illustrates the process through which poorer villages come to exhibit less lineage solidarity.

C. Dry Season Camps (dor)

Most but by no means all Arab villages in the Assale-Serbewel must move from their home village location during the dry season to

camps (dor) located near a source of water. Normally, the location of the dry season camp is a spot where the home village has transhumed for a number of years. Home villages, however, are not obligated to continually return to the same dry season camp. For example during the drought a number of villages which normally spend the dry season near the Chari have shifted their dor to the shores of Lake Chad.

The dry season camps look much like home villages, but with a rougher, more temporary appearance. Huts tend to be smaller, and there are more huts which are open at the sides than normally occur in the home village. Dry season camps usually have one or two compositions. Either they closely replicate the composition of the home village, or they have a high percentage of young people and mature adults but lack old people. This is because some hille when they transhume leave their older members behind to guard the home village.

d. Villages and cattle

Two very critical cattle husbandry tasks are performed by the village, or by a number of households within the village. Members of the village form organizations which are responsible for the day to day feeding and watering of cattle. The exact nature of these organisations is discussed in the section on the pastoral economy.

iii. Community

For each group we have discussed up to the present be it tribe, patrilineage, village, household, or dry-season camp the Assale Serbewel Arabs have a name and are conscious of its existence. There is a final group that we discuss which is important in the everyday lives of the Arabs, but for which there is no name. This is the community. By community is meant those villages living as neighbors within a small region. The villages within a community will be of a preponderance of one tribe and possibly even one maximal lineage, but there are also always villages of more than one tribe within a community. A community has no official administrative existence. It is simply a group of neighboring villages within a canton.

a. Community Composition and Sharen Activities

Communities tend to be criss-crossed by ties of kinship. Since most of villages in the community are of the same tribe many people will be able to consider themselves ahl (agnates). A second source of kinship within communities is through marriage. Communities tend towards endogamy. Fully 75% of the marriages of presently married males took place with females whose natal village was less than 20 kilometers from the husband's natal village. This means to give a hypothetical case that if a man marries a woman from one village in his community, his father one from a second, his brother one from a third, and his sister may be married into a fourth, one family may easily have affinal kin in four villages. If each household within the community makes similiar marriages it can readily be seen that each village in the community will be linked to numerous other villages in the community by the marriages of its members.

Communities tend to share certain activities in common. Members go to each other's funerals. When a man or woman dies 3 ceremonies (Sataga) are held to commemorate the death. All friends and neighbors should come to the sataga, where, if the family of the deceased is wealthy enough, a bull will be sacrificed and prayers performed. Funerals bring together on one spot a larger number of people than any other frequently occurring social event with the possible exception of weddings¹.

Villages in a community have a tradition of mutal aid in some endeavors. This is especially important with regard to theft of livestock. If a village looses cattle it can expect neighboring villages within the community if asked to aid it pursue the theives. Usually within a coomunity there are only one or two markets, so that members of a community tend to use the same markets. On the market day women from different villages come to sit side by side as they sell milk products; while men - dressed in their better robes - in knots of friends from different villages idly stroll pursuing the wares - for sale or marriage.

¹. It should be noted that under present conditions of scarcity weddings are less frequent than funerals

Men save up their important affairs for resolution on market days because they know other men from the community will be at the market. Villages in the same community tend to spend the dry season in neighboring dry season camps. Thus extending community interaction throughout the entire year.

Finally because communities share a common region they must share the food, pasture and farmland resources. Because they must share these resources they must take decisions about the use of them. How decisions about the use of resources are arrived at is the subject of the following section.

But before we discuss Arab decision-making within the community something should be said about the delimitation of communities. Villages which are neighbors are so for two reasons : one is the history of their settlement, and the second is the distribution of resources. Villages of the same tribe have tended to settle together, and villages have attempted to settle where resources are more abundantly located. But there have been waves of settlement which brought villages of different tribes within a community; as the population of the Assale-Serbewel has grown villages have tended to spread throughout the area except to places of extreme resource scarcity. Hence, communities cannot be neatly bounded on purely ethnic or geographic lines. The only way to place a village within its community is to see : 1. which other villages it most frequently intermarries with, 2. which villages it most frequently aids, 3. with which villages it resides during the dry season, 4. with which villages it shares a common market, and 5. to which villages' funerals it goes.

b. Community decision-making especially with respect to range of water management

In order to understand how decisions are reached within a community it should be realised that the community is not a recognized unit within the local administration. Decisions reached within a community must be accomplished through channels outside of the local administration. Any community decisions arrived at are thus informal and lacking in official sanctions.

Further, in order to understand how community decisions are arrived at we must consider traditional Arab political organisation and its vicissitudes under the colonial and post-colonial administrations. Traditionally the Arabs possessed only one political official, the sheik, who normally ruled over the tribe¹. Some sheiks were wealthy and powerful other were impoverished and humble. All sheiks ruled more by example than by decree. They were under the strongest injunction to be generous. If they were greedy and grasping their followers simply melted away. By the 1950's in both the Assale and the Serbewel the rule of the sheiks was suppressed. With the suppression of their traditional leaders just prior to independence the Arabs were left without "official" leaders for their social groups.

Decisions which Arabs make for themselves have come to be on the basis of unofficial leadership within communities. The leaders who are most responsible for the decisions affecting the entire community are men of influence. Men who possess influence within communities have at least two or more of the following characteristics. They are men into their middle-age². A person who has not achieved at least the age of 40 is considered likely to be rash and youthful. Influential men are intelligent. Intelligence is a compound of two factors. First, bright men are considered good rhetoricians, able to forcefully and clearly state their position. Second, they are knowledgeable in the customs and law of Islam. Influential men have wealth. As cattle are

1. It is significant to note that the word used for headman (bulama) in Arab villages is a Kanuri and not an Arab word.

2. Men of influence can be spotted at any social gathering wearing the finer robes carrying a cane; and sitting in the middle front of mats flanked by supporters.

an important Arab index of wealth (mal) this means that they should own a large number of cattle - at least 30 or more. A wealthy man should not be a miser. He should loan his cattle to poorer individuals; he should annually give away one head in 30 as alms; and he should lavishly greet guests. Finally, a man is likely to possess influence if he is descended from a person of past wealth or political influence. This is especially true if he is the descendant of an important sheik. There are three types of men occurring in Arab society likely to possess two of these characteristics. These are elderly mallums, past sheiks, and comfortable cattleowners. Mallums are not necessarily wealthy individuals, but they have normally devoted the bulk of their life to master the Koran and other religious texts, and consequently are experts in Islamic tradition. With age they tend to become widely respected individuals. Thus within any community there tend to be men of influence - mallums, comfortable cattle-owners, sheiks and sons of sheiks - whose assent is critical for most decisions.

Within the community three sorts of decisions pertinent to pastoral activities are begun - decisions about where to herd, where and how to seek water, and decisions about the timing and route of transhumance. These then are decisions which determine to a great extent water and rangemanagement practices within a community.

There is no special place or occasion for decision-making. Rather at marriages, at funerals, during social, and at markets people come to discuss topics about which decisions have to be taken. It is a discussion about cattle the talk will turn about where grasses are, where the pasture has already been eaten, what wells are in good shapes, what wells are beginning to give out, what places have disease, etc. These conversations tend to be technical and expert. The herders have a lifelong experience of seeking and using resources within their communities. Gradually as the talking progresses people party to the discussion will express opinions. Usually towards the end of the session the man (or man) of influence will express their opinions. Their suggestions will be accorded the greatest weight. Such discussions will be held over and over again throughout the community. Men discuss cattle and their management much like Americans discuss years and models of cars. The outcome of all these discussions

spells what sort of strategy the community will follow with regard to water and range management.

These strategies will, then, be taken back to individual villages. Again informal meetings will take place. More likely than not these informal meetings will take place over tea in the shelter of an influential man, and it is likely that the opinion of the influential man (or men) present usually representing a community strategy will be adopted. It will be the village which implements range and water management strategies.

Whatever strategies are decided upon are the ones which most influential men are most in favor. Note, however, that a man will stay influential only so long as his decisions are reasonable. If for example a wealthy old man insists that people transhume their cattle towards a spot where there is a village in which he is courting a woman he will achieve a reputation as somewhat nutty (mushotin chiya). He may marry the woman but he will lose his influence.

Decisions taken about community range and water management strategies are only the sum of the opinions of influential men given during informal meetings. That many people choose to follow the opinions is a measure of the men's influence. But there is nothing binding in the decisions, and many individual can do anything he jolly well wants to find water and pasture for his cattle. He only^{is} constraints are obviously that he must go where there is water and pasture; and it is quite that the influential men's opinions, made after expert discussions of environmental conditions, will send people to areas with environmental conditions felicitous for cattle

D. Kinship and the pastoral economy

Chart has been constructed which lists 17 of the important activities in the Assale-Serbewel in terms of within what social group the tasks are performed. Chart is presented below :

Chart 7 : The social groups performing different pastoral activities in the Assale Serbewel

| Pastoral activity | Members of household | Members of village | Community | Kin | Friends |
|---------------------------------------------------|----------------------|--------------------|-----------|-----|---------|
| birthing of cattle | X | | | | |
| medical care of animals | X | | | | |
| milking | X | | | | |
| sale of cattle | X | | | | |
| purchase of cattle | X | | | | |
| marketing of milk | X | | | | |
| castration | X | | | | |
| elimination of unthrifty animals | X | | | | |
| evening bedding down of animals | X | | | | |
| feeding of adult cattle | | X | | | |
| feeding young cattle | | X | | | |
| watering cattle | | X | | | |
| decisions about where to herd | | | X | | |
| decisions about where and how to seek water | | | X | | |
| decisions about timing and routes of transhumance | | | X | | |
| loans of cattle | | | | X | X |
| donations of cattle | | | | X | |

X = the social group in which the activity is performed

Fully 88% of the pastoral tasks are performed within the context of household, village or community. Another 12% are performed by individuals who are kin to each other. When it is remembered that households, villages, and communities are composed of differing types

of kin it becomes obvious that among the Arabs studied cattle-raising is done almost exclusively by people who are related to each other. This is a fact which must not be ignored in introducing changes in the Assale Serbewel pastoral economy. Changes asking the herders to undertake pastoral with nonkin will be so alien as to have a low likelihood of success.

III. THE PASTORAL ECONOMY IN ASSALE-SERBEWEL

Six out of every ten households have at least one member of the household possessing some cattle in the population studied in the Assale-Serbewel. It should be noted that this figure is higher for the Serbewel than the Assale (70% of the Serbewel households possess cattle, while only 56% of the Assale households possess them). Further, it should be observed that there were 1.3 cattle possessors per possessing household in the Assale-Serbewel (See Table II, Appendix III). The cattle-raising sector is thus a most significant sector of the regional economy and will be described in the following section.

Before continuing, however, two points should be considered. First, the Assale-Serbewel Arab economy is a mixed economy. As well as having cattle the herders possess goats and sheep. The average household owned almost 5 goats and 1/2 a sheep. Further, the herders are farmers who use extensive techniques involving small hoes, little soil preparation, and no regular irrigation or fertilization to produce two or more grain fields for each household. Towards Lake Chad a greater emphasis is placed on farming with, in addition to grain fields, garden crops of tomatoes, beans and cucumbers being grown. Almost every household has fields for crops, while four out of every ten households lack cattle. Livestock experts have observed that the Assale-Serbewel Arabs appear to be less "good" herders than the Somadic Fulani. This is possibly true because the Arabs being farmers must devote less time to the care of their livestock than the non-farming Fulani. Farming requires the Arabs to be more sedentary than the Fulani which may make it more difficult for them to always assure their cattle of the most succulent pastures, which could result in their livestock maturing less rapidly. Rather than call the Arabs mediocre herders it would seem more appropriate to call them ingenious herders who have managed to

to adapt their pastoral activities to the demands of extensive farming. In fact, as will be seen as we proceed with the description of livestock practices, no pastoral activities occur which are not reasonable given the prevailing environmental and technological conditions in the Assale-Serbewel. Arab herders are experts.

Our second point is that market conditions, production methods, and a difficult environment do not allow the average Arab studied a great deal of wealth. The average household included only 1/2 a donkey, 3/10's of a horse, 1/10 of a radio and a watch and 6/100's of a bicycle (see Table 12 Appendix III). The average Arab herder considers miskin (poor). A poor, but expert, herder is unlikely to blithely take risks tinkering with a vital part of his livelihood. If the project wishes to alter livestock practices of the herders it is imperative that it explain the changes so the stockmen can see need for the changes and they benefit from them.

1. Building up a herd

There are three major ^{ways} in which a man may build or maintain a herd beside waiting on its natural increase. He may receive cattle from his herd through donations given to him at various times in his life; he may receive cattle in loans from kin or friends; or finally, he may purchase cattle. It will be suggested that prior to the present drought that the third way was becoming the more important manner for herdbuilding.

a. Donation of cattle

There are four major times when a person may expect to be donated cattle. Seven days after a person is born he or she is given a name; forty days after the naming a male infant's hair is shaved off. At the shaving ceremony he may ^{be} given cattle most probably by his father, possibly by other close agnates such as his father's brother, or more rarely by his mother's kin. Girls do not have their hair shaved 40 days after their naming and cannot expect to be donated cattle in their infancy. Later, as children reach or enter adolescence they undergo a circumcision ceremony. At this ceremony boys may be given cattle by

circumscized. When a man marries he can once again expect to receive cattle from his kin. Frequently, it is at marriage that the father may decide to give a considerable portion of his herd to his son to set him well provided along the road of married life. (This especially true if the father hopes to have his son continue to reside within his household after the son has reached maturity). Women normally receive no cattle at marriage. Finally, when a sibling group's father dies they have the right to inherit the deceased father's cattle. Rules of inheritance are complicated, for our purposes it is sufficient to note that in principle males should receive twice the inheritance of females, and in practice they seem with respect to cattle to receive even more than this. From the preceding, one point should be clear. Women are donated almost no cattle.

A man may receive some cattle at all of the above social occasions, but there is no guarantee that he will receive anything. Whether a man will receive stock, and how much he will receive is determined by the wealth of his kin, above all by the wealth of his father, for it is the father who is under the strongest obligation to give to his son, and if the father is wealthy it is likely that there will be other wealthy kin. My impression is that most men receive one or two head at the shaving ceremony; that they frequently receive nothing at their circumscision, that they receive some animals at marriage; and that they await their father's inheritance.

It would appear that the major social situation when a man may receive cattle is following his father's demise. But I was struck by the fact that most men interviewed claimed to have received very few cattle in inheritance. This makes sense if we consider the following information. Arab women are likely to be about 50 at the death of their husband, and on average Arab women 50 or above have had 3.9 live births (INSPE:1964, p. 127). About 50% of the live births for Arab women between the ages of 40 and 55 survive (INSPE:1964, p.149). Further, our study shows that the probability is greater than 80% that men above 40, those most likely to die, have married more than once. Assuming, then, 2 wives aged 40 or above for deceased men we can predict that they have had 7.8 live births of which 3.6 have survived.

This means that if the average number of cattle owned is about 13, that these cattle must be divided among about 3 and 1/2 persons, meaning there will be slightly over 3 head of cattle per inheritor. Thus it does not appear, except in a very few cases when coming from very wealthy families, that truly large herds can be built through inheritance, or for that matter from other donations.

B. Loans

Herds can be built up through loans. But building up a herd through loans restricts the possessor's freedom of action. He may not sell the animals loaned to him, and he does not possess the offspring of these. Further, he is in the social debt of the person loaning the animals. Building a herd through loans may be for some poor individuals a necessity, but it is not a highly desired way of doing herd building.

C. Purchase

Before the present drought the building of herds through the purchase of stock was quite popular. An unfortunate consequence of the drought is that money to purchase cattle has almost entirely disappeared. Money for the purchase of cattle in normal times comes from three possible sources. For the very wealthy owners income from their salaries or from their mercantile activities may be applied to the purchase of animals. This source of income is obviously unavailable to "poor" and "comfortable" herders. "Comfortable" herders may find the cash to purchase animals through the sale of other animals. In fact, a favorite strategy for the building of herds was the sale of a few older males and the purchase of younger females. This strategy is of restricted applicability to the "poor" herders, for the greatest part of their earning from the sale of cattle must go to pay taxes, buy grain or other necessities. The third source of money to purchase cattle comes from the sale of agricultural products. This source is open to the "poor" and the "comfortable" herders under normal environmental conditions. I was surprised to find in questioning two of the comfortable herders surveyed in Assale that both had reached their present herd size because in the part they would sell their agricultural produce and use its profits to buy cattle. Both attributed their success in agriculture to good rains and to having sons

who could help them in the fields. Unfortunately, except for a few comfortable and very wealthy herders there is no cash available from any source to purchase cattle.

It is, however, of significance to Project Assale-Serbewel that herders already have the habit of converting some of their agricultural earnings into livestock. The Arabs studied love cattle and would love to have as many cattle as possible. The only source of money available to purchase cattle for the "poor" owners is through the sale of agricultural products. One way of introducing the ox-drawn plow agricultural part of the project could be to suggest that this type of agriculture will give greater cash returns that can be applied to the purchase of cattle.

2. Cattle and Individuals

A. Ownership versus possession of cattle

Cattle are individually "owned" or "possessed" by a person in a household. Individuals who own cattle may give them on loan to other persons. A total of 17.5 % of the cattle-owners studied made loans (See Table 13, Appendix III). The persons making loans owned an average of about 30 cattle. This is about 17 more cattle than the average number of cattle owned. Thus, it appears that the wealthier cattle owners loan cattle to their poorer neighbors. The person receiving cattle on loan must herd his borrowed cattle as carefully as his own in exchange for which he receives rights to drink the milk of his borrowed cattle. Among the Arabs studied a person with borrowed cattle does not have the right to sell his loaned cattle or to own the offspring of the loaned animal.

The Arabs surveyed made loans either to kin or friends: 54% of the loans made were to kin and 46% were made to friends. Most of the loans made to friends went to affinal relatives; while a surprising number of loans made to friends went to Fulani. (Apparently, because the Fulani enjoy a reputation as superb cattlemen). A fairly large number of people making loans (about 30%) made these to more than one person.

There are a number of reasons why wealthy cattle-owners are willing to entrust their stock to other persons. When I asked one man why he made loans he replied: "I had 31 head of cattle die last year with me. If all my cattle had been with me all would have died". There is thus a realisation that if one spreads one's cattle out over a larger geographic area than can be utilized if all of one's own cattle remain in one's household that the chances overall herd mortality may be lessened. This makes considerable sense as the distribution of disease is locally very variable. If a man's cattle are in different localities he places them under different disease conditions with the possibility that some of his cattle are in areas with lower incidences of disease. A second reason wealthy cattle owners lend cattle is that in doing so they cement influence over other persons. If a man receives the milk which forms a substantial part of his family's nutrition from another man's cattle he is likely to be susceptible to being influenced by his cattle-owners opinions. This explains why cattle owners distribute their cattle among a number of loanees: they are trying to enlarge their net of influence. The chances are that if one comes across a man who is loaning out cattle that one has discovered a person of influence in the community. A third reason cattle are loaned is that the wealthy cattle owner may not have enough males or buildings in his household to care for and house his cattle, and it becomes less laborious to loan the cattle out to other herders. Cattle, then, are loaned:

1. to avoid the risk of concentrating all one's perishable capital in one locality;
2. to gain a man influence and 3. to reduce his labor requirements. In this study we have distinguished between individual herds which: a. consist of only owned cattle ("owned herds") and b. which consist of owned plus loaned cattle ("possessor herds").

B. Individual herd size

There are small differences between the Assale and the Serbewel in the sizes of owned herds and possessor herds. In the Assale the average size of an owned and a possessed herd was about 11 heads; while in the Serbewel the average owned and possessed herd was about 15 heads (see Table 14, Appendix III). Thus the people in the Camerouns owned

or had in their possession about 4 more cattle than the Chadians. The greater size of owned and possessed herds in the Serbewel may be attributable to differences in veterinary services in the two areas.

It should be noted that for both the Assale and the Serbewel that the average cattle owner or possessor does not have a great number of cattle to supply the economic requirements of his household.

C. Distribution of ownership

If one looks at the distribution of cattle in terms of what percentage of the cattle owners own what numbers of cattle one observes that the distribution is skewed. Table 15 (see Appendix III) indicates for the population studied that about 94% of the cattle-owners own fewer than 30 cattle; while about 2% of the owners own between 80 to 110 cattle. The Assale population studied had a higher percentage of people with fewer cattle than the Serbewel population. In the Assale 70% of the population had fewer than 10 cattle; while 20.5% had 10 to 19 cattle; and 4.5% had 20 to 29 cattle. In the Serbewel only 32% of the owners had fewer than 10 cattle, while 40% had 10 to 19 cattle, and 20% had 20 to 29 cattle. Thus in the Camerouns 60% of the population studied had between 10 and 29 cattle; while in the Chad only 25% of the people had these many animals. Nevertheless, for both the Assale and the Serbewel there are a large number of herders who own relatively few cattle, and a small number of herders who own a largish number of cattle.

There is also a third group of cattle owners not identified on chart distinguished by the number of cattle they own. These are owners largely non resident in the bush but in towns such as N'Djamena or Kousseri who are normally political fonctionnaires or successful merchants. By the standard indicated in Table 15 these individuals own enormous herds.

D. Poor, Comfortable, and Very Wealthy Cattle Owners

One may thus distinguish 3 categories of cattle owners: the "poor" (with fewer than 10 heads of cattle); the "comfortable"

(with between 30 and circa 100 head of cattle); and the very wealthy (with 1000 or more heads of cattle. (It should be noted that the cattle-loaners fall within the "comfortable" or very "wealthy" categories of stockmen).

I have been struck by the differences in attitudes towards innovation in pastoral activities among the 3 groups of cattle owners. In general, the attitude of the "poor" stockman is: "I have very few cattle. I must keep all my cattle. I know what I'm doing. Bug off". The attitudes of the "comfortable" and the "very wealthy" cattlemen are different in that when discussing the project they expressed considerably more interest in trying out new ideas. They might not understand the new idea but they were often open to hearing about them. A problem in working with the very wealthy owners is that if they are open to innovation they often indicated suspicion of or looked down upon the project itself.

The "poor" cattle owners are so poor as to look upon the innovations proposed by the project as considerable risk-taking. The "comfortable" cattle owners look on the innovations with some interest. The very wealthy look on innovation with interest, but view supervision by the project with distaste. It is suggested that the "comfortable" cattle owners will be easier to work with than the other 2 groups of stockmen. Table 1 presents the 3 groups of owners in terms of their distinguishing traits :

Table 16: Criteria defining "poor", "comfortable", and "very wealthy cattle owners

| | Herd Size | % of herd owners | Attitudes towards innovation |
|--------------|-----------|------------------|--------------------------------------------------------------------|
| POOR | 10 | 50% | Reserved |
| COMFORTABLE | 30 to 100 | 6% | More open than poor |
| VERY WEALTHY | 1000 | 1% | More open than poor, but reserved about direction from the project |

11. Composition of individual herds

We have seen how many cattle individual herders own or possess. We now present the composition in term of age and sex of animals in these herds. The first fact to grasp is there are far more female animals. In the herds under study (this includes both the owned and the possessed herds) there were 1071 female to only 428 male cattle. These figures yield a cattle sex-ratio of 39.9, which is to say that for every 100 female animals there are approximately 40 males. In table 17 (see Appendix III) the age sex pyramid of the cattle included in the study is presented. Observation of this table is revealing. There were no male cattle aged 9 or above in the study; only 2% of the males were between the ages of 5 and 9, while fully 98% of the males were between the ages of 0 and 4. On the other hand for the females 7.8% of the animals were aged 9 or above; 44.2% were between the ages of 5 and 9; and only 48% were younger than 5 years of age. The Assale Serbewel herds studied, then, are composed of very few males, and those males which do exist are young; while they include a large number of females within the age-groups which are reproductive. If we apply our knowledge of the herd sex ratio and its age-sex structure to the average number of cattle per herd we may estimate the average number of animals in the appropriate age-sex category. This information is displayed in Table 18 below:

Table 18 : Estimated age-sex composition of the average individual herd in the Assale Serbewel population studied

| Males | Age | Females |
|-------|-------|---------|
| 0 | 11+ | .04 |
| 0 | 9-11 | .6 |
| .02 | 7-9 | 1.6 |
| .05 | 5-7 | 1.9 |
| 1.5 | 3-5 | 2.1 |
| 2.1 | 1-3 | 1.0 |
| 1.6 | 0-1 | .7 |
| 5.3 | Total | 7.9 |

The question as to why there are so few males in individual herds is clearly raised by the above information. The author knows of no data which suggests that mortality is radically higher for

male cattle in the Assale-Serbewel region. When one comes to question herders about the lack of males one realizes that this is due to a conscious herd composition policy. If you sell your females it was said "you will soon have no cattle". You will become poor". Individual herd composition policy then is to sell males, but to interfere as little as possible with the female breeding stock, and to sell only those females that have ceased to give offspring i.e. which are unthrifty. It is suggested that the lack of male cattle in individual herds is largely due to the greater sales of male animals.

It should be mentioned that there is a difference in policy with regards to the sale of male animals as regards the "poor" and the "comfortable" and "very wealthy" herders. Owners of cattle know that the sale price of cattle increase with size. The wealthier owners prefer to sell their cattle at latter ages to get better prices. The poor reported that they would like to wait and sell their males latter but that frequently their demands for cash were so great and their stock of animals so small that they were forced to sell younger males.

i. Castrated males in individual herds

In villages both in the Assale and the Serbewel herders asked me if I (or the project) would castrate some of their males. Herders in the region know of castration and value it, for they believe castrated animals grow larger. They do not castrate, however, to remove the genes of unthrifty animals from their herds' gene pool. The incidence of castrated animals in individual herds is extremely low - probably below 5%. This, according to the herders, is because they are forced to sell most of their males before it is the proper age to castrate them. Herders gave the impression that they prefer the veterinarians methods of castration to their traditional methods. Thus individual herds are composed of very few males castrated probably due to the early sale of males.

ii. Unthrifty animals

The herders' studied standard policy towards deformed, maimed or diseased animals was clear: if possible, sell them. These animals which are unsaleable, however, are for the most part neither destroyed or (if applicable) castrated.

It should be pointed out that the stockmen's policy of individual herd composition is reasonable, designed to maximize the possibility of reproducing his stock, while ensuring that he has a supply of high calorie, high protein foodstuffmilk.

3. Village Herds

We have been talking up to the present about herds owned or possessed by individuals. There is a second type of larger herd found in the Assale-Serbewel which we shall term a "village herd" with the proviso that it is understood that there may more than one village ^{herd in a} village that the number of village herds in a village may vary with the seasons; and that the village herd is in no way the property of the village.

We start with the last point first. A village as we have seen consists of a number of households most of which possess individual herds. Each household has the same problems of watering and feeding their cattle. It could be arranged that each household each day took its own cattle to water and pasturage, but this would be time consuming. Rather, households pool their cattle into a herd with normally one (or less frequently two) herder (rye - pronounced as in rye whisky) whose responsibility is to attend to their cattles aqueous and gustitory needs. Clearly, the number of village herds ^{in/} a village is related to the number of cattle one or two herders can manage which is related to prevailing water and pasture conditions, and to the number of cattle resident within a village. As a general rule one can state : the more cattle found in a village the more village herds there will be. In no way does the village as a corporate entity own the "village herd" rather these are simply poolings of the individual herds formed for the purpose of reducing the amount of labor required to attend to the cattles' alimentation.

A. Who herds village herds

There are two ways in which herders are chosen for the village herds. In some cases the possessors of cattle in a village herd may decide to pool their funds and hire a full-time herdsman. This herdsman, frequently a Fulani, is paid a monthly salary of about 2000 to 2500 francs CFA per month. He is also provided with food. With this sort of an arrangement the possessor of cattle in a village herd expend no labour but a small amount of cash each month to water and feed their animals. A second, and more common, way of selecting the herdsman for a village herd is to have each household take its turn providing the herder for the herd; one day household 1. provides the herder; the next day household 2, the third day household 3; and if there are only 3 households participating in the herding circle, household 1 takes its turn again. In the second method of selecting the herder the individual herd possessor pays no cash but expends some labour to feed and water his animals.

B. Village herd composition

Village herds are not composed of all the cattle in their component households. Cattle which are not weaned are separated for the village herd. These young animals under the age of one year, graze and are watered near the village or dry season camp. The reason that unweaned animals are removed from the village herd is so that they will not drink all their mother's milk during the day. The young animals go more or less unattended, as no special herder is appointed over them.

C. Seasonal variation in village herd size

The Arabs studied distinguish 4 seasons : the dry season (sef) approximately March through June; the wet season (kharif) approximately July through late September; the post-rainy season (darat) with water and pasture conditions resembling those of the wet season from October through November; and the cold season (shite) from approximately December through February. Obviously, the availability of drinking water and pasturage vary with these seasons. During the

wet season water and fodder are at their highest levels; while during the dry season they are at their lowest levels. Village herd sizes vary with the annual cycle of hydrological and agrostological conditions. In general the herds are larger during the wet season, and smaller during the dry season. Informants report that a reasonable village herd size during the dry season is between 50 and 80 heads; while a good herd size during the rainy season is 100 to 150. Herders explained that the reason for the smaller dry season herd size was that if the herd was big that the first animals to arrive at a grazing spot would eat all the grasses and that there would be nothing for the latecomers. Herders perceive that as the dry season progresses grazing spots become smaller and more widely dispersed and herd sizes are reduced to produce more and smaller herds to exploit the more widely spaced food resources.

4. Transhumance in the Assale-Serbewel

The population/^{studied} in the Assale-Serbewel transhume with their cattle, but they do so less frequently and for shorter distances than is normally the case with cattle peoples in the sudano-sahel zone of West and Central Africa. The reasons why this is the case are discussed below.

A. Why they transhume

In discussing transhumance authors frequently suggest that herding populations change their residential locations out of a mysterious longing for movement, out of a need for the wild free life. Nothing would appear to be further from the case of the Assale-Serbewel people's studied. When asked why they moved the following practical response would be given: "we move because the water for our herds is gone". Arab technology in the Assale-Serbewel is unable to ensure throughout the year a continuous supply of water. Sometime after the ending of the rains the swamp, well, or possibly small river which is the source of the wet season water supply disappear, when this is the case the home village will be obligated to move to its dry season camp near a source of water. It should be appreciated; first that

from year to year the amount of water in the home village water supply will vary; and second, that within the Assale-Serbewel different areas will be differently endowed with home village water-supplies. These two factors effect the timing of when home villages are forced to transhume to their dry season camps. When the rains have been bad villages must move more quickly after the cessation of rains, and those villages in the Serbewel located near the Taftaf, Serbewel, or El Obeid river move later than those villages in the Assale located near swamps, as the rivers generally dry more slowly than the swamps. By the height of the dry season most home villages have transhumed to dry season camps there to remain until the first rains have replenished the grasses and water near the home village. The Arabs in the Assale-Serbewel, the, move only twice during the year, once to get to their dry season camps and once to return to their home villages. A very small percentage of herding villages do not move at all. These are villages with a sufficient supply of pasturage around their home village to last throughout the dry season. These villages have permanent annual wells or dig wells near the village. This alternative to transhumance is not more frequently practiced because it is extremely laborious first to dig the well, second to water the animals, and third because many home villages cannot be assured of sufficient pasturage throughout the dry season for their animals.

B. Where and how far they transhume

The Assale-Serbewel region is an area in the sudano-sahelian zone of Africa relatively bountifully supplied with permanent sources of ground water in the form of the Chari River and Lake Chad. Most villages in the region transhume to these two source of water, and have to move relatively short distances to reach their dry season camp. The average distances moved are somewhere between 12 and 20 kilometers. It is by no means universally the case, but those home villages closer to Lake Chad move to the Lake to spend their dry season, while those closer to the Chari tend to spend the dry season by the banks of the Chari River.

C. Attitudes towards transhumance

Moving from home village to dry season camp and building the camp is a laborious business. When I suggested the possibility, if their home villages were adequately supplied with water for themselves and their cattle and if there was sufficient pasturage, that the transhumance be given up, I came away with the impression that my informants thought this to be an entertainable idea.

5. Cattle Sales

We now discuss the sale of cattle among the population researched. When considering cattlesales among the Assale-Serbewel Arabs it is well to bear in mind that the drought has deformed present marketing practices. Exactly how this is the case will be discussed below.

A. Amounts of cattle sold

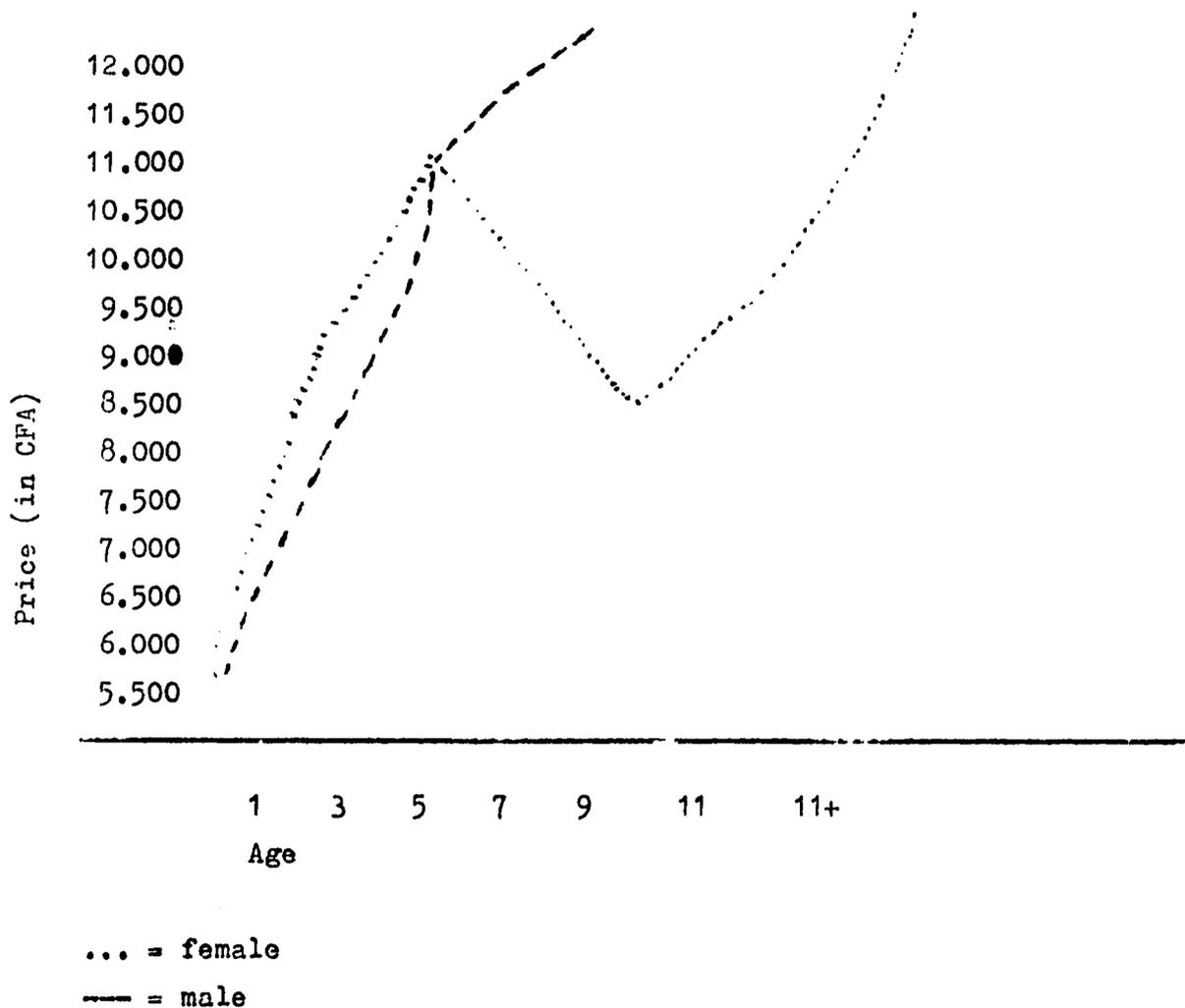
Table 19 (See appendix III) presents the percentage of the herds sold during the 12 months preceding the interviewing. In the Assale herders reported selling 4.5% of their last years herd plus those added to their last years herd through purchase, donations, inheritance or loan in the Serbewel they reported selling 10.4 of last year herd plus those added through purchase, donation, inheritance or loan, for an average of 8% of the herds sold. I believe this figure to be low especially as reported for the Assale, because a fair number of cattle were for the most part not reported as sold.

B. Sale prices

The average price for males of all age groups during the 12 months preceding the study was 9107 F. CFA, while for females the figure was 9990 F. CFA. It should be noted that for males the sale prices increased with age between the ages of 1 year through 9 years. With females the trend is not as clear: between the ages of 1 and 7 years the prices were on the average higher than for the males and

increased with age; but in the female age-group 7 through 10 the sale prices began to decline. In the 11 years or older female age group the price again rises. (The female age-group 11+ is represented by only one individual and is therefore not a reliable indicator of average price). Table 20 (see Appendix III) and Graph 2 below compare age-sex changes in cattle prices :

Graph 2. Age-sex distribution of cattle prices in the Assale-Serbewel during the 12 months preceding the study.



Male cattle prices increase with age because the weight on the animals increase with age. Female prices probably begin to decrease about the age of 7 years because the older females reaching the market are barren.

C. Age of sale

Table 21 (see Appendix III) presents by age and sex percentage of cattle sold. It should be noted that no male cattle were sold beneath the ages of 1 year or above the age of 9 years, and that 85% of the males sold were between the ages of 3 and 7 years, with fully 68% of the males being sold between the ages of 3 and 4 years. With female 77% of the animals marketed were sold between the ages of 3 and 6. Both for males and females, then, relatively few animals are marketed when they are younger (under 3 years) and older (over 9 years). For males, however, a higher percentage are sold at younger ages, and a very high number are marketed between the ages of 3 and 4.

D. Reasons for sale

When herders in the region researched were asked why they sold their cattle during the last year three responses were overwhelmingly forthcoming:

1. khalla mafi (Millet, there isn't)
2. ruru mat (Fields croaked)
3. hanna ju (because of hunger)

The drought was, then, an important motivator of cattle sales obliging to sell their cattle to purchase food. Table 22 (see Appendix III) tabulates the reasons for the sale of cattle during the last year as given by the persons studied. The table confirms the preceding responses, an overwhelming percentage (92%) of respondents stated that they sold their cattle either to purchase food or to pay taxes. The drought then has caused most sales to be made to purchase foodstuffs.

What are the reasons for sale of cattle during normal years? Even in times of normal rainfall cattle are not raised with the objective of being sold for a profit, except in a very few cases of "comfortable" and "very wealthy" herders. Rather, they are sold, especially by the "poor" owners to satisfy immediate social and

economic need. When you asked a "poor owner" why he sold in the past before the drought his response was likely to be "to pay for some medicine from a mallum for my sick son" or "to buy some cloth for my wife". Never, would his response be : "that is my business; I raise and sell cattle". The "poor" owners typically insist that first they determine a need for cash, and then only they contemplate selling an animal.

One of the most important social motivators of cattle sales under normal conditions is the need for the groom to pay the bride-price and other marriage cost in order for him to be legally married. The normal cost of a marriage including the bride-price and other expenses is probably above 20.000 F. CFA. This would require the groom or his family to sell about two cattle. Most men further, as we have seen make several marriages. Thus a fair number of cattle must be marketed to facilitate marriage. Consider the sad case of Musa. Musa a young man of about 25 had only 4 cattle which he had inherited from his father. Musa had no siblings and felt the need to marry and set up his household. He sold all his cattle about six years ago to pay for his marriage. As is frequently the case his wife gave him no children, so he fell to squabbling with her, and they were quickly divorced. Presently he has no cattle, his fields are dead, no children, no wife and he lives alone with a widowed wife (not his mother) of his father. He says father dazedly he cannot marry again because he lacks the cattle.

The more important economic incentives to sale are, even in non-drought years, the need to purchase grain and other food-stuffs such as tea, sugar, salt, oil, onions and pepper; to pay taxes and possibly fines; to purchase cloth for clothing and mosquito netting and to purchase such commodities as shoes, soap, batteries, lamps, cooking and eating utensils, perfume, and razors.

Occasionally cattle will be marketed for unusual reasons. I ran across one case of a male animal which had been sold when it reached a year. I noted to the seller that this was a young age to his animal. The seller replied that when he looked into the eyes of his animal he saw that it had "evel eyes" and that if he allowed

it to remain in his herd it would have killed all the other cattle.

E. When sales take place

Table 23 (see Appendix III) presents the percentage of sales which occurred during the different Arab seasons. In the year preceding this study most of the sales (68%) took place during the dry season. This time of sales reflects the fact that because most harvests were dismal and because the dry season (especially towards its end) is normally a time of great scarcity that herders were forced to sell their cattle to purchase food. It confirms the observation that, even more so during the drought, most herders are selling their animals in response to immediate, urgent needs rather than raising for profits.

F. Who sells the most cattle

Table 24 (see Appendix III) indicates the probability of sale of cattle last year in terms of the number of head owned: for those owning between 1 and 9 cattle the probability of sale of at least one head was .57; for those owning between 10 and 29 cattle the probability of sale was .66; and for those owning 30 or more beasts the probability was 1.0. Thus chances are the more cattle you own, the more likely you are to sell, with 100% of the owners with more than 30 cattle selling animals last year. These probabilities indicate that even in times when "poor" owners are under immense pressure to market their livestock that they are less likely to sell than the "comfortable" owners.

G. Attitudes towards the sale of cattle

Among some African populations the marketing of cattle has been considered taboo, and cattle sale when they occurred were judged as moral wrongs. This has not been found to be the case among the Arabs reported upon the Assale-Serbewel, where cattle sales are an ordinary facet of everyday life.

The attitudes towards the sale of cattle most commonly advanced in the region are four-fold and may be summarized as :

1. when you sell be prudent about the type of animal you sell - do not sell fecund females

2. when you market males market only those which are older (A number of informants mentioned 7 or 8 years as the optimum age to sell males)

3. when you market use some of the sale proceeds to purchase females

4. for the poorer herders, sell only when you must, in response to some important social or economic need.

Two observations need to be made concerning these sale attitudes. First, the attitudes are eminently reasonable, if translated into action they ensure that those animals sold are those like to receive the higher sale prices; and that when sales occur they will not endanger the size of the sellers herd, in fact, they may even contribute to the herd's increase.

Second, because of the drought it has been impossible to translate the sale attitudes into marketing behavior. Our information shows that very few males aged 7 or 8 were sold last year, because there were almost no males of these ages in the herds undoubtedly because they had died or been sold during previous years of the drought. Our information further shows that a large number of fecund females were sold last year, probably because they were the only animals left. The Arabs studied were sadly aware that they were selling the wrong types of stock. It is predicted that following the drought sales trends conservatively follow the patterns outlined in the above 4 attitudes; and that the "poor" owners will be especially reluctant to market until they have cattle in the right attitudinal categories to sell.

6. Tenure and control of pasture, farmland and water

At the onset we must note that there is an important historical difference concerning rights to pasture, farmland and water between the Assale and the Serbewel. The Kotoko in the Serbewel by privilege of prior occupation of the area claimed possession of all the Serbewel. Due to the colonial administration's favoring of the Kotoko, Arabs have had until the present to grudgingly accede to the Kotoko claim. In recent times in principle the Serbewel is owned by the Camerounian state. But in practice because the Kotoko occupy the major position of responsibility in the local administration of the area they have been able to exert not inconsiderable control over all the resources of the area. As noted earlier all the Chefs de Canton in the Serbewel are traditional Kotoko rulers, and they or their representatives have continued to collect traditional taxes. The situation in the late 1960's is described by Mme A. M-D. Lebeuf, the foremost authority on the Kotoko : "ni la colonisation européenne, ni l'indépendance n'ont aboli ces différents impôts qui continuent, pour la plupart, à être perçus non seulement par les tenants traditionnels de l'autorité mais également par leurs héritiers lorsque les villes dont dépendent les terres occupées par les étrangers ont été abandonnées par leurs habitants et ce, même après plusieurs générations" (1969)

A. Farmland

If one asks the question : who owns the farmland one is likely to receive the response : "Nobody, a man just goes and picks a field". But if one probes further and asks : does a stranger who wants to farmland in a village have to come to ask the village headman if he can farm the village's land, one will find the response to be always in the affirmative. In general, then, in both the Assale and the Serbewel access to farmland is received by a stranger through the securing of the village headman's permission. The headman functions as a distributor of unoccupied village land.

Further, there is the belief both in the Serbewel and the Assale that villages "possess" farmland, and that village membership confers usufruct rights to these lands. Villages differently "possess" land. In the Serbewel they may have purchased or rented the land (normally from the Kotoko, less frequently from Arabs). In the Assale villages often "possess" farmland to which in some way they have traditionally had rights, which is to say that prior to colonization some traditional social organizational unity - their tribe, clan or lineage - has had rights to the land. One village took pride in showing me the tree which had marked its pre-colonial boundary.

Disputes as to which willage, or which section of the village possess farmland are not uncommon. Claims and counterclaims over farmland are settled by local administrative bodies - usually the Chef de Canton, or if he is unable to resolve the dispute by the sous-préfet.

Farmland, then, is "possessed" by villages and access to the land is regulated by three factors :

1. the belief that village membership provides usufruct rights to farmland
2. that newcomers to a village must secure the permission of the headman to achieve usufruct rights
3. and that in a dispute situation the local administration has the right to resolve questions of access

B. Pastureland

The situation with regard to pastureland is in contrast to that of farmland. When one asks the question: who owns the pastures, one is likely to receive the same answer as to the question who owns the farmland - Nobody. But when one pushes further and asks : if the members of another tribe come near your village or camp must

they asked the headman for permission to graze their cattle in the pastures which you use: the response given is "they don't need to ask anybody. Their cattle just come and eat the pasture". If one asks why this is the case, the response normally was "al fala katir belhen" ("the pasture is vast"). The Arabs in Assale-Serbewel regard pasturage much like Americans regard air -as a vital resource of sufficient quantity that control over its access is not institutionalized.

It is important to note that in the sections of the Assale Serbewel studied neither tribes, clans, nor lineages claim to possess exclusive rights over pasturage. But villages commonly exploit the same wet and dry pasture year in and year out. During the wet season the pastures which the home village exploits are those within a 1/2 day radius of the home village. Other home villages in the community may exploit the same wet season pasturages. Often these neighboring home villages, as we have seen are of the same tribe and clan. Further, during the wet season, as we have seen, home villages in a community transhume to the same general dry season camp area -and their herds feed from the same pastures. Thus, a community will tend to use the same wet and dry season pastures from year to year. But neither the component tribes, lineages, or home villages in the community have exclusive rights to this pasturage. They simply use the land, because it is there and they need it.

This means that there is no traditional tenure mechanism to prevent groups from different areas from moving to new areas and using the pasturage. Under conditions of insufficient pasturage this situation may have unpleasant consequences. When there is a scarcity of pasturage, because there is a lack of traditional tenure mechanisms for restricting access to pasturage, there may be resort to force. Reports of conflict over pasturage in the past were infrequent for the zone studied in the Assale-Serbewel. Informants descriptions of one conflict over pasturage which took place to the east of the Assale between two different ethnic groups in the late 1950's include the occurrence of the following events : L. village

burning, 2. disemboweling of pregnant women, and 3. the burial alive of one village headman up to his neck in a pit and the roasting of his protruding head. When pasturage ceases to be katir belhen one can predict sanguinous conflict. Such a situation, due to the earlier mentioned migration of people to Lake Chad to avoid the drought, potentially exists in the northeastern portion of the Assale region. If there is conflict among herders over pasturage it is the Chef de Canton who has the authority to resolve the dispute.

But it should be noted that the Chef de Canton's authority is not absolute. The Chef de Canton of one canton in the Assale sector, who is of the same ethnic group as most of the inhabitants of his canton, has recently been asked by some wealthy members of a different ethnic group who reside in N'Djamena if he will authorize their use of some of the pasturage in his canton. The Chef de Canton views their request favorably. The herders in the canton view it disfavorably fearing overuse of the pasture. The canton's herders have vowed to vote with their feet, and to leave the canton if the Chef de Canton allows the N'Djamenois to use the land. The situation is at present unresolved, but the herders are confident that they will win, knowing that it will look very bad to the Chef de Canton's superiors if a significant portion of his canton up and leaves.

C. Water

Access to water is regulated in three different ways. First, large, permanent source of water such as the Ghari and Lake Chad are considered by the Arabs studied to be open to anyone and possessed by no one. (Though in the Serbewel if a dry season camp is located near a kotoko village, the camp may be required to present gifts to those responsible in the Kotoko village). Second, sources of water (swamps or wells) in or near home villages are commonly thought of as belonging to the village. A villager may use the water source by right of membership in the village. Strangers should secure permission of the village head before they use its water source. Finally, especially in the dry season individuals at considerable expense either in cash or labor may dig their own wells. These wells

are said to belong to the person responsible for their construction and access to them is normally restricted to members of his household and other close kin.

When hydrological conditions become poor normal rights of access to water are frequently ignored. This obviously creates conflict situations.

i. Modern wells

There is some experience with the consequences of implantation of cemented and artesian wells in or near the Assale-Serbewel. Three examples will be given of the types of problems arising from introducing modern wells. One of the artesian wells which has been placed in the Assale has had the following history. After the well was installed one group within the village in which the well was built was able to get control of it and charged a fee for the use of its water. This fee was considered exorbitant by the herders who responded by not using it and continuing to dig traditional wells in the area around the new artesian well. In this example one village regulated access to the well in such a way that its water was under utilized. Our second example is from Bornu province in Nigeria where a number of artesian wells have been installed. In Bornu the local political situation was such that it was advantageous to have as many herders as possible have access to the wells. No village (or any other social group) regulated who used the water. In consequence everybody used it, with herders reportedly migrating from as far away as Sokoto in northwestern Nigeria to water their animals at Bornu's wells. The result was that too many cattle were in the for the available pasturage and these cattle tending to ruin the existing grasses. In our second example no social group regulated access to the wells resulting in over utilization of pasturage. The third example concerns the implantation of a cemented well in the Assale. This well was placed near three small Arab home-villages, two of which belonged to one ethnic group. There was not enough water in the well for all three villages during the dry season. Bickering soon arouse as to which village "owned" the well. The dispute had

almost reached the stage of armed confrontation when it was taken to the Chef de Canton. This latter allocated the well to the two villages belonging to the same ethnic group. The conflict and its resolution left a residue of bitterness, with the one village not allowed access to the well feeling cheated because it had to migrate away from its home village during the dry season. In the third example regulation of access to the water of the new well was done in such a way that neither the water was under utilized nor the pasturage was over utilized, but so that distrust was sown between neighboring villages.

The introduction of new wells poses organizational problems to the herders. Previously water resources were allocated one per village. This can rarely be the case with modern wells. Traditional herding society possesses no specific institution to regulate water at a multi-village level. There is some indication, however, that modern wells allocated to villages of the same ethnic group run into fewer problems than wells assigned to villages of different ethnic groups. A cemented well was placed approximately four years ago in the central Assale in an area of villages from one maximal lineage of one tribe. The villages in the area were able to hold informal meetings that restricted permanent use of the well to the several villages nearest to it and temporary use the well to villages on transhumance. This was a situation everybody agreed was fair.

7. Cattle Commercialisation

There are a number of merchants commercializing cattle in the Assale-Serbewel. These merchants may be distinguished in terms of the scale of their operations. The large scale operators generally reside in major towns (such as N'Djamena, Kousseri, Gambaru or Maifuguri) and are full time specialists in purchasing cattle for sale. It is the small scale operators working out of the bush whose operations have not been previously described.

The smaller cattle merchants are normally what we have classified as "comfortable" owners. They own perhaps a 100 head of cattle. They reside in households indistinguishable from their

neighbors in ordinary villages. They are not full time specialists in cattlecommercialization. During the wet season their marketing operations are in abeyance. When the cold season begins a number of head of cattle from the merchant own herd will be sold. The cash from the sale of animals will be entrusted to a person with the responsibility of buying more animals at inexpensive prices. The buyer is normally a close kin of the merchant in his late 20's or 30's - perhaps his son or his father's brother's son. After the buyer receives the money from the sale of the merchant's cattle he will move from weekly market and if necessary from village over a surprisingly large geographic area looking for male cattle to purchase at good prices.

Once a sufficient number of cattle have been purchased they will be formed into a herd, oftentimes containing the cattle of more than one buyer. The herd is then entrusted to herders who have the responsibility of delivering the herd to the market where it is to be sold. The herders are usually poorer kin or friends of the merchant and/or the buyer. At the market it is the buyer's responsibility to sell the animals at a suitable profit. If the prevailing market prices are unfavorable at one market the buyer has the option of moving to another market. One old man remembering his younger days as a buyer noted that he got to see Kaduna once when he went looking for a suitable market after he did not find the prices he wanted in Maiduguri

When the buyer has sold his animals he returns to the merchant with the proceeds of the sale and information about weekly market and larger market conditions. The merchant, then, decides how much of the money gained from the recent sale of animals should be returned to the buyer to begin to enterprise anew. The whole cycle of buying cattle at smaller markets and selling them at larger markets may take from 3 weeks to a month. The larger the scale of operations it appears the longer the cycle takes to be completed and in fact, with the large scale cattle commercializers there is often an extra step in the cycle. Once the cattle have been purchased from the weekly market they may be moved to pasture to fatten up and await propitious market prices rather than be directly marketed.

The small scale commercialization operations presently occurring in the Assale-Serbewel thus involve 3 types of personnel : 1. the merchant, 2. the buyer, and 3. the herders. As we have noted all three types of personnel are likely to be kin. The merchant usually only provides the initial capital for the operation. The buyer has the critical task of buying and selling the cattle. The herders simply guide the animals to market.

The role of buyer is one of the very few among the Arabs offering "advancement" opportunities. If the buyer is particularly good at his job he is entrusted with larger shares of the merchant's profits. Further, if he is good a number of merchants may ask for his services. Finally, other individuals not interested in cattle commercialisation may trust him to use their money. For example, one woman living in a small bush village wanted a bed that could only be purchased at a larger market. She entrusted a buyer with the money for the purchase of the bed (35,000 FCFA). The buyer used the money to purchase cattle at the weekly market. These cattle he sold for around 40,000 FCFA. He purchased the bed for the woman and pocket for himself the remaining money, thus making a small profit. A good buyer may be expected to invest his profits into a herd, and to become a "comfortable" herder.

The small scale cattle commercialization operations are impressive. Employing limited capital, operating under frequently hostile environmental conditions, with the foot as the only means of transportation, but relying on expert understanding of local market conditions, and intimate knowledge of pasture and water conditions they still manage to turn a profit. The small scale commercialization enterprise is an efficient process during which the activities of merchants, buyers and herders scour regions of low demand for cattle meat and move them to markets supplying regions with high demand for cattle meat.

8. Herd losses and medical practices

A. Herd losses : Table 24 (see Appendix III) presents last years herd losses from the 1972 through the 1973 dry season due to death. The table gives the percentage of the previous year's herd which died. According to our figure for both areas approximately 40% of the cattle alive after the end of the 1972 dry season had died by the end of the 1973 dry season. This figure is misleadingly high, however, because it does not reflect the animals which were born during the course of 1973 and which survive replacing some of the dead animals. These figures are presented in Table 25 which indicated the percentage herd loss with the surviving born animals included. Table 25 shows there to have been 36% fewer cattle at the end of 1973 than there were at the end of 1972. The losses seem to have been consistently higher in the Assale Sector. The 1973 dry season was indeed difficult in the Assale-Serbewel, but there is a possibility that these mortality figures may not be representative of the true losses. There may have been a tendency for herders to exaggerate livestock losses. Further the 18 villages we studied probably had higher than average mortality in the Assale-Serbewel. The 6 Serbewel sector villages oriented towards the Lake transhumed during the 1973 dry season to a region of the Lake which had an epidemic of anthrax. Two of the three villages in the Assale sector oriented towards the river made disastrous choices in the location of their dry season camps and ended up without any pasturage. Thus it is likely that the herd losses in the Assale-Serbewel were on the average less during 1973 than is the case for the villages surveyed.

In the year 1973 herders reported that animals died from one of two reasons. Either they starved to death or they perished from disease. Almost no animals died from lack of water. The herders reported that the process of dieing tended to run in families. First a mature female would sicken or weaken from hunger, then, her offspring would follow suit, and often the entire family group would perish. During the dry season stockmen said they performed extraordinary acts to keep their animals alive. Many men took to partially residing in trees in which they cut the few remaining leaves to give to their animals. One old man who had lost relatively

few animals attributed his success to the fact that he had fed all his grass houses to his livestock.

B. Medical practices

If it was not for the drought the major cause of herder losses would be through disease. Occasionally young animals are killed by hyenas but these losses tend to be relatively unimportant. When asked to name the disease most commonly striking the animals herders would give a list of 10 or so diseases. The most commonly mentioned of these diseases are listed below.

Chart 8 : Diseases commonly occurring among Assale-Serbewel cattle

Chadian Arabic term

ab warama

abu lissan

abu aman

am marara

ab dam

am miserik

abu alme

fashfash (foufou)

am gordan

am xrinaygi

bala she

abu sabu

The herders were well aware of sleeping sickness. They were able to identify the tsetse fly (amm bodjani) and the habitat within which it was found. In all seasons as much as was possible they avoided herding their cattle in the locations where tsetse flies were known to be. In the wet season when insects are most numerous, including the different varieties of flies, the herders tend to keep their cattle during the day within their huts with fires burning to keep off the insects. The animals are then taken to pasture during

night when the flies are not out.

For some diseases magical practices were used to treat the illness. For example, for (abu dam) one of whose major symptoms is blood in the urine, the treatment was to give the blood of the first sacrificed goat in the Aid el Kabir ceremony to the sick animal. For (Am Xrinaygi) the treatment commonly employed was to attach an amulet around the neck of the ill beast. It should be noted that a fair number of traditional medicines are concocted whose efficacy appears rather good.

The herders, however, knew of and very much appreciated veterinary treatments of animals. The answer to the question: "What is the best treatment for the disease?" was frequently: "Doctorbus" (i.e. "only a doctor"). The sole activity of the Project at the time of the study which the herders were aware of and which they completely approved were the veterinary activities.

IV THE ROLE OF PROJECT ASSALE-SERBEWEL IN THE DEVELOPMENT OF LIVESTOCK PRODUCTION IN THE PROJECT ZONE

1. Arab attitudes towards development in the Assale-Serbewel

.... au moment général d'évolution accélérée du monde moderne, les Arabes n'apportent que la réponse qu'ils ont toujours donnée aux appels extérieurs : le refus. Refus à l'école, refus aux emplois administratifs, refus à l'emprunt technique. (Zeltner: 1970)

Both social scientists who have worked among the Assale Serbewel Arabs within the recent past suggest that the Arabs will show only passing and dilatory interest in their development. They arrive at the same position following different paths. M. Zeltner holds that the negative Arab attitude to development is due to "l'esprit d'indépendance farouche du nomade et de l'Arabe en particulier" (Zeltner: 1970). The heart of Zeltner's argument is that a cultural-type "nomadism" generates a mentality, "wild independence", which is incompatible with proper attitudes to

development. With regard to Zeltner's position it should be observed: 1. the Assale-Serbewel Arabs are not nomads; 2. there is no body of literature, other than old Hollywood films, which establishes that all Arabs exhibit wild independence; and 3. there is further no evidence that suggests that a spirit of wild independence is inimicable to economic development, while it does seem reasonable to assert the reverse: that rugged individualists may be the type of people capable of taking the risks inevitable in adopting new ways.

The basis for pessimism of the second Assale-Serbewel Arab specialist is based on historical and political grounds. M.Hagenboucher argues that: "Le rôle d'intermédiaires exclusifs et favorisés exercés par les Kotoke auprès de l'administration coloniale, ainsi que les chocs et les contrecoups qui jalonnent l'histoire des "Shuwa" du Cameroun expliquent partiellement la méfiance de ces derniers à l'égard de toute tentative de changement économique et sociale "(Hagenboucher: 1973). Hagenboucher's position is that history has been cruel to the Serbewel Arabs, especially with regard to Kotoko domination, which has caused them to be suspicious of outside attempts to assist their development. With this point I am in agreement.

But though the Assale-Serbewel may be suspicious of the efforts of external agencies to stimulate their well-being, does this, however, imply that they are against their economic development? I believe most emphatically not. Two anecdotes illustrate typical Arab attitudes relevant to their economic development.

Adoum is the 24 year old son of a poor Arab herder living in the Assale. His father is too impoverished to help him marry. He would also like some money to buy a radio, and a few yards of cloth for his mother who has had no cloth for new clothing in two years. With the end of rains and the meagre harvest of his poor crop there was little to keep Adoum at home with his father so he decided to travel to see if he could somewhere find some work. First he travelled 50 kilometers to N'Djamena to visit his father's father's brother's son Mahamet. Unfortunately, while Mahamet was full of good advice, he himself was about to be out of work in two

months, and could offer Adoum no assistance. While visiting at the household of his father's brother's widowed wife in N'Djamena he met Fatimay - his half sister. (they share different mothers and a common father). On her divorce from Adoum's father Fatimay's mother took her young daughter to her natal village Magala in the Serbewel. Fatimay's mother eventually remarried an important man in this village. Fatimay told Adoum that perhaps her stepfather might be able to help him. Adoum travelled the 120 kilometers to Magala but after a number of desultory weeks there it became clear that there was nothing for Adoum in Magala. So he moved 70 kilometers to the east to Djimtilo in the Assale to stay with Hassan his father's father's brother's daughter's son. Adoum went to see Hassan because this latter has a good thing going. Hassan has left his father's zeribet to live with his mother's brother who is a prosperous sugar merchant. Unfortunately in Djimtilo Adoum's nasip (luck) held poor; and he returned to 100 or so kilometers to Mahamet in N'Djamena, where he stayed for a few days before leaving with a friend for a town in Eastern Chad.

Adoum's economic odyssey is not especially uncommon. It was a trip that took Adoum considerable distances and allowed him to test economic opportunities throughout the Assale-Serbewel. Finally, and most importantly, his search for economic gain was conducted within the institution for economic advancement traditionally known and available to him - his kin. To improve his economic position Adoum did not race off to take a course in "Advanced Petrol Rationing" or "Elementary Drilling Techniques". He knows nothing of books or schools. He knows only his kin, and he went from relative to relative to different parts of the Assale-Serbewel to see if they knew of some way to aid him. He went to his relatives because they are under an obligation to help him if they can. The point which the Adoum case-history illustrates is that the Assale-Serbewel Arabs will go to great efforts to try and improve their economic position, but they will only do so in ways available and familiar to them.

An incident with an Arab called Ahmet illustrates a second attitudes pertinent to development in the Assale-Serbewel. Ahmet is an old man, very proud, and a strict conservative. We would talk a length about zaman zaman (the past) and about how this was a better time: "In the past sheiks were sheiks. It was their job to lead in battle and get killed". One evening as we were eating I asked him if there was anything new that he thought was good. He was quiet for a moment, and finally pointed to the enamel, brightly painted metal tray off of which we were eating. Before, he said, their food was served in wooded utensils which easily and quickly rotted. He returned to eating, thought a while more, and added: "Airplanes to - they make the pilgrimage to Mecca much faster". What Ahmet is saying is that Arabs see no need to adopt a new item - be it eating utensil or airplane - unless it is perceived to more efficiently fulfill an existing need for the presently used item.

Let me add a third brief anecdote. Once after explaining the Assale-Serbewel Livestock Development Project I thought at length to a herder; he blinked, turned to my assistant and asked: "What's in it for me".

"What's in it for me"-that is the critical question. We have seen that Arabs already make considerable personnel odysseys searching for the means of their own economic advancement. One expects that the Project Assale-Serbewel can convince the herders in the Serbewel that the project is not a tool of Kotoko imperialism. But one is left with the absolutely essential task of the Project to convince the Arab herder that the innovations the project proposes to introduce more efficiently fulfill existing pastoral needs than prevent ways of animal husbandry and range management. The herder must be convinced there is something in it for him.

2. Foreseeable difficulties in the introduction of the proposed pastoral in the Assale-Serbewel

This section considers the likely vicissitudes of the innovations which the project intends to introduce within the Assale-Serbewel. The different innovations will be discussed in terms of :

1. whether the innovation is likely to be welcomed and accepted by the Arabs, 2. whether the innovation will make organizational demands on the Arabs for which there is at present no institutions to fulfill these demands; and 3. to a far lesser extent, whether the innovations may run into problems from situations having nothing to do with conditions in the Assale-Serbewel.

An innovation will have a high likelihood of acceptance if it meets the following conditions: 1. if it is perceived to more efficiently fulfill existing pastoral needs than present techniques & 2. if it requires a lowish input of labour. That is to say if people know they want something, and if they don't have to work too hard to get it, . . . , that something is likely to be adopted and diffused rapidly throughout the population. By an innovation increasing organizational demands is meant a change that asks herders to cooperate, coordinate, or regulate pastoral activities which in the past they have not had formal institutional means for so doing. For example, if the project were to suggest that the mallums explain the project to the herders, this suggestion would create organizational problems. Mallums work as individuals and there is no hierarchy or "church" of mallums to coordinate their efforts. Problems arising from outside of the Assale-Serbewel are not so much difficulties that might arise from environmental changes (i.e. increase or decrease in precipitation, etc) rather they are those that might occur through the agencies responsible for the Assale-Serbewel Livestock Project.

Project Assale-Serbewel plans to introduce 21 major innovations. These innovations fall into 4 general categories : 1. veterinary improvements, 2. environmental improvements, 3. innovations in pastoral activities, and 4. organizational innovations. The general strategy as to how these innovations are expected to operate is as follows. The veterinary innovations are calculated to decrease herd mortality. The environmental changes will increase the numbers of cattle and the quantities of pasture and water necessary for their subsistence in the Assale-Serbewel. The innovations in pastoral activities should improve animal husbandry and range management practices. The organizational innovations are supposed to be agencies

for implementing the innovations. Taken as a whole the innovations should improve the productivity of cattle production in the Assale-Serbewel, increasing the numbers of cattle reaching markets. Below the various innovations are discussed.

A. Veterinary Innovations

i. Vaccination/parasite control campaign

"For anthrax what is the best treatment for your animals?"
 "Doctorbus" (i.e. only a doctor)

It has been shown in the section on herd losses that the Arabs very much appreciate and feel a need for the project's veterinary activities. It is the project activity which the herders most approve of; it requires little labour outlay on the part of the herders; and its results are quick. The herders will in all probability warmly welcome the vaccination/parasite control campaigns.

Minor problems have already occurred in the vaccination/parasite control campaigns which stem from situations outside the Assale-Serbewel. During one campaign a bad vaccine was used which killed a number of animals treated. Further, campaigns have been hampered by difficulties in securing medicine and vehicle parts necessary for transportation because it was not possible to clear them through customs. It would be a great pity to sour the herders on one innovation which they presently like because bad medicines are used or because commodities rot in customs.

If during the vaccination/parasite control campaign villages within an area must move their herds to be at a treatment center by a certain date there could be problems coordinating the movements of village herds. No special organization exists to facilitate such movement, and consequently the vaccination/parasite control campaigns could present problems in the movement of cattle to and from treatment centers.

ii. Treatment vaccination parks

Arabs in the Assale-Serbewel have had little experience with treatment vaccination parks where vaccinations and spraying takes place. They do not yet know whether they want them. When herders discover that such parks are for the health of their herds, and that they require little outlay in labour, then it is quite likely that there will be no difficulty in the herder's acceptance of these parks. If villages within an area must coordinate their movements to and from vaccination parks it should be appreciated that the specific organization for such coordination is non-existent.

B. Environmental Improvement

i. Wells

As we have seen everybody wants wells, and as we have further seen there is very little extra-village organization to regulate equitable access to water. People very much want one well per village. Wells, be they smaller cemented or larger artesian affairs, will increase organizational demands. But the organizational demands will be greater for artesian than cemented wells because these former provide water to serve a larger number of cattle and consequently demand that more people be organized.

People want wells now. If the project runs into similar difficulties as it has with the procurement of medical supplies in the procurement of the supplies necessary to construct the wells then the project will needlessly dissipate an immense amount of herder goodwill.

ii. Tsetse-fly eradication

As was earlier noted herders in the Assale-Serbewel are aware of the consequences of tsetse-flies, and alter the grazing times and locations to avoid contact of their livestock with the flies as much as possible. As presently planned the tsetse fly eradication program makes no demand in labour or organization on the herders. An unfortunate possibility is that the program might pass unnoticed to

the herders. If the herders come to understand the campaign it would be another source of goodwill to the project.

C. Innovations in Pastoral Activities

i. Changing of present pasture locations

The herders of the Assale-Serbewel are convinced that they understand the pasture conditions in the region better than anybody else. It is anticipated that only after considerable explanation and then only grudgingly will herders be convinced to alter present pasture locations. If numbers of villages within a community are asked to cooperate in the changing of pasture location increased organizational demands will occur because community decision-making concerning pasture use is only informally made at present.

ii. Changing of transhumance routes and times

The herders of the Assale-Serbewel are equally convinced that only they understand the delicate combination of climatological and pastoral conditions which dictate when and along what routes transhumance should take place. It should be added that the herders are keen observers of the habitat and that they generally do know what routes and in what locations they will be the most water and pasture. In the Serbewel the times of the transhumance are set by the cantons, and an occasional complaint was that the times given for transhumance were not optimal times. It is thus predicted that only with the greatest care will the herders accept the need for times and routes of transhumance dictated by the project. Further, in the section on decision making within the community it was observed that there was no formal organization within the community for coordinating village transhumance, and it is consequently expected that changes in transhumance routes and times will place increased organizational demands on the herders.

iii. Elimination of unthrifty animals

In the section on castration it was noted that if possible unthrifty animals were sold, but that they were not castrated. The Arabs surveyed were not aware that they possessed sufficiently large numbers of unthrifty animals as to pose a problem. It is quite likely that the project will experience some difficulty in convincing the herders of the need to eliminate unthrifty animals. The task of removal of such animals would fall on the individual members of households possessing these livestock, and it is not expected their removal would lead to increased organizational problems.

iv. Castration of Animals

The herders studied knew of castration and were in principle in favor of it. Practice and principle, however, were widely divergent as very few animals were castrated. The reason stated as we have earlier noted was that few herders were able to hold enough male cattle long enough to make it worthwhile for them to be castrated. If, and only if, more male cattle occur in owner's herds then there will be little difficulty in persuading the herders of the need for increased castration. If not performed by the project personnel themselves castration would be the responsibility of individual household members. It is not expected that castration would place additional organizational demands on herders.

v. Rationalization of herd competition

In the section on individual herd composition it was suggested that as presently constituted herd composition policy was rational. This the Arab herders also believe to be the case. Only the most painstaking explanations will convince herders of the need to alter their herd composition. As herds are the responsibility of the individuals who own them or possess them, it is not likely that change in herd composition would entail organizational difficulties.

vi. Rationalization of herding groups

In the section of village herds it was stated that village herd size and composition were adapted to environmental conditions. Arab herders interviewed strongly believed their village herds to be reasonably composed. Again painstaking explanations will be called for to convince the herders of the need to change their village herd composition. If the rationalisation of herding-groups included the herding together of cattle from different villages this might lead to increased organizational demands, because at present cattle of different villages are not normally formed into common herds.

iii. Introduction of the growing of fodder

When I suggested that herders might plant crops to provide fodder/^{for}their animals the suggestion was normally met with a stony silence. Herders presently believe it would be rather silly to plant crops for their animals. Plant crops are for people. Further, informants noted that the planting of fodder would require labour which would take away from their agricultural activities. It is thus only after considerable difficulty that the Assale-Serbewel herders will be convinced of the need to plant fodder crops. It might be observed that if these crops take up considerable acreage that there will be squabbles between villages over rights to fodder-land, and this could place additional organizational demands of the herders to find an institution for solving debates over access to fodder acreage.

viii. Introduction of silage pits

One Arab informant laughed heartily when I explained to him the idea of digging a hole in the ground and putting grasses in it for his animals, and finished by saying that if you are going to dig holes you should dig wells. It should be pointed out, however, that in times of sufficient harvest at least some of the Arabs in the Assale-Serbewel dig small subterranean storage-pits for their grain harvest. The idea, then, of storing food products in the ground is not new. What is new is the idea of storing food for animals. The basic rationale

of transhumance is that you seasonally adjust your residence to locate your animals close to food and water. Herders just don't see if they are going to transhume why they should have to expend extra labour to grow and store food for the animals. The growth and storage of animal fodder appears to the Arabs with their bitter experiences of the vagaries of crop returns like a far more risky and laborious way of fulfilling the same needs as transhumance. Hence, herders' attitudes towards silage pits were - "who needs it".

It is not clear what is the optimal location for silage-pits. Should they be near home villages where most fields are located, or should they be dry-season camps, which shift occasionally, but are where there is the greatest need for the fodder. No matter where storage-pits are located it is not anticipated that they will add organizational problems to the herders.

ix. Increased sale of cattle

There appear to be among the Arabs studied no taboos against the sale of male cattle, rather the sale of males is an ordinary and usual occurrence. There may, however, be a tendency following the drought to hold back on the sale of animals until sufficiently large herds have been reconstituted. Most herders are at the present time feeling extremely poor. Once their herds begin to grow they have indicated they will not rush out sell animals but will sell cautiously waiting for their herds to grow sufficiently large to provide some cushion against future droughts. The memory of past and worst droughts was in the minds of most herders studied. Once they have the numbers they feel will give them some margin against environmental perturbation they will begin to sell. As the sale of cattle is an individual matter no organizational demands are likely to arise from it.

x. Increased sale of younger males

The reader will remember that no males younger than one year and only 18 between the ages of 1 and 3 were sold last year in the Assale-Serbewel villages studied. The herders studied in the Assale-Serbewel do not sell young males because they know that if they wait

the extra 2 or 3 years that sale prices will be much higher, and as their/^{is} only a small increment in labour and no additional feed or other costs there is no inducement to sell males at a very young age.

The project has a plan to buy males at circa 1¹/₂ years, fatten them for a time, and then sell them. The profits from this second sale would be returned to the original sellers. This scheme I believe will only initially work with "comfortable" or "wealthy" herders. This is because only they will be wealthy enough to entrust their money to someone else for a period of time. The scheme will only work, further, if it is carefully explained to herders, and the herders actually receive more money for the double sale of their livestock than if they themselves waited and sold them at a latter age. The sale of younger males will place no organizational strains on the Arabs.

xi. Imposition of compulsory routes on commercial circulation

It is next impossible to assess the impact of this innovation as much of the present commercial circulation involves the fraudulent sale of cattle in Nigeria. Those involved in the illegal sale of cattle find it against their interest to use public arteries of commerce and will avoid the compulsory circulation routes. The magnitude of illegal cattle trade is unknown, but large.

In general informants when questioned about the formation of compulsory cattle circulation routes, would shrug their shoulders and say "too much control". The need for such routes is just not perceived in the general population, and their reasoning tends to be. "If you have to get your cattle to market you walk them there along the shortest path where there is water and pasture. In different years and seasons you will take different paths because water and grass conditions change. Why does the project want to place us all on the same path for all time. You say you will put wells along the path, but what of the wells you have already promised us. You do not know what will happen to our cattle if you make them all walk the same path. We do "It will be difficult to explain to the average herder the

need for compulsory cattle circulation routes. Unless herders are asked to police these routes they will not pose additional organizational demands.

xii. Introduction of feedlots

When feedlots were discussed and explained to ordinary herders there was little comprehension of their utility. Herders' responses tended to be "we do those things now when we raise our cattle, why do you want to do them" ? There was evidence of suspicion that feedlots might be an enterprise set up to unfairly compete with the herders. At least initially feedlots would have to be largely manned by trained personnel and they would in fact be a cattle production enterprise that had little to do with the average herder. Herders will only with difficulty after careful explanation accept the utility of feedlots.

Whether feedlots do or do not place organizational strains on the herders depends on how they are set up. If feedlots are staffed and run by Project personnel they will be enterprises outside of herding society, and they will place no additional organization demands on the herders. If the feedlots are designed to be operated by the herders themselves then there is at present no herder organization to provide and train the stockmen who would run the enterprise.

xiii. Securing of laws to the Assale-Serbewel to outside transhumants

The project desires laws emanating from the Préfectorial level of government to restrict access to the Assale-Serbewel either to permanent residents of the region or to transhumants who have regularly for a considerable period in the past transhumed into the region. A card will be handed out to the herders saying that the bearer is a resident of the region. Those lacking the card will be required to leave. In light of the information provided in the section on migration such laws appear to be reasonable measures designed to prevent the degradation of the Assale-Serbewel environment.

Try and tell to the migrant herders ? We have explained in the section on access to pasturage that pasture is normally regarded as a free resource. Add to this attitude towards pasture

access, the fact that the present migrants to the Assale are there out of desperation due to drought conditions, and one can readily see that at least for the migrants acceptance of laws limiting access to the region is impossible.

On the other hand we have noted that residents in the area have complained of difficulties they have had with the recent migrants such as over-grazed pastures and banditry. It is thus expected that the residents will accept the need for a law limiting access to the region.

The suggestion has been made that the residents of the Assale-Serbewel be asked to themselves be responsible for the enforcement of the Préfectorial laws. The merits of this suggestion will be discussed later. Note, however, that if the herders were to police the law it will place increased organizational demands on the herders, as they will have to produce the personnel and the organization for the personnel to enforce the law.

xix. Introduction of ox-drawn agriculture

Herders tended to view the idea of using an ox to prepare a field as making a big fuss. They view their own methods of preparing land as quite adequate and labor-saving. On the other hand certain conditions exist which might favor the introduction of ox-drawn agriculture. Most Arab are farmers. Those closest to good lands near Lake Chad are more industrious farmers. Arab farmers are in the habit when their yields are high enough of selling part of their surplus. The proceeds of these sales, if they are sufficient, are normally invested in cattle which allows a man to build up a larger herd, which will strengthen his influence. Arab herders, then, would favor the introduction of techniques which would increase their yields, so long as the labour involved in these techniques did not interfere with herding activities. Herders do not yet see the superiority of ox-drawn agriculture to their present techniques for preparing the soil. Successful implementation of the innovation thus depends on convincing the Arabs of the superiority of ox-drawn agriculture

D. Organizational Innovations

i. The project organization

The project organization is the device for innovation and administering the proposed alterations in the Assale-Serbewel pastoral life. The project organization consists of: 1. the co-directors of the project both resident in N'Djamena, 2. the two Sectors Heads each resident in Karal in the Assale and Makari in the Serbewel with a homologue for each Head, and 3. in the Serbewel 4 Sub-Sector Heads (who are veterinary nurses) in Goulfei, Afado, Fotokol and Makari-Masaki, while in the Assale there are 3 Sub-Sector Heads (also veterinary nurses) in Karal, Tourga, and Bat-el-Fil. The total number of personnel actually resident in the Assale-Serbewel with professional veterinary or range-management experience is eleven. None of the professional personnel of the project come from the Assale-Serbewel.

Herders' attitudes towards the project, and by implication its organization, were twofold. On the one hand herders were very appreciative of the project's veterinary efforts. On the other hand is an attitude reflected in the question asked of me one day by an informant: "M. K, why is he here?" Herders in the Assale Serbewel are puzzled by the number of vehicles coming and going bearing the markings of the LCBC, and by the flurry activities associated with these vehicles. At present the herders do not understand the implications of the Project or its organization. They tend to confuse it with other local government operations in the area. This is not to say that when explained to them herders will not accept it.

ii. The steering committee

The steering committees are committees, one for each sector, composed of governmental agencies, representatives of the L.C.B.C. the Project and other development agencies to coordinate and explain the activities of the project. The steering committees admirably fulfill their stated function with regard to government agencies

representatives of the LCBC and other development interests. At present the herders are completely unrepresented on the steering committees.

iii. Cooperatives

The project proposes the formation of cooperatives among the herders to fulfill at least the following: 1. collection of funds from herders for the purchase of commodities and veterinary medicine; 2. organization of livestock sales; 3. the collection of taxes from the beneficiaries of water installation; 4. the management of training centres and 5. the management of paddots. It should be clear that the organizational problems posed by other innovations would be best resolved by having the cooperatives be the organizational basis for their solution.

It should be noted that presently no cooperatives exist in the Assale-Serbewel and that almost all pastoral activities are performed by kin, households, villages, or informally within the community. The formation of cooperatives will place additional organizational demands on herder society.

Herders when we initially explained cooperatives to them do not readily see why they need them. They were not so much hostile to the idea as quizzical. One or two expressed the concern that the cooperatives would control them rather than vice versa.

iv. Summary and difficulties

A chart has been constructed which summarizes the difficulties foreseeable in all the innovations proposed in the Assale-Serbewel Livestock Project (except for the steering committees and the project organization). The innovations are examined in terms of their probable degree of acceptance and of their likelihood of causing organizational problems. The likelihood of acceptance is judged in one of 4 ways:

1. presently accepted : The innovation is presently accepted and herders see the need for innovation and want it.

2. if well explained: The innovation is not presently accepted, as herders do not presently see the need for it, but the innovation could rather easily be explained to herders so that they would accept it.

3. difficult : The innovation is not presently accepted, and it will probably be a difficult, though not necessarily impossible, task to explain its needs.

4. depends : The degree of acceptance of the innovation cannot be predicted because the factor's determining its degree of acceptance have not yet occurred.

The likelihood of the innovation posing increased organizational demands is judged in one three ways:

1. Yes : The innovation increases organizational problems as it asks herders to cooperate, coordinate, or regulate pastoral activities in ways which they do not have the institutional means.

2. No : The innovation does not make these institutional demands.

3. Conceivable : Depending on how the innovation is carried out it is conceivable that the innovation could be implemented so as to increase organizational problem.

The chart is presented on the following page.

Chart 6 : potential difficulties in innovation introduction

| Innovations | Degree of Acceptance | Organizational difficulties |
|---------------------------------------|----------------------|-----------------------------|
| vaccination/parasite control campaign | presently accepted | conceivable |
| treatment vaccination parks | if well explained | conceivable |
| wells | presently accepted | yes |
| tsetse fly eradication | if well explained | no |
| changing present pasture location | difficult | yes |
| changing transhumance routes & times | difficult | yes |
| elimination of unthrifty animals | difficult | no |
| castration of males | depends | no |
| rationalization of herd composition | difficult | no |
| rationalization of herding groups | difficult | no |

| Innovations | Degree of acceptance | Organizational difficulties |
|---------------------------------------------------|----------------------|-----------------------------|
| introduction of the growing of fodder | difficult | concievable |
| introduction of silage pits | difficult | no |
| increased sale of cattle | depends | no |
| increased sale of younger males | difficult | no |
| imposition of compulsory cattle commercialisation | difficult | concievable |
| feedlots | difficult | yes |
| law restricting access to the Assale-Serbewel | depends | concievable |
| ox-drawn agriculture | depends | concievable |
| cooperatives | if well explained | yes |

Ten of the nineteen innovations proposed by the Project are innovations which the herders do not presently see a need for, and it will be a difficult task to explain this need to them. Further, ten of the 19 innovations will or may be innovated in manners which require the herders to have organizations which presently do not exist. There are then two major problems which the Project Assale-Serbewel must resolve in order to be successful: the first is educational, the project must provide the information necessary for the herders to see the need for the proposed innovations; the second is organizational, the project must assist the herders to create new institutions to successfully implement certain of the proposed innovations.

3. Recommendations

To ensure the success of the project three general and eight specific recommendations are made. The first two recommendations - the formation of community cooperatives and of an extension service - are the most vital to the success of the project. The implementation of these two recommendations is designed to alleviate the two grave problems mentioned in the preceding section confronting

the project. The extension service working in the country-side, dealing directly with the people will provide the educational information necessary to convince the herders of the desirability of proposed innovations. The extension service will answer the herder's question : "What's in it for me". The community cooperatives will provide a new institution adapted from an existing social grouping that gives the herders the organizational capacity required to successfully implement a number of the innovations. The various recommendations are presented below.

A. General Recommendations

i. Community cooperatives

Some personnel affiliated with the project have suggested that cooperatives are not really needed: that what one can do is to simply designate each sector as a cooperative, and then charge the cooperative only with the sales of commodities to the herders. I believe the cooperatives to be a sine qua non for the success of the project. If the task of organizing the changes in pastoral life is taken out of the hands of the herders and given the external agencies such as the project or the local Government then it is predicted that the stockmen, as Hagenboucher warns, will quickly grow suspicious of the project. The cooperatives should have the general function of providing the information and organization for altering pastoral life. They should have the following specific functions.

- i. the provision of information on improved pastoral techniques (the responsibility of the extension service)
- ii. the sale of commodities to herders
- iii. the collection of taxes from the beneficiaries of water installation
- iv. /^{the}possible management of ox-drawn agriculture training centers
- v. the possible management of a feedlot
- vi. the organization of access to wells
- vii. the organization of changes in pasture locations
- viii. the reorganization of transhumance routes and times
- ix. the organization of access to land used for growing fodder
- x. the organization of surveillance teams to see that pastures are not being overused or used by people without rights to them.

Two principles must guide the formation of cooperatives. First, they must be simple in organization. Past experience shows that the more complex cooperatives are the more numerous are the ways in which they can mal-function. Second, the cooperatives must be built out of groups with which the herders are familiar. Attempts to impose completely new and hence alien social groupings on people normally fail. The cooperatives then must be adapted from pre-existing groups among the herders in which pastoral activities presently occur. As we have seen almost all herding activities take place within the context of kin, household, villages, and communities.

The easiest ways to make cooperatives would be on a cantonal and geographic basis. One might say that each canton is a cooperative, and that within each canton there is a north, south, etc., sub-cooperative. Such cooperatives would be easy to form, and would conform to the first of our two guiding principles; but as the canton is a purely administrative unit, having nothing to do with pastoral activities, and in the Serbewel is dominated by the Kotoko, our cantonal cooperatives would violate the second of our two principles. Rather than the canton I suggest that the community be made with the cooperative. The community contains kin, households and villages. Like the canton the community provides a simple basis for the cooperative. It is thus recommended that community cooperatives be formed and that :

- i. there be 8 to 10 community cooperatives in the Serbewel Sector and 6 to 8 such cooperatives in the Assale Sector,
- ii. that each Sector have a professional administrator of the community cooperatives who would be responsible for the day to day operations, and that the administrator be an Arab, preferably not a prior resident of the Sector with at least a high school education and some business or administrative experience.
- iii. that village in the community cooperative appoint one of their members to represent his village,
- iv. that the representative of the villages within a community cooperative appoint one of their members to head the community cooperative,
- v. that the heads of the community cooperative, the Sector Cooperative Administrator, the pastoral innovation team, and

the Sector Heads and their homologues meet at regular intervals to decide community cooperative policies.

Community cooperatives are simple in organization and include elements of institutions presently performing pastoral tasks. The problem, however, in the formation of community cooperatives is to find the communities. This task should be performed by the extension service in the following manner :

- i. it should secure a list of herding villages in each canton,
- ii. with the list in hand it should go to each Chef de Canton and ask him what villages are close together in his canton. (They should try to place these villages on a map as much as possible),
- iii. when the team is reasonably sure of what villages are located in close proximity it should find out who are the influential men in the village groups, and arrange to talk with these men,
- iv. the influential men should be asked what are the ethnic groups of the village in the area, and if the villages marry in common, go to each others funerals in common, transhume to common locations, seek to return stolen cattle in common,
- v. on the basis of this information the team should be able to demarcate groups of villages with a high degree of social interaction -- i.e. communities

Once the community cooperative are formed three activities should immediately begin to accustom the cooperatives to their role. These three activities are :

- i. the extension service should begin its educational program explaining the project to the herders, and explaining the benefits of the innovations to the herders,
- ii. the community cooperatives should be given relatively uncomplicated organizational tasks to perform such as:
 - a. the organization of sales of veterinary commodities to the herders like simple medicines, spray guns and sprays against insects, and perhaps salt blocks.
 - b. the organization of the herders when they take their cattle to vaccination/parasite control centers.

Subsequent activities of the community cooperatives should only follow on the cooperatives being able to fulfill the above tasks, and only after the herders are well educated concerning further innovations

- i. extension service - this service will be attached to the project and not the local Government will have the general task of providing the herders with the information concerning different animal husbandry and range management techniques so that the herders possess the informational basis on which to decide whether a proposed innovation does or does not perform pastoral tasks better than existing techniques. The team should consist of two members. One a graduate student in either range management or animal husbandry or ecological anthropology. The graduate student would be expected to learn Chadian Arabic. He could be recruited through the Peace Corps where he would be given excellent language training. The second member of the team will be the graduate student's homologue, who could be from an Arab population with at least a high school education. The homologue can be recruited from high schools either in N'Djamena or Maiduguri, or Garoua.

The pastoral innovation team would have the following specific responsibilities :

- i. the formation of community cooperatives,
- ii. the formation of a curriculum explaining the innovations proposed by the project,
- iii. the teaching of this curriculum to herding villages within the community cooperatives,
- iv. provision of assistance to the community cooperatives to aid them organize various innovations,
- v. reporting to the Sector Heads as quickly as possible the various complaints and difficulties that the herders might be having with the project,
- vi. collection of economic data which the project needs.

The members of the extensive service would be directly responsible to the Sector Heads. They would spend, however, as much of their time as possible in herder villages working directly with the stockmen. In order to properly fulfill their responsibilities the pastoral innovations team would need funds for the following :

1. for one 4-wheel drive vehicle;
2. for fuel for the vehicle;
3. for vehicle maintenance;
4. for camping equipment;
5. for food;
6. for educational supplies including audio-visual aids; and
7. for a stipend for the graduate student and a regular salary for the homologue.

3. Timing of Project activities

The timing of implementation of project activities can be useful in assuring the success of the project. It is suggested that the first activities to be immediately implemented should be: 1. the vaccination/parasite control campaigns; 2. the well program; 3. the tsetse fly eradication program, and 4. the formation of the pastoral innovation team and the community cooperatives. The successful implementation of the first three activities will provide the herders with visibly more cattle than in the past and should earn the project some degree of herders' confidence. This confidence may be extended like a type of credit to underwrite some of the projects more difficult innovations. The sheer possession of greater numbers of cattle will make it easier for the herder to increase his sales of all types of cattle, mean that there are more males to castrate, make probably for less pasturage and thus for the need for alternative sources of cattle feed such a grown fodder or as would come from changes in pasture locations and transhumance routes and times. In sum the increased numbers of cattle should lead to demands for some of the innovations which are presently not understood or felt not needed.

The operation of the pastoral innovation team should mean that the herders have the informational basis to understand the remaining innovations. While successful operation of the cooperatives should mean that the herders possess the institutional means to implement further innovations.

If the project tries to do too many innovations too soon there is a risk that the project personnels' considerable will be spread too thin at a time when the project has not proven itself to the herders. It is thus recommended that the project undertake no other innovations, with the exception of the laws restricting access to the sectors, until there is a : 1. measurable increase in the numbers of cattle in the Assala-Serbewel, and 2. the pastoral innovation team and the community cooperatives have had a chance to be functional.

B. Specific Recommendations

i. With regard to Kotoko-Arab relations

Measures must be discreetly taken in the Serbewel to assure the herders that the project will not just be another institution for the continued dominance of the herders. Ways of reassuring the Arabs are as follows :

1. do not organize the cooperatives on a cantonal basis, organize them on a community basis,
2. employ Arabs as the homologue in the extension service and also as the administrative heads of the cooperatives,
3. charge the pastoral innovation team with the task of reporting to the sector head any inter-ethnic group problems that the herders may be experiencing.

ii. With regards to what herders will be the best to work with

Two types of herders will be able to assist the project. These are the "influential" and the "comfortable" herders. (Remember that "comfortable" herders may frequently be influential men. "Influential" men, if they agree with what you are doing, are the people who can convince other herders to agree with what you are doing. "Comfortable" herders are the men with enough cattle to be able to afford to be interested in improving their herding techniques. I believe if all efforts are concentrated on the poorest herders, then, the project will be attempting to work with the more conservative element of the population grimly interested only in subsistence. It is better to work more intensively with the "influential" and "comfortable" people and to let their successes serve as in-cultural models of what some herders can do using the new techniques.

iii. With regards to wells

We have seen that cemented wells cause less organizational problems than artesian wells. Unless the project feels that the community cooperatives are extremely strong and able to organize the distribution of water on a community level, it is recommended that artesian wells

not be put in initially. As wells should go in as quickly as possible parallel in timing with the formation of the cooperatives, it is recommended that cemented wells be immediately installed, and that only towards the final years should the project consider artesian wells. It is recommended that cemented wells be located in regions where they will allow the use of dry season pasture which could not previously be exploited for lack of water. It is further recommended that cemented wells be allocated to groups of villages in close proximity, and that on this small basis that the cooperatives be introduced to the task of distribution of well water.

iv. with regards to laws closing the Assale-Serbewel to outsiders

It is recommended for the Assale that the project should not attempt to implement this law at the height of the drought. The migrants in the Assale at Lake Chad are there out of desperation and might be tempted to take desperate measures if forced to leave. Rather it is recommended that the extension service be charged with the task of explaining to the migrants in the Assale that after the drought they will have to leave. The extension service should also be charged with the task of discovering who are the recent migrants who will have to leave.

It is not recommended when the laws are in effect that the herders be asked to perform the police functions of apprehending and removing illegal migrants in the Assale-Serbewel. Asking the herders to fulfill a police function will only heighten inter ethnic - group conflict. Police functions are properly the responsibility of the local administration. It is recommended, however, that the community cooperatives do form surveillance teams to watch the pastures and to report to the proper authorities if illegal migrants use these pastures.

v. with regards to the sale of young cattle

It is recommended to induce herders to sell young male cattle that the following be performed :

- i. that the project initially ask only "comfortable" and "influencial" herders to sell their young cattle,
- ii. that the project pays the herder for his cattle twice: once when they are initially sold, and once after they have fattened and sold a second time,
- iii. that no matter what the profit situation the project sees that the first herders who sell young cattle make more money than if they had waited and sold their animals at a latter age.
- iv. with regards to stimulating the commercialization of cattle

The small scale cattle commercialization operations are the crysalis of more sphiscated Assale-Serbewel dominated cattle sales enterprises. The main constraint on the size of these operations is the availability of funds for the small scale commercializers to purchase cattle. It is recommended that a credit fund b created for the cooperatives and that money from these funds be advanced to small scale commercializers so that they may increase the size of their operations.

- vii. with regards to feedlots

Feedlots are complicated operations. The higher quality meat from feedlots reaches a very restricted market largely of the elite. Such high quality meat does little to resolve basic nutritional problems. It is recommended that the project does not implement feedlots unless market studies show there is a sufficiently large market to make them profitable, and the project concludes that there is at least one community cooperative sufficiently well organized to feedlot.

- viii. with regards to introduction of ox-drawn plow agriculture

It is recommended that ox-drawn plow agriculture if it is introduced be so done only near the lake and only after market studies show that there are markets for the crops which would be produced. Concerning both feedlots and ox-drawn plow farming, it is to be noted that both innovations are sufficiently great as to be entire projects in themselves. Both might require considerable drain on the time of the projects personnel which could jeopardize other respects of the project. This being the case, it is recommended that these two innovations only attempted if all other aspects of the project are proceeding without troubles.

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Annales de l'Université d'Abidjan, série F. 1970

Migra. Info.

| | WHO | A | S | WHEN | WHERE | WHY |
|-----|-----|---|---|------|-------|-----|
| IN | | | | | | |
| OUT | | | | | | |

Cattle Inf.

Are some of this cattle loans ? _____

If so, how many ? _____ From whom ? _____

Have you loaned out any a cattle ? _____

If so how many ? _____ To whom ? _____

Why ? _____

TYPES OF CATTLE

0-1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-12 12+

male

female

0-1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 10-11 11-12 12+

male

female

CATTLE LOST

| SOLD | | DOT | | NOM | | CIRC | | MORT | | TARES | | MORT | | |
|------|---|-----|---|-----|---|------|---|------|---|-------|---|------|---|------|
| m | f | m | f | m | f | m | f | m | f | m | f | m | f | |
| | | | | | | | | | | | | | | 0-1 |
| | | | | | | | | | | | | | | 1-3 |
| | | | | | | | | | | | | | | 3-5 |
| | | | | | | | | | | | | | | 5-7 |
| | | | | | | | | | | | | | | 7-9 |
| | | | | | | | | | | | | | | 9-11 |
| | | | | | | | | | | | | | | 11 + |

IF SOLD

Where ? _____
 When ? _____
 Price ? _____
 To Whom ? _____
 Reason : _____

IF DEAD

When ? _____
 Where ? _____

CATTLE GAINED

| Purchase | | Don | | Hert. | | Pret | | autre | | born | | |
|----------|---|-----|---|-------|---|------|---|-------|---|------|---|------|
| m | f | m | f | m | f | m | f | m | f | m | f | |
| | | | | | | | | | | | | 0-1 |
| | | | | | | | | | | | | 1-3 |
| | | | | | | | | | | | | 3-5 |
| | | | | | | | | | | | | 5-7 |
| | | | | | | | | | | | | 7-9 |
| | | | | | | | | | | | | 9-11 |
| | | | | | | | | | | | | 11 + |

IF PURCHASED

| <u>When</u> | <u>Where</u> | <u>Price</u> | <u>From</u> | <u>Whom</u> |
|-------------|--------------|--------------|-------------|-------------|
|-------------|--------------|--------------|-------------|-------------|

How cattle acquired ?

1. héritage du père _____
2. autre héritage _____
3. achat _____

COMMISSION DU BASSIN DU LAC TCHAD
LAKE CHAD BASIN COMMISSION

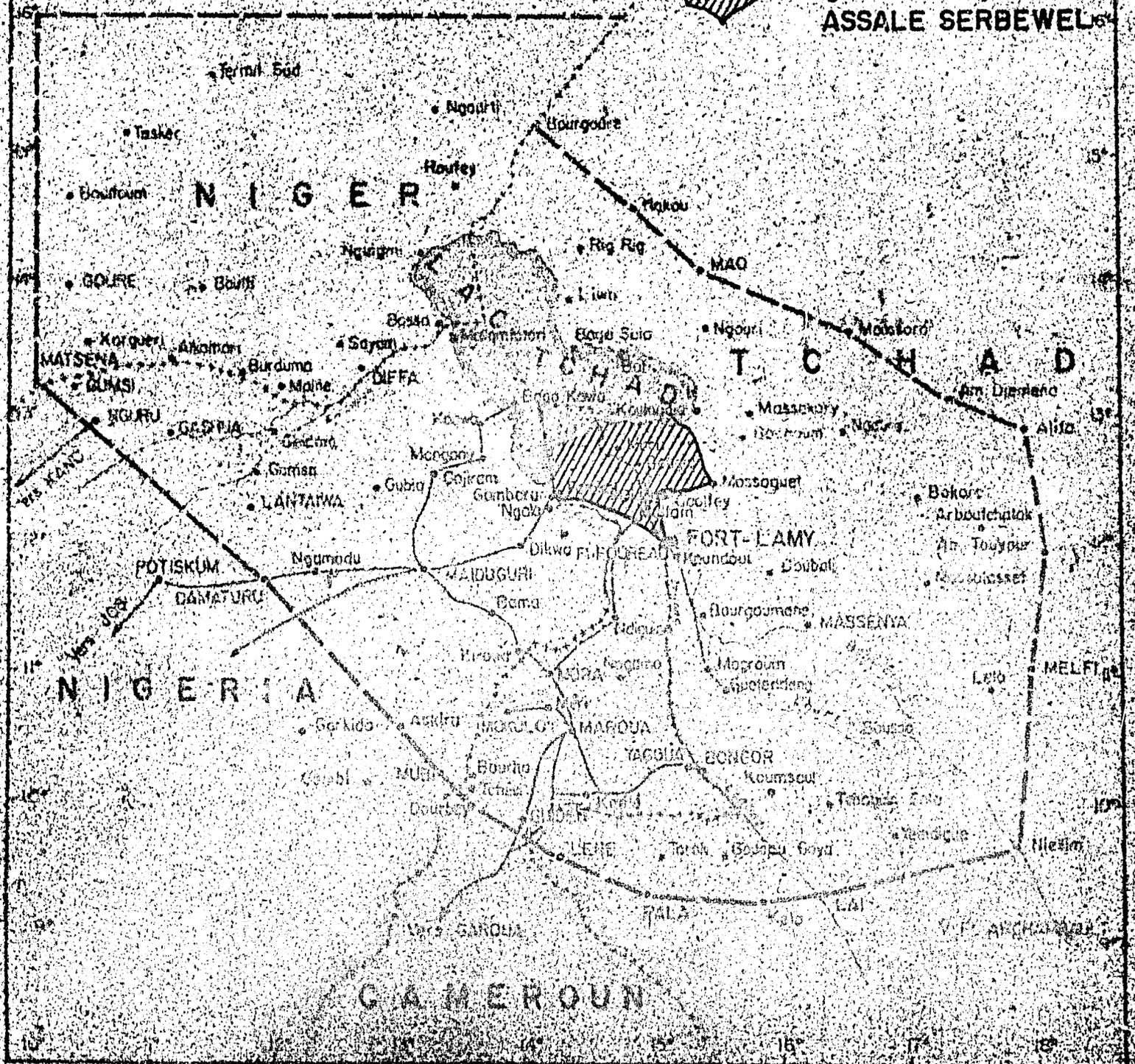
94

LIMITES OFFICIELLES DU BASSIN CONVENTIONNEL
OFFICIAL LIMITS OF THE CONVENTIONAL BASIN

Echelle 1:5 000 000



Région du Projet
ASSALE SERBEWEL



95

LAC TCHAD

13°

500000

KANEMBU

SALAMAT

ASSALE

HEMADIYA

BABELYIA

HEMADIYA

ABU. XADER

ABU IYSE

SALAMAT
BARASEIT

30°

NIGERIA

TCHAD

CAMEROUN

15°

Echelle: 1 / 500.000

CHART 4: COMPARISON OF THE SEGMENTATION OF NAMED PATRILINEAGES AMONG THE SALAMAT & ABU XADER

DEGREE OF
PATRILINEAGE
SEGMENTATION

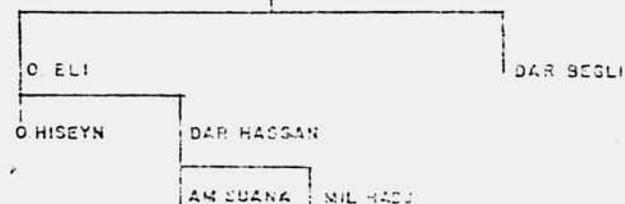
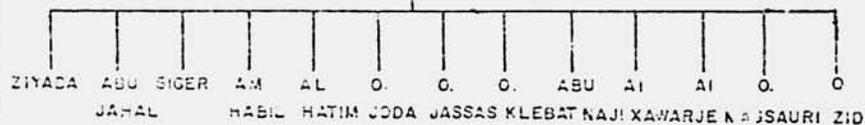
TRIBE
MAXIMAL
MAJOR
MINOR

ABU XADER

SALAMAT

ABU XADER

SALAMAT



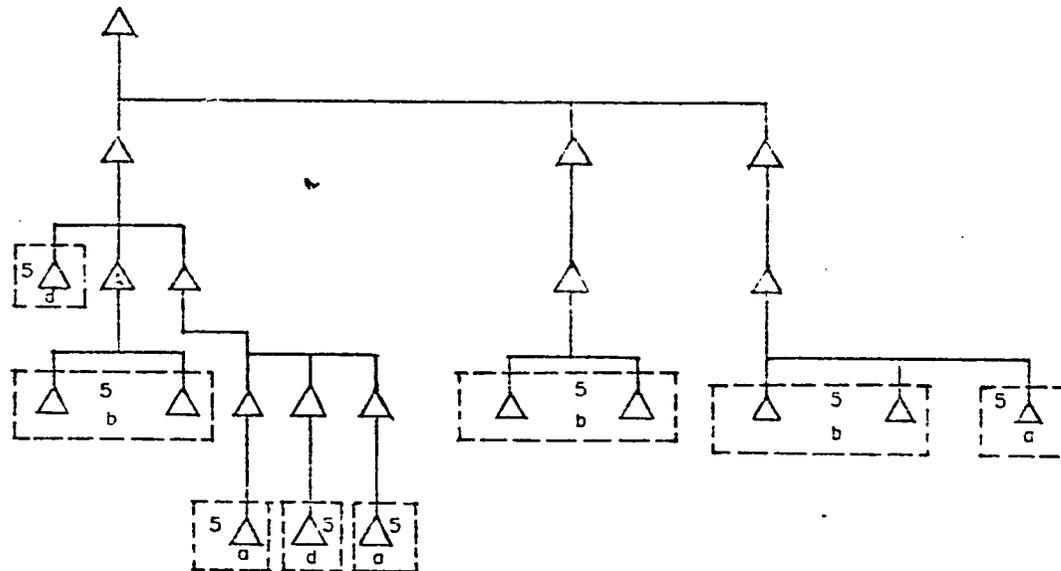
KEY

| PATRILINEAL DESCENT
— SEGMENTATION

NOTE: THE ABOVE DIAGRAM IS NOT A PERSONAL
GENEALOGY IT DEPICTS THE SUPPOSED
ACHATIC RELATIONS BETWEEN NAMED
PATRILINEAGES

ALL INFORMATION ABOUT THE SALAMAT
IS TAKEN FROM HADENAUWER (1979:509,30)

CHART: 5: GENEALOGICAL RELATIONS BETWEEN HOUSEHOLDS IN THE VILLAGE OF AU JODA

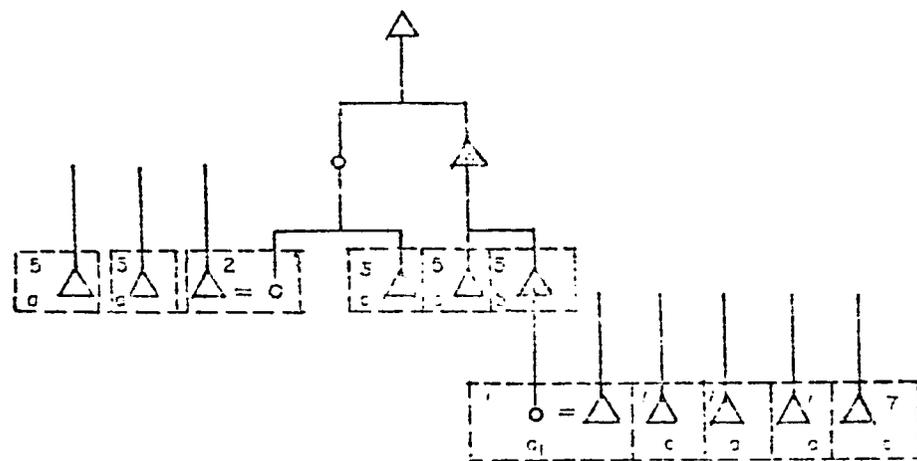


KEY

| | | | | | | |
|-------|-------------|------------------------|----------------------------|-------------------------------------------------|-----------|-----------|
| △ | MALE | △ | HEADMAN OF VILLAGE | <u>ETHNIC AFFILIATION OF THE HOUSEHOLD HEAD</u> | | |
| ○ | FEMALE | △ | FOUNDER OF VILLAGE | 1 | SALAMAT | |
| | DESCENT | <u>HOUSEHOLD TYPES</u> | | | 2 | BANA SEIT |
| ┌───┐ | SIBLINGSHIP | a | NUCLEAR FAMILY | 3 | ASSALE | |
| = | MARRIAGE | b | EXTENDED FAMILY | 4 | HEMMADIYA | |
| ┌───┐ | HOUSEHOLD | c | INCOMPLETE EXTENDED FAMILY | 5 | GAWALME | |
| | | d | NON MARRIAGE FAMILY | 6 | KOTOKO | |
| | | | | 7 | FULANY | |
| | | | | 8 | OTHER | |

86

CHART 6: GENEALOGICAL (RELATIONS BETWEEN HOUSE HOLDS IN THE VILLAGE OF HABADO)



KEY: THE KEY EMPLOYED TO CHART 5 IS
 APPLICABLE TO CHART 6

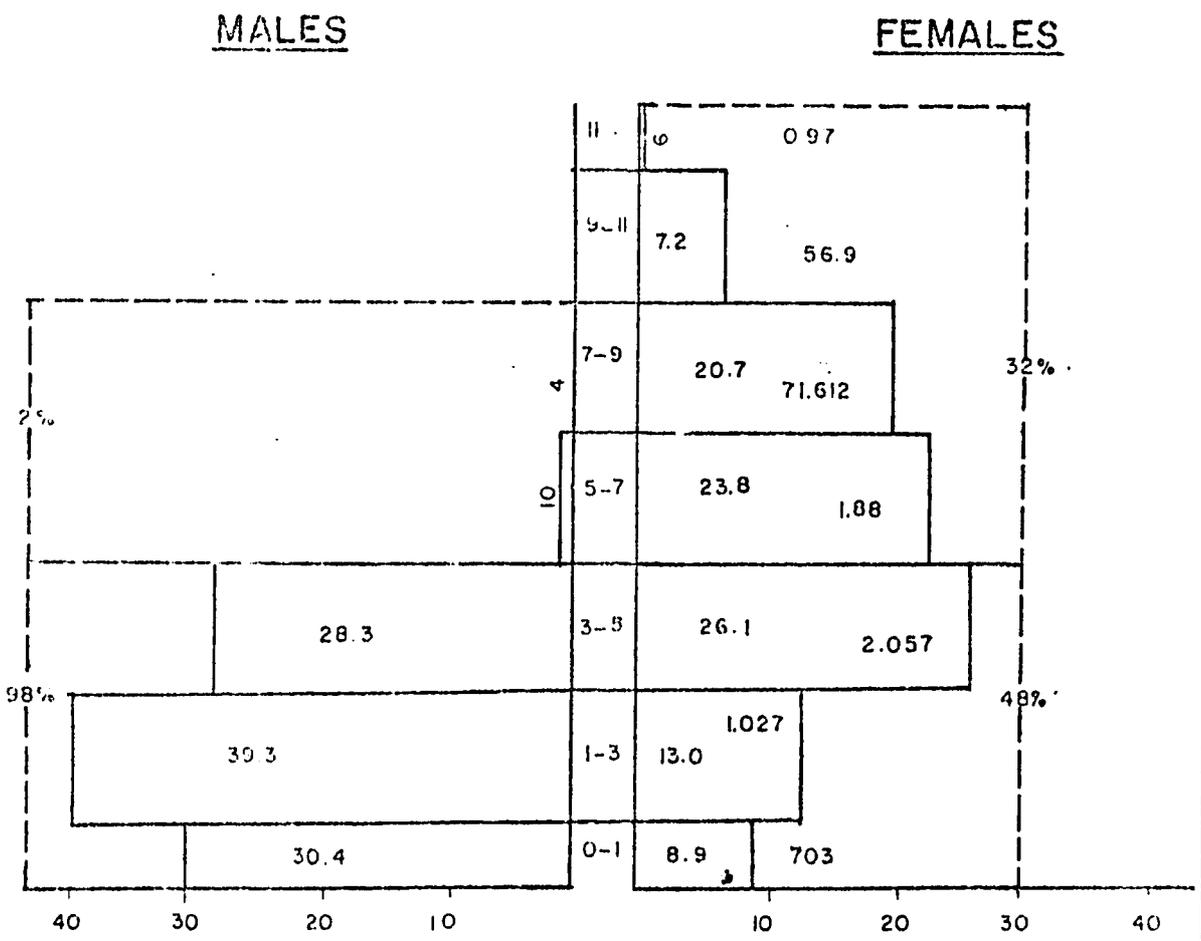
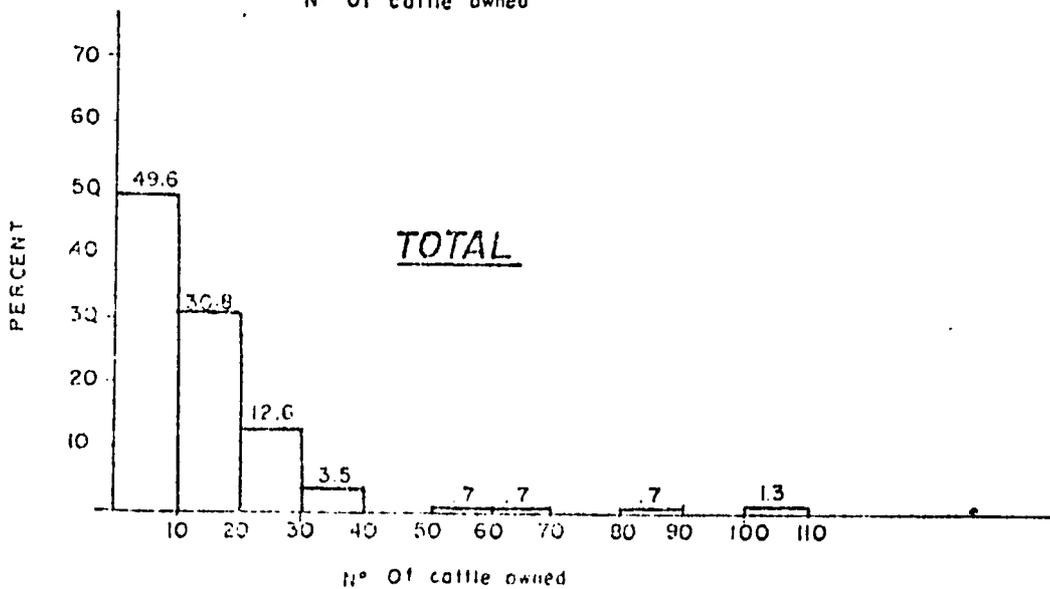
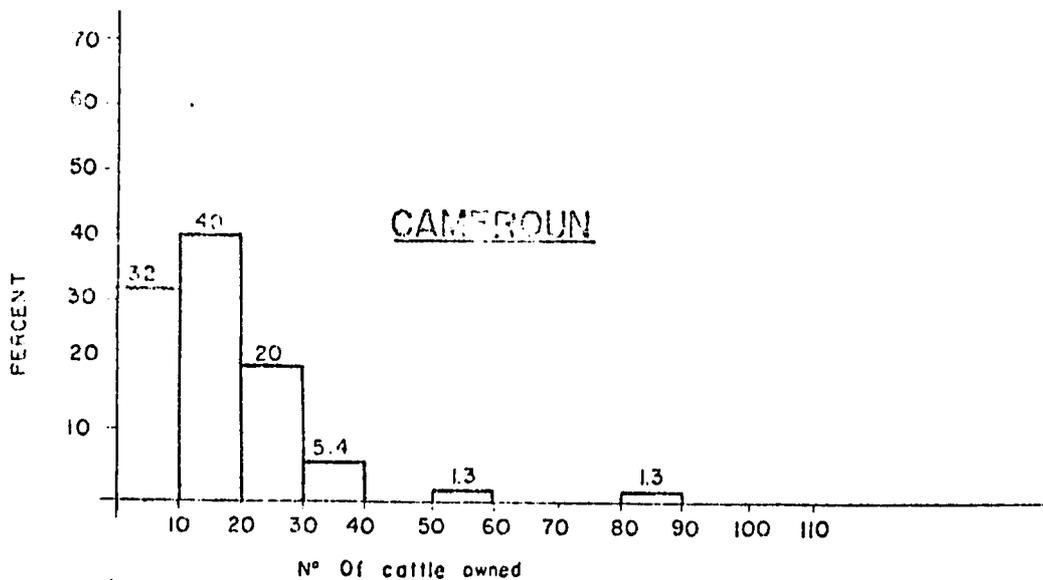
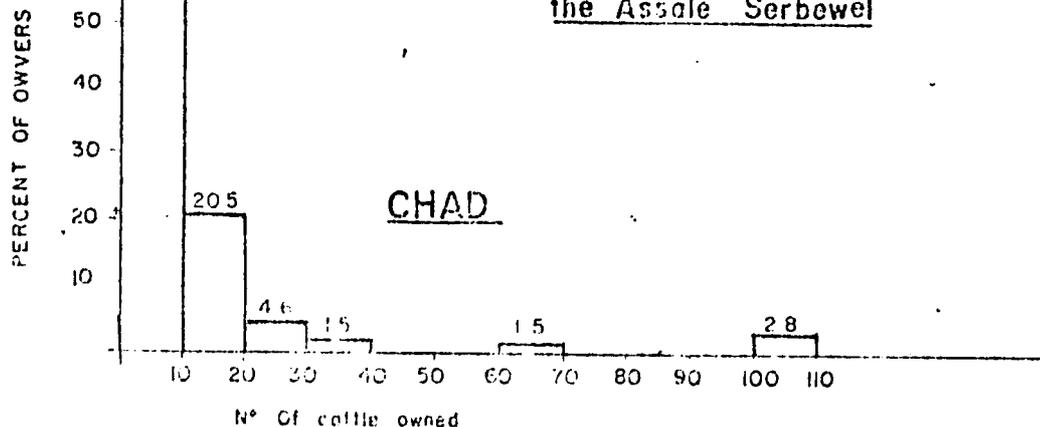


TABLE 17: Age Sex Pyramid of the Cattle Studied in the Assole Serbawel

TABLE 15: Distribution of the Cattle Ownership in the Assale Serbewel



GRAPH: SCATTER DIAGRAM OF VILLAGE LINEAGE SOLIDARITY VERSUS VILLAGE WEALTH

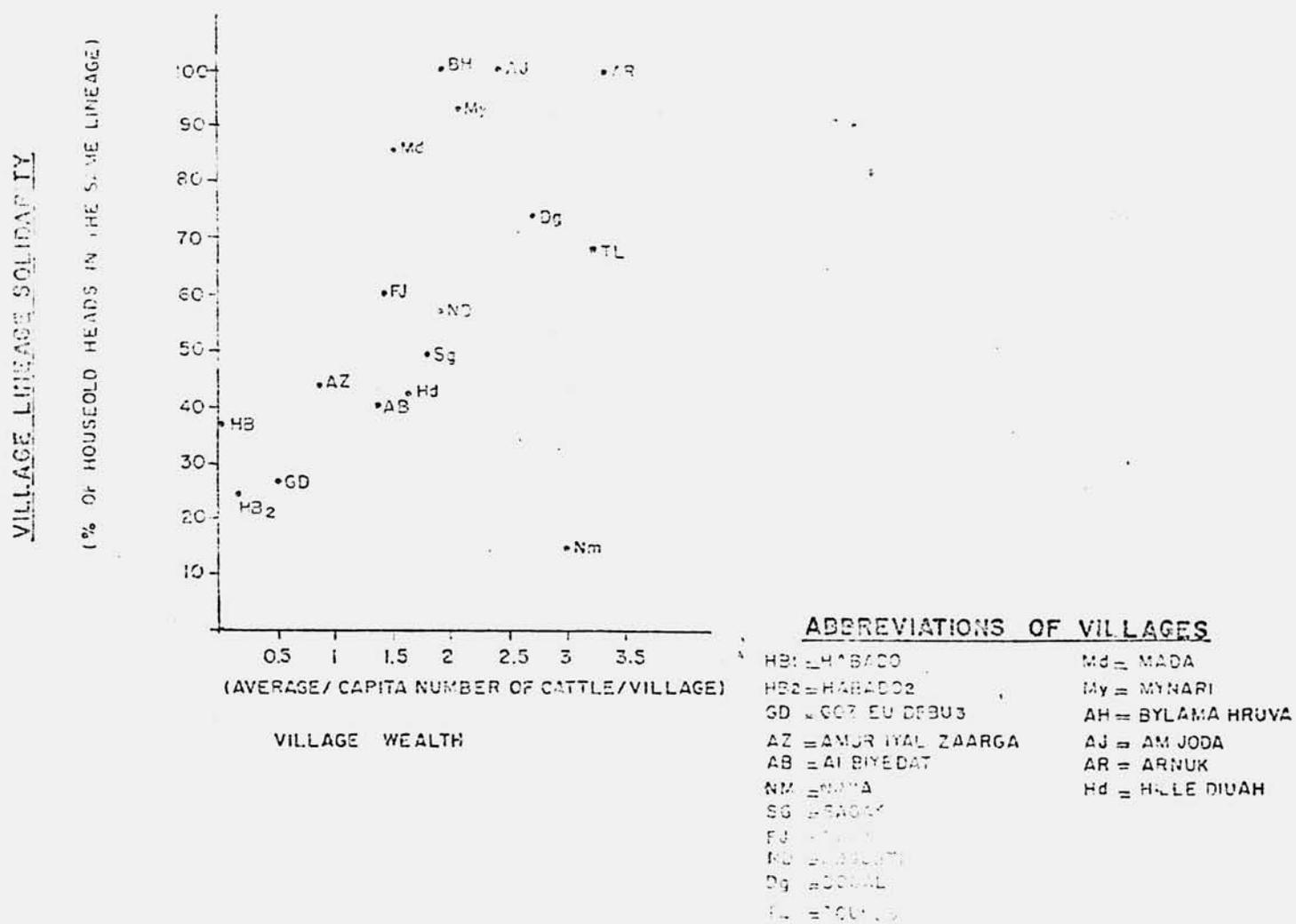
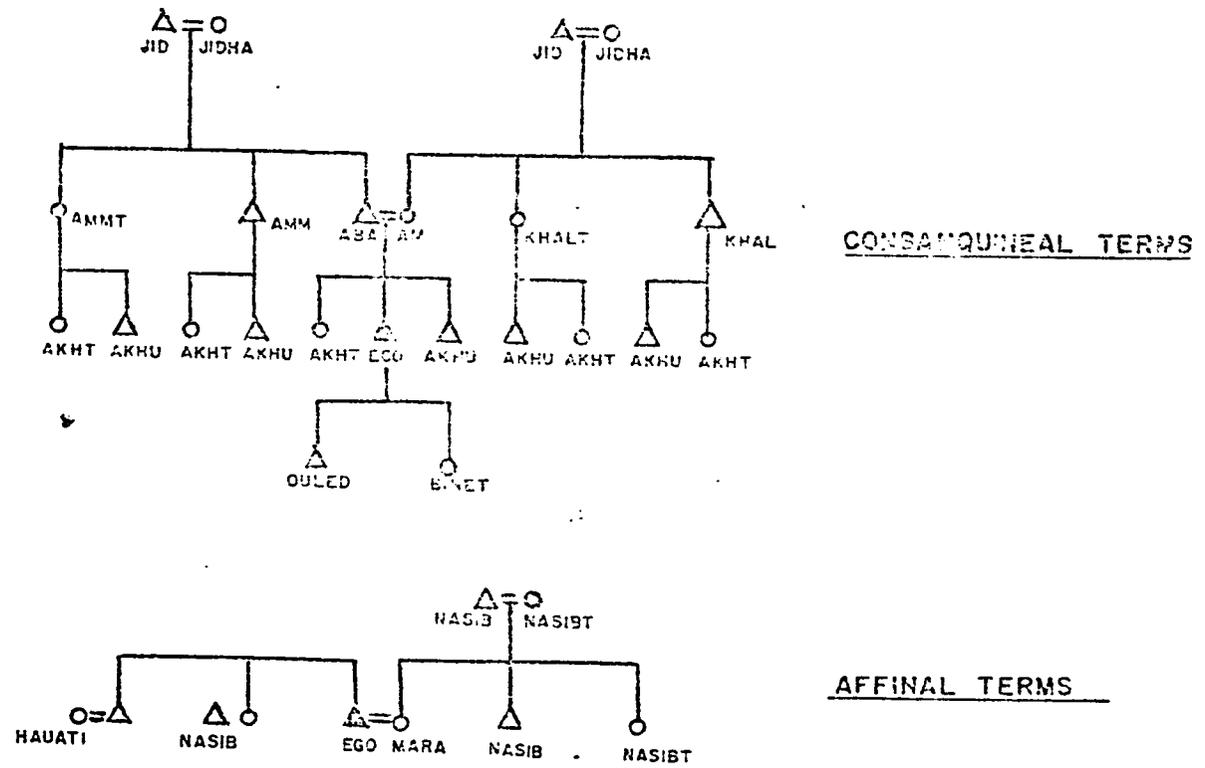


CHART 2: PARTIAL ASSALE SERBEWEL ARAB KINSHIP TERMINOLOGY

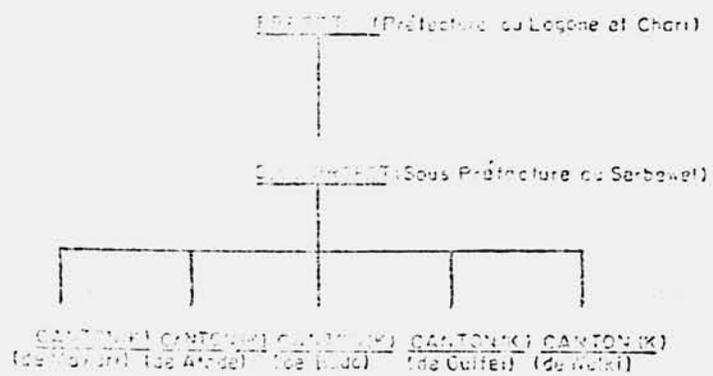


KEY

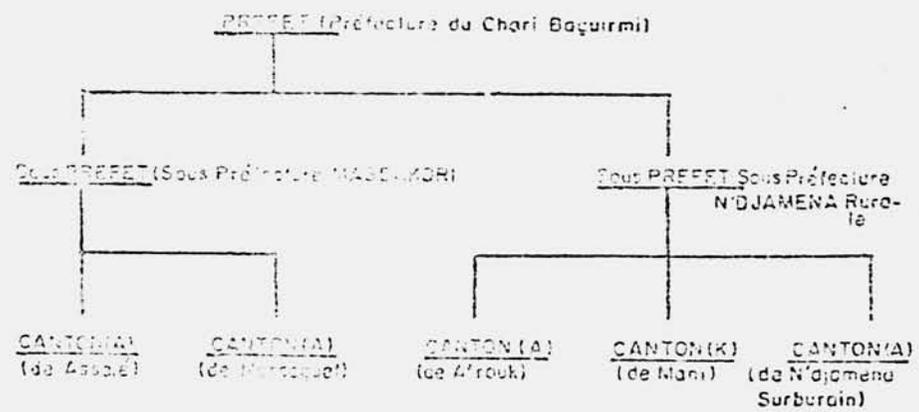
- △ Male
- Female
- = Marriage
- | Descent
- ┌ Siblings

CHART 1:

SERBEWEL SECTOR



ASSALE SECTOR



ETHNIC AFFILIATION OF THE CHEF DE CANTON

- K= KOTOKO
- A= ARAB

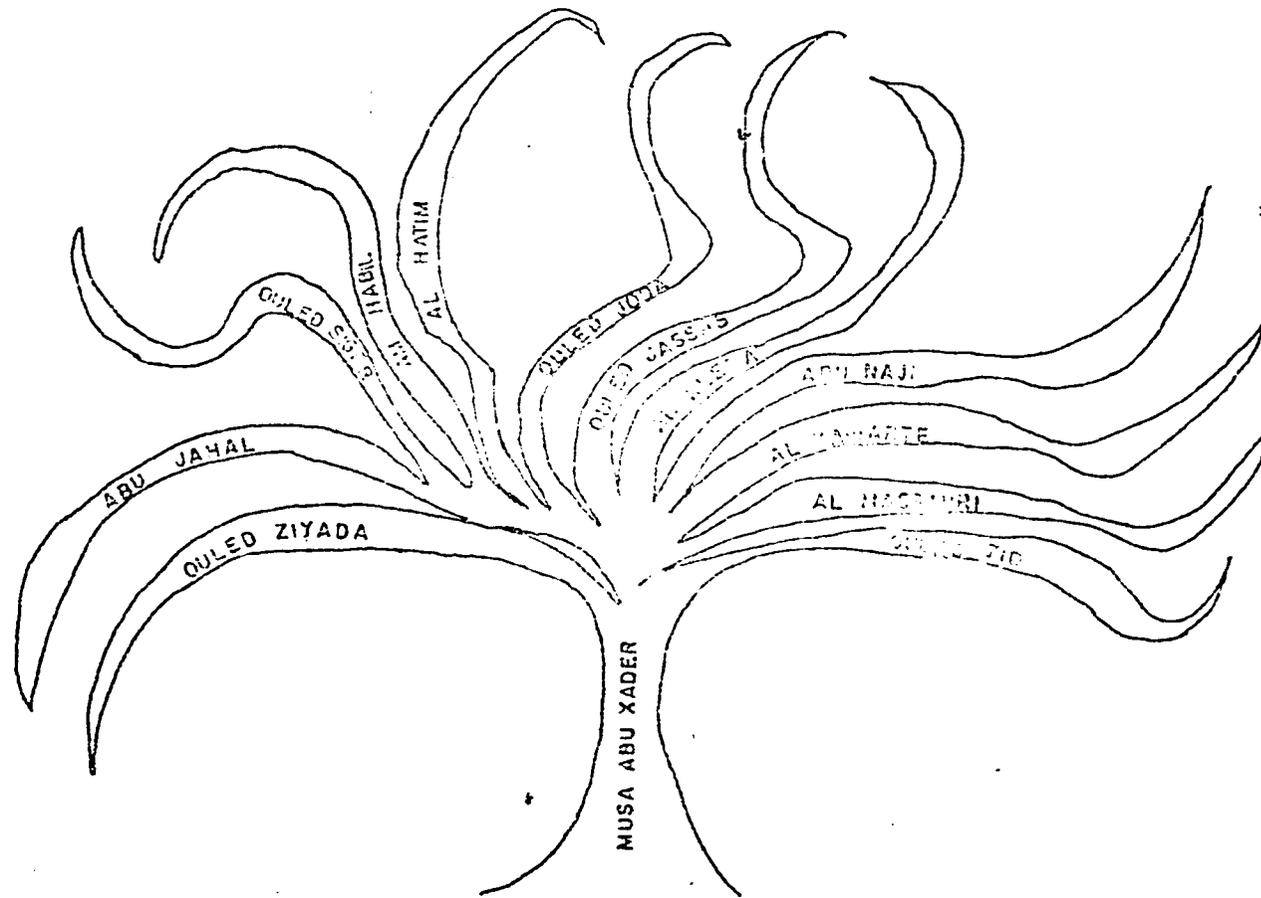


CHART:3 THE TREE OF MUSA XADER (AN ILLUSTRATION OF HOW ARAB INFORMANTS VIEW THEIR PATRILINEAGES)

Table 1.- Villages surveyed in the Assale-Serbeouel

SERBEQUEL

| <u>Oriented owards Lake Chad</u> | | <u>Oriented owards the Chari River</u> | |
|----------------------------------|-------------|----------------------------------------|-------------|
| <u>Name</u> | <u>Size</u> | <u>Name</u> | <u>Size</u> |
| 1) Am Joda | 68 | 7) Arnuk | 18 |
| 2) Sagay | 41 | 8) Al Biyedat | 26 |
| 3) Mynari | 87 | 9) Nimia | 88 |
| 4) Fajay | 72 | 10) Toulous | 36 |
| 5) B.Haruna | 101 | 11) Daugal | 51 |
| 6) Mada | 181 | | |

ASSALE

| | | | |
|-----------------|-----|---------------------|-----|
| 12) Habado I | 52 | 16) Goz El Debid | 79 |
| 13) Habado II | 45 | 17) Amut Iyal Zarga | 56 |
| 14) Hille Dinah | 91 | 18) Ndjobti | 114 |
| 15) Karal | 126 | | |

Table 2.- Major ethnic-groups in the Assale-Serbeouel

SERBEQUELAgricultural/fishing/trading

- 1) Kotoko
- 2) Kanuri

Pastoral

- 3) "Shuwa" Arab
 - a) Salamat
 - b) Bana Seit
 - c) Hemmadiya
 - d) Gawalme, including according to Zeltner (1970 :p.121) :

| | |
|--------------------|--------------------|
| I. Beni Wa'el | V. Dagana |
| II. Oulad Mah'arab | VI. Oulad Emire |
| III. " Qanam | VII. Abu Xadar |
| IV. " Ser'ar | VIII. Oulad Sa'lem |

- 4) Fulani

ASSALEAgricultural/fishing/trading

- 1) Kotoko

Pastoral

- 2) "Shuwa" Arabs
 - a) Assale
 - b) Salamat
 - c) Gawalme
 - d) Hemmadiya
 - e) Bana Seit
 - f) Babelyia (*)

(*) The Babelyia originally spoke a language resembling those of Sara-speakers in Southern Chad

Table 3.- Marriage between ethnic-groups in the Assale-Serbeouel (*)

| | Arab own lineage | own tribe | other Arab | Non-Arab Fulani | Kotoko | Other | Total |
|-----------|------------------------|--------------|---------------|--------------------|--------|-------|-------|
| | 41.9 | 14.0 | 33.3 | 4.4 | 3.2 | 3.2 | 100.0 |
| Serbeouel | 39 | 13 | 31 | 4 | 3 | 3 | 93 |
| | 33.7 | 24.4 | 31.4 | 9.3 | 1.2 | 0.0 | 100.0 |
| Assale | 29 | 21 | 27 | 8 | 1 | 0 | 86 |
| | 38.0 | 19.0 | 32.4 | 6.7 | 2.2 | 1.7 | 100.0 |
| Both | 68 | 34 | 58 | 12 | 4 | 3 | 179 |

(*) In this and in other tables similarly arranged the figure in the upper row is a percentage, and the figure in the lower row is the row number.

Table 4.- Demographic data pertinent to the Assale-Serbeouel

| | Fertility | | Mortality | |
|--------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------|------------|----------------------------|
| | Aver. Number of children born living of women 50 and over | % of women 15 and over without children | Death rate | Infant survival rate |
| Tchadian Arabs | 3.9 | 24.7 | 24 | 70.6 |
| Kotoko & related ethnic-groups | 3.3 | 33.2 | 18 | 68.2 |
| Tchadian average | 4.5 | 20.6 | 32 | --- |

(Source, INSEE : 1964)

Natural Growth Rate

For the Prefecture in which
Assale is locate

1.3

For northern Muslim
Cameroun

1.2

Table 5.- The percentage of cattle-owners and the numbers of cattle they possess by the age-group of the cattle owners.

| | <u>Age-group of the owners</u> | | |
|---------------------------------------------|--------------------------------|----------|----------|
| | less than 40 | 40 to 59 | 60 and + |
| % of owners in this age-group | 28.4 | 43.3 | 28.3 |
| average number of cattle owned by owners | 8.6 | 16 | 15.4 |

Table 6.- Household Composition in Assale-Serbeouel

| | Nuclear family | Extended family | Incomplete extended family | No mar.family | Total |
|-----------|----------------|-----------------|----------------------------|---------------|--------------|
| Assale | 49.0 48 | 28.6 28 | 11.2 11 | 11.2 11 | 100.0 98 |
| Serbeouel | 52.2 60 | 22.6 26 | 11.3 13 | 13.9 16 | 100.0 115 |
| Total | 50.7 108 | 25.4 54 | 11.3 24 | 12.6 27 | 100.0 213 |

Table 7.- House composition according the age of the household head

| Age-group | Nuclear family | Extended family | Incomplete extended family | No mar.family | Total |
|-----------|----------------|-----------------|----------------------------|---------------|-------------|
| 60 & + | 43.8 28 | 45.3 29 | 4.7 3 | 6.2 4 | 100.0 64 |
| 50 - 59 | 24 | 18 | 3 | 5 | 51 |
| 40 - 49 | 65.6 21 | 12.5 4 | 12.5 4 | 9.3 3 | 100.0 32 |
| 30 - 39 | 55.8 24 | 7.0 3 | 20.9 9 | 16.3 7 | 100.0 43 |
| 30 | 33.4 4 | 00.0 0 | 16.6 1 | 50.0 6 | 100.0 12 |

Table 8.- Household size in the Assale-Serbeouel

| | Household average size |
|-----------|------------------------|
| Assale | 6.56 |
| Serbeouel | 7.76 |
| Total | 6.69 |

Table 9.- Household size, household composition, and average number of cattle/capita

| Household (HH) Composition | Average HH size | Average Number of catt./HH | Average number of catt./capita |
|----------------------------|----------------------|----------------------------|--------------------------------|
| Nuclear family | 5.0 people/household | 7.6. catt./household | 1.5 catt./person |
| Extended family | 12.4 | 22.3 | 1.8 |
| Incomplete extended family | 6.0 | 5.6 | .9 |
| No marriage family | 3.2 | 6.7 | 2.0 |

Table 10.- Lineage solidarity and per capita holdings in cattle in the Assale-Serbeouel

| <u>Villages</u> | <u>% of household of village in same lineage</u> | <u>per capita head of cattle in the village</u> |
|------------------|--------------------------------------------------|-------------------------------------------------|
| Am Joda | 100.0 | 2.39 |
| Sagay | 50.0 | 1.76 |
| Mynari | 93.3 | 2.06 |
| Fajay | 60.0 | .89 |
| B. Haruna | 100.0 | 1.89 |
| Mada | 84.6 | 1.51 |
| Arnuk | 100.0 | 3.28 |
| Al Biyedat | 40.0 | 1.38 |
| Nimia | 15.4 | 3.00 |
| Toulous | 65.7 | 3.19 |
| Daugal | 72.7 | 2.67 |
| Goz ed Debid | 27.3 | .54 |
| Amut Iyal Zaarga | 44.4 | .86 |
| Ndjobti | 57.1 | 1.89 |
| Habado I | 36.3 | .038 |
| Habado II | 25.0 | .18 |
| Hille Dinah | 41.7 | 1.62 |

Table 11.- % of households with at least one cattle possessor and number of possessors of cattle/household in the Assale-Serbeouel

| | <u>% of households with 1 possessor</u> | <u>Average number of possessors/household</u> |
|-----------|-----------------------------------------|-----------------------------------------------|
| Assale | 55.9 | 1.15 |
| Serbeouel | 70.2 | 1.37 |
| Total | 63.4 | 1.28 |

Table 12.- Possessions in Assale-Serbeouel Households

| | <u>Average number of</u> | | | | | | | |
|-----------|--------------------------|--------------|--------------|----------------|---------------|--------------|---------------|----------------|
| | <u>Chickens</u> | <u>Goats</u> | <u>Sheep</u> | <u>Watches</u> | <u>Radios</u> | <u>Bikes</u> | <u>Horses</u> | <u>Donkeys</u> |
| Assale | 1.6 | 2.5 | .09 | .07 | .06 | .01 | .3 | .4 |
| Serbeouel | 7.4 | 7.1 | 1.1 | .2 | .11 | .11 | .27 | .61 |
| Total | 4.6 | 4.8 | .61 | .13 | .09 | .06 | .29 | .52 |

Table 13.- Cattle loans in the Assale-Serbeouel

| | % of owners making loans | Average number of cat.owned by those making loans | <u>% of loans made to what types of people</u> | | | | |
|-----------|--------------------------|---------------------------------------------------|------------------------------------------------|-----------------|------------------------------|-------------------|-------------------|
| | | | <u>to friends</u> to Fulani | <u>to other</u> | <u>to kin</u> to uterines | <u>to agnates</u> | <u>to affines</u> |
| Assale | 18 | 32.7 | 26.7 | 26.7 | 20.0 | 13.3 | 13.3 |
| Serbeouel | 17 | 25.0 | 7.7 | 30.8 | 7.7 | 7.7 | 46.1 |
| Total | 17.5 | 28.9 | 17.6 | 28.7 | 14.3 | 10.7 | 28.7 |

Table 14.- Individual herd size in the Assale-Serbeouel

| | <u>Average number owned</u> | <u>Average number possessed</u> |
|-----------|-----------------------------|---------------------------------|
| Assale | 11.03 | 10.97 |
| Serbeouel | 14.97 | 15.08 |
| Total | 13.22 | 13.19 |

Table 19.- % of the Assale-Serbeouel herds of the dry season in 1972 sold by the end of the dry season in 1973

| | <u>Number sold</u> | <u>1972 herd size</u> | <u>% sold</u> |
|-----------|--------------------|-----------------------|---------------|
| Assale | 34 | 749 | 4.5 |
| Serbeouel | 150 | 1.553 | 10.4 |
| Total | 184 | 2.302 | 8.0 |

Table 20.- The average price of cattle according to their AGR in the Assale-Serbeouel

| <u>Age-groups</u> | <u>Assale</u> | | <u>Serbeouel</u> | | <u>Total</u> | |
|-------------------|---------------|-----------------|------------------|-----------------|--------------|-----------------|
| | <u>Mâles</u> | <u>Femelles</u> | <u>Mâles</u> | <u>Femelles</u> | <u>Mâles</u> | <u>Femelles</u> |
| 11-1 | - | - | - | 16 500 | - | 16 500 |
| 9-11 | - | - | - | 8 500 | - | 8 500 |
| 7-9 | 10 000 | 10 000 | 13 750 | 8 937 | 11 875 | 9 768 |
| 5-7 | 9 077 | 9 300 | 12 073 | 12 105 | 10 575 | 10 702 |
| 3-5 | 6 583 | 8 075 | 10 253 | 10 086 | 8 418 | 9 065 |
| 1-3 | - | 6 667 | 5 562 | 4 750 | 5 562 | 5 708 |
| 0-1 | - | - | - | - | - | - |
| Total | 8 452 | 8 524 | 10 709 | 10 146 | 9 107 | 9 990 |

Table 22 - Reasons for cattle sales in the Assalé Serbeouel

| | <u>To buy food</u> | <u>To pay taxes</u> | <u>For food & taxes</u> | <u>For food & cloth or food, taxes & cloth</u> | <u>For marriage</u> | <u>For other ceremonial</u> |
|-----------|------------------------|-------------------------|---------------------------------|--------------------------------------------------------------------|-------------------------|---------------------------------|
| Assale | 68.2 | 9.2 | 13.6 | 0.0 | 4.5 | 4.5 |
| Serbeouel | 60.7 | 1.8 | 30.4 | 5.3 | 1.8 | 0.0 |
| Total | 62.8 | 3.8 | 25.6 | 3.8 | 2.7 | 1.3 |

Table 23.- Seasons when cattle are sold in the Assale Serbeouel

| | <u>Selling only once in year sold during</u> | | | | <u>Selling more than once in year sold during</u> | | |
|-----------|--------------------------------------------------|---------------|--------------|--------------|-------------------------------------------------------|----------------------------|----------------------------|
| | <u>Sef</u> | <u>kharif</u> | <u>darat</u> | <u>shite</u> | <u>sef & kharif</u> | <u>sef & darat</u> | <u>sef & shite</u> |
| Assale | 60% | 13.3 % | 0,5 | 20,5 | 0,5 | 0,5 | 6.7% |
| Serbeouel | 70.5% | 13.6 % | 0, | 2.3,5 | 6.8% | 2.3,5 | 4.5% |
| Total | 67.8 | 13.6 % | 0,5 | 6.8,5 | 5.1% | 1.6,5 | 5.1,5 |

Table 24.- Probability of the likelihood of cattle-sales according to the number of cattle owned.

| | <u>Number of cattle owned</u> | | |
|-----------|-------------------------------|--------------|-------------------|
| | <u>0-9</u> | <u>10-29</u> | <u>30 & +</u> |
| Assale | .39 | .54 | 1. |
| Serbeouel | .75 | .77 | 1. |
| Total | .57 | .66 | 1. |

Table 25.- Percentage of the previous year's herd dead in the Assale Serbeouel

| | <u>Number died 1972</u> | | <u>% died</u> |
|-----------|-------------------------|------------------|-------------------|
| | <u>herd size</u> | <u>herd size</u> | |
| Assale | 341 | 749 | 45.5 |
| Serbeouel | 567 | 1553 | 36.5 |
| Total | 908 | 2302 | 39.4 |

Table 26.- % of the previous years herd (with the inclusion of the bron and surviving animal) with are dead.

| | <u>Number died</u> | <u>1972 herd size</u> (with the addition of surviving animals) | <u>% died</u> |
|-----------|--------------------|----------------------------------------------------------------------|---------------|
| Assale | 341 | 800 | 42.6 |
| Serbeouel | 567 | 1.714 | 33.1 |
| Total | 908 | 2.514 | 36.1 |
